



AfCAP
Africa Community Access Partnership



Rural Transport Survey Report

Pujehun town-Gbondapi, Pujehun District, Sierra Leone



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Cover Photo: Motorcycle taxis on the Pujehun town–Gbondapi road.

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Abstract

This study was carried out in the Coastal plains zone in Sierra Leone, focusing on the Pujehun town–Gbondapi rural road in Pujehun District in the Southern Province. The study sought to understand the existing transport systems for the rural communities along and within the road’s catchment area. The rapid rural appraisal methodology was used to gain a deep understanding of this, via in-depth qualitative interviews with transport users, operators, regulators and local experts concerned with socio-economic development. Pujehun town, the district capital, served as transport, services and market hub for the inhabitants along the surveyed road, but the Gbondapi market attracts buyers and sellers from far away. The study showed that during non-market days, motorcycle taxis are the main mode of transport providing daily rural transport services, preferred by their users for their flexibility but disliked for their relatively high fares. During the Gbondapi market days, all forms of transport – motorcycle taxis, car taxis and mini buses – increase significantly, and the village is also visited by small trucks taking freight and passengers. Passenger boats also dock at the Gbondapi jetty. The study recommends that the condition of the road be improved; that the provision of cargo motor-tricycles alongside motorcycle taxis is promoted so that fees reduce; that connectivity between Gbondapi and the flood-plains communities is strengthened; and that there be at least one shared car taxi or mini-bus departing for Pujehun town each morning, according to a fixed timetable.

Key words

Rural transport services; Transport operators; Transport users; Transport regulators; motorcycle taxis; Intermediate means of transport (IMT); Coastal plains

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Acronyms, Units and Currencies

AfCAP	Africa Community Access Project
AsCAP	Asia Community Access Project
CHW	Community Health Worker
DFID	Department for International Development
DFR	Department of Feeder Roads
e.g.	For example
EU	European Union
FrT	Freight
HIV	Human Immunodeficiency Virus
GPS	Global Positioning System
GoSL	Government of Sierra Leone
hp	Horse power
ICT	Information and Communication Technologies
i.e.	That is
IMT	Intermediate Means of Transport
kg	kilogram
km	kilometre
MCT	Motorcycle Taxi
N	Number/sample size
n/a	Not applicable or not available
NMT	Non-motorised Transport
Pax	Passengers
ReCAP	Research for Community Access Partnership
RTS	Rural Transport Services
RTSi	Rural Transport Services Indicator
SLRA	Sierra Leone Roads Authority
SLRSA	Sierra Leone Road Safety Authority
t	tonne
TA	Technical Advisor
UK	United Kingdom
USA	United States of America
USD	United States Dollar
USDc	United States Dollar cent

Contents

Abstract	2
Key words	2
Acronyms, Units and Currencies	3
Executive Summary	5
Results from the study	5
<i>Transport users</i>	5
<i>Transport operators</i>	5
<i>Transport regulators</i>	6
<i>Local development experts</i>	6
<i>Conclusions and recommendations</i>	6
1 Introduction	7
1.1 Research Objectives	7
2 Methodology	7
3 Rural transport services: summary tables of key statistics and indicators	8
4 Rural transport services: report of survey findings	14
4.1 Overview of road situation and issues	14
4.2 Transport services situation and issues	16
4.3 User perspectives	18
4.4 Operator perspectives	21
4.5 Regulator perspectives	23
4.6 Development perspectives	25
4.7 Conclusions	27

Executive Summary

This report is one of three rural transport survey reports prepared under the Rural Transport Diagnostic Study in Sierra Leone. It presents the results of a study carried out in the coastal plains on the Pujehun town–Gbondapi gravel road in Pujehun District, Southern Province. The two other reports focus on Koinadugu and Bombali districts. The overall aim of the study was to understand the existing rural transport systems in Sierra Leone based on understanding the transport needs and preferences of rural women and men with different ages, occupations and abilities. Specifically, it aimed to understand the needs and perspectives of different road users in the rural communities along and within the catchment area of the selected road, as well as transport operators, regulators and those concerned with socio-economic development. It also identified constraining factors and good practices in Sierra Leone's rural transport services, allowing for evidence-based policy suggestions. The surveyed road, which is 18.3 km long and between 3 and 4 m wide, traverses a relatively flat terrain.

The field data collection took place from the 25th to the 30th of May 2017. It used standardised questionnaires to gather relevant data to help the researchers to understand the nature and character of rural transport systems in the coastal plains zone of Sierra Leone. The rapid rural appraisal methodology was used for the study. A key feature of the rapid rural appraisal methodology is its focus on gaining a deep understanding of the issues under investigation based on a limited number of in-depth qualitative interviews involving the local stakeholders and sector experts. The data collected was derived from personal interviews by the authors of this report, who were assisted by three senior employees of the Sierra Leone Road Safety Authority (SLRSA). Road traffic counts were conducted by locally recruited literates who were inducted and overseen by the SLRSA employees.

Results from the study

Transport users

- The motorcycle taxi (MCT) is the main mode of rural transport available to the population on a daily basis. All transport users indicated that they use the MCT. On non-market days, one or two 7-seater van taxis known locally as *poda-poda* pick up passengers in the morning for Pujehun and return in the afternoon. All other transport requirements are met by MCTs.
- On Gbondapi market days, not only does the number of MCTs on the road triple or quadruple, but car taxis, mini-buses and small trucks come to Gbondapi as well. In addition, up to 20 or 25 boats arrive at the Gbondapi jetty, each carrying up to 40 people and their produce.
- On an annual basis, MCTs are the main transporter of people, transporting twice the number of people as mini-buses. This is also true for freight, as MCTs transport approximately twice the amount of freight on an annual basis as mini-buses.
- The fare per passenger kilometre for mini-buses is USDc 8, compared to USDc 7 for car taxis, USDc 4 for trucks, and USDc 12 for MCTs. This makes MCTs the most expensive form of transport.
- Generally, transport users were very dissatisfied to moderately satisfied across the board and across the various modes of transport.

Transport operators

- Ten (10) transport operators were interviewed: three truck drivers, three operators of mini-buses, a car taxi operator and three motorcycle taxi operators. Whereas the operators of the car taxi and mini bus indicated that they belonged to a drivers' union, not all motorcycle

taxis operators or truck drivers belonged to a union. Most of the MCT riders in Gbondapi did however belong to the local MCT union.

- All the respondents were dissatisfied with the poor road condition which resulted in high operating costs. This was particularly true for operators of mini-buses, car taxis and motorcycle taxis. Access to formal credit was limited or non-existent. There were no security concerns raised. Safety issues were not raised as a particular concern either, perhaps reflecting the intimate knowledge that most operators have of the road, which includes knowledge of potentially dangerous sections.

Transport regulators

- Three (3) regulators were interviewed. Overall, they were satisfied with the level of compliance for all modes of transport, with the exception of motorcycle taxis, for which there are fewer regulations in place. The number of MCTs has grown exponentially over the last ten or fifteen years, which has left regulators simply overwhelmed.
- Regulators indicated that they were dissatisfied with the safety of the road for all modes of transport. This reflects limited maintenance of the rather narrow road, which is navigated by all kinds of transport modes in large numbers on market days.

Local development experts

- Four (4) stakeholders concerned with socio-economic development were interviewed. They indicated that all modes of transport made satisfactory contributions to development. Foremost, this underlines the crucial role of public transport services in the socio-economic development of rural areas. The MCT received the highest average score, receiving full marks for both 'young people's empowerment' and 'mobile phone integration'. Both mobile phones and MCTs – which are overwhelmingly driven by young people – have revolutionized rural access and connectivity, and there is clearly a synergy between them.
- The truck, as can be expected, received a mixed (but still high) score. It scored highly on its contributions to agricultural development, but low on its contribution to maternal health issues.

Conclusions and recommendations

- The motorcycle taxi is the dominant and most readily available mode of transport on the surveyed rural road, taking the largest share in both passenger and freight transport on an annual basis. MCTs navigate the surveyed road (and feeding roads) each day, and their number nearly quadruples on Gbondapi market days.
- Taxis and mini-buses serve the road on normal days in limited numbers, mostly with a morning and a late afternoon service. However, during the Gbondapi market days, taxis – and in particular minibuses and light trucks come from far away for trade purposes, transporting freight and passengers in numbers and distances too great for the MCT.
- Regular road maintenance should always be carried out – both from a convenience and safety perspective. It may not at first seem that there is a strong case to be made for this, compared to many of the other feeder roads in the country which require maintenance. However, on the two Gbondapi market days, the road condition is very poor relative to the amount of traffic the road handles. This will only worsen once the Bo -Liberian border road is paved (with possible extension to Pujehun town), which will increase traffic and accessibility further.
- In light of the above bullet-point, and given the low satisfaction scores by users across the various modes of transport, there is a case to be made for the widening and paving of the Pujehun town-Gbondapi road. This will not only enhance development in the area (including

the coastal plain areas), but will also provide a better transport experience. As one interviewee stated: 'better roads attract better vehicles'.

- Promoting the use of the cargo motor-tricycle – which can be used for 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, addressing a main issue of MCTs.
- Gbondapi is the gateway to a significant hinterland which is, for now, extremely poorly connected. Without affordable public transport, the full development potential of these low-lying flood-plains and the human rights of the people living there cannot be fully realised.
- Without a senior secondary school, young people in Gbondapi and its catchment area are dependent on Pujehun for their senior secondary education. Travel fares are too high for daily commuting.

1 Introduction

1.1 Research Objectives

The overall aim of the rural transport diagnostic study was to understand the existing rural transport services and the implications that these have for policy and practices in Sierra Leone. This was based on understanding the needs and perspectives of different transport users, including women and men in different rural communities along a representative rural road in Pujehun District in the southern Province in Sierra Leone.

2 Methodology

The study was carried out from the 25th to the 30th of May 2017 on the Pujehun town–Gbondapi road in Pujehun District. It gathered requisite information to help the research team understand the nature and character of rural transport systems in the coastal plains area in Sierra Leone. The rapid rural appraisal methodology was used for the study (Starkey et al., 2013). The data collected was elicited from the rural communities along and within the catchment area of the selected study road to produce some valuable 'order of magnitude' estimates relating to movement of people and goods in the rural communities, transport fares, trends in transport services, and preferences of road users. Another criterion applied was that the rural transport services under consideration are for the medium travel distance range, between 5 km and 75 km.

The information and results derived for this rural transport study relate to one specific rural road in the coastal plains zone, namely the Pujehun town-Gbondapi road. The road is about 18.3 km long, and with the exception of the first 200 or 300 m in Pujehun town where it is paved, it is an unpaved gravel road. This study was based on about 45 in-depth interviews that provided indicative data on the transport needs and preferences of the local stakeholders and experts. About thirty road users were interviewed, balanced for gender. The road users interviewed included farmers, traders, students, the elderly, and the disabled. Other interviewees included people using transport to access health care, maternal healthcare, formal employment, and financial services, and people travelling for socio-cultural reasons, such as reaching funerals, naming ceremonies, and the like. For some of these categories, there were only two people interviewed (one male and one female).










Similarly, in-depth interviews were carried out with a small number of transport operators for the transport modes plying the route, people familiar with regulatory issues (such as traffic police or transport union officials), and those concerned with development issues (such as local nurses, head-teachers, local NGO workers, etc). The people selected for the interviews had clear knowledge and understanding of the relevant issues relating to the transport systems along the study road. Their informed opinions were respected and formed the basis for understanding the existing transport

services regulatory framework and the policies and practices applicable to the selected rural road and its catchment area. The data generated, though small, provides a clear picture of the existing rural transport situation. During the data gathering stage, efforts were made to ensure that data obtained were inherently consistent and represented the best possible estimates of the real situation in the study area. This was done by constantly comparing the researchers' data to identify and, if necessary, ask follow-up questions in order to obtain a clearer understanding of why, for instance, an answer from one interviewee was different to the answers of others.

Traffic counts were carried out on a 'normal' weekday and on a market (busy) day at two locations in total. Although Pujehun town has a sizeable market, which may be expected from a District Capital, the Gbondapi market – spread out over two days – is the main market in the area. This market attracts sellers and buyers from faraway, including from Freetown and Liberia. The traffic counting teams classified the traffic and recorded the counts during the 12-hour daytime period from 6:00 am to 6:00 pm. The classified counts involved conventional vehicles, intermediate means of transport (IMTs), and non-motorised transport (NMTs) such as bicycles and pedestrians.

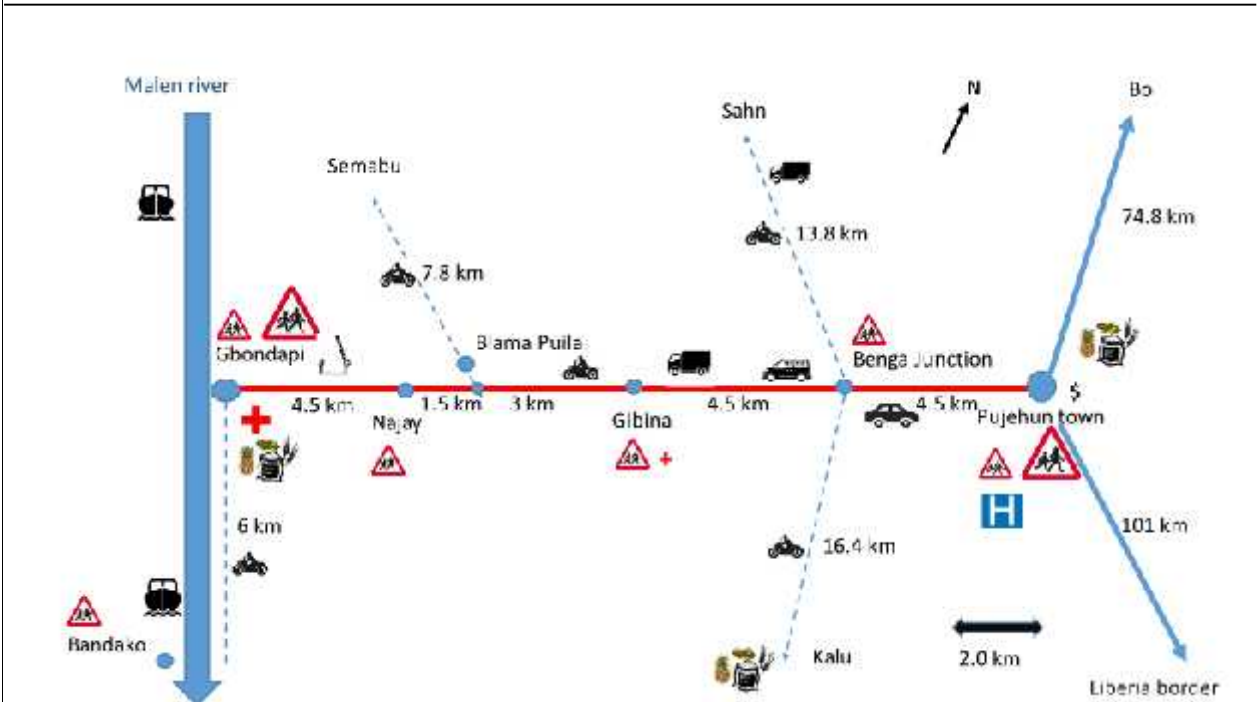
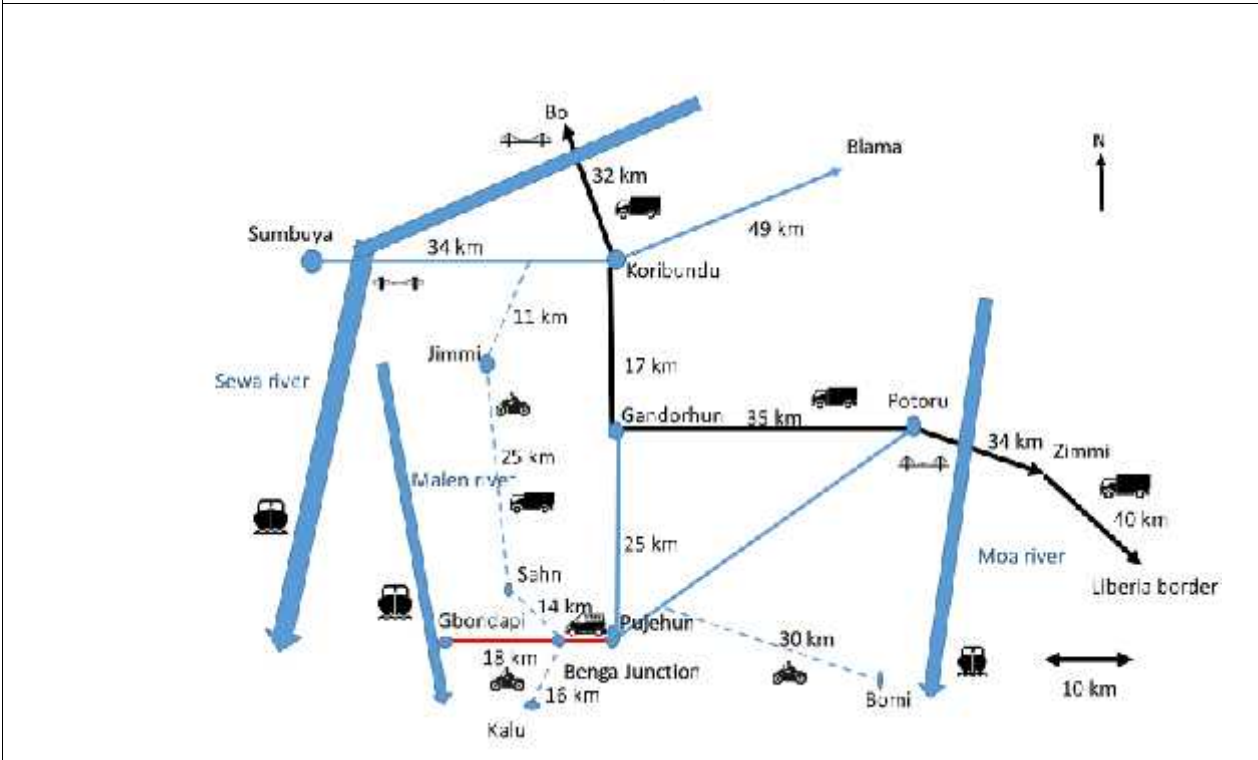
The key data is presented in eight standardised tables. The first four tables summarise most of the key statistics and the assessments and opinions obtained from the surveys, while the last four tables summarise the opinions of the road users, the operators, the regulators, and those concerned with development. Maps and photographs have also been added to the text to provide further information on and to contextualise the surveyed road.




















3 Rural transport services: summary tables of key statistics and indicators

RTSi Road Report Table 1. Road information			
Road name: Pujehun – Gbondapi			
Dates of survey: 25th May 2017 – 30th May 2017			
District, Region and Country: Pujehun, Sierra Leone			
Road type: Gravel		Responsible authority: Pujehun District Council	
Road start location: Pujehun town		Start GPS coordinates: Latitude: 7°21'25" Longitude: 11°43'18"	
Road finish location: Gbondapi		Finish GPS coordinates: Latitude: 7°19'10" Longitude: 11°50'56"	
Road length: 18.3 km		Catchment population 5,500 to 20,000	
Road quality and condition from different perspectives			
Road authority	Operators	Development	Safety
			
<p>The more stars (or the higher score) the better.  = Very dissatisfied (= 1).  = Dissatisfied (= 2).  = Medium (=3).  = Satisfied (= 4).  = Very satisfied (= 5).</p>			
Summary of road geography and socio-economic situation			

The surveyed road runs from Pujehun town, the capital of Pujehun district, to the river-side village of Gbondapi. This fairly narrow gravel road ranges between 3 to 4 metres in width. Maintenance has not been conducted for several years, so 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. In combination with the already narrow width of the road, this 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 Tuesdays and Wednesdays, 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 Tuesdays, the Gbondapi market trades in agricultural products and manufactured items, while on Wednesdays 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. Others come from as far as Bonthe, which is a 20-hour boat journey over the Malen, Waanje and Kittam rivers.

Maps of road showing context (directly below) and road features (middle) plus map legend (far below)

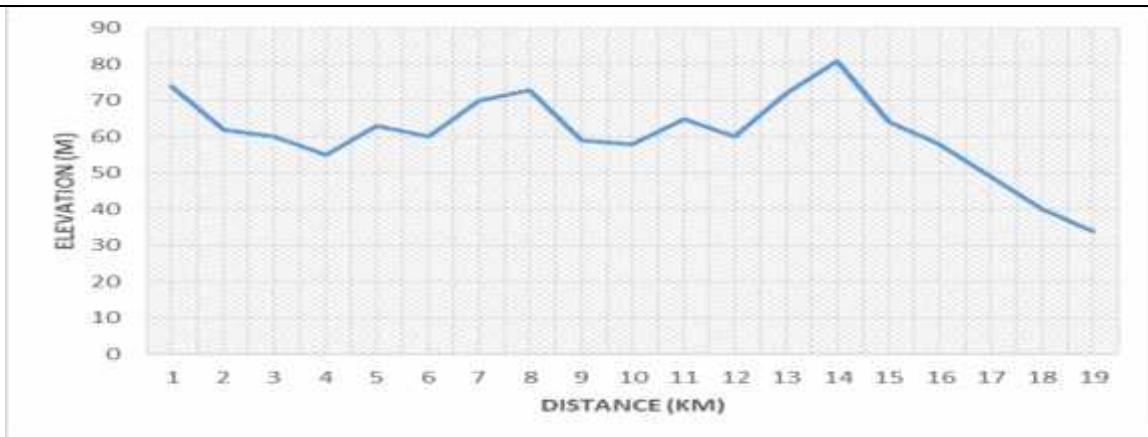


	Motorcycle		Ferry		Control barrier (on market days)
	Car taxi		Bridge		Market
	Minibus, minivan		Hospital		Town hub
	Light truck		Clinic, health post		Village hubs
	River		Secondary / Primary school		Bank
	Surveyed Road				
	Feeder road / track				
	Main road				
	Highway (to be tarred)				

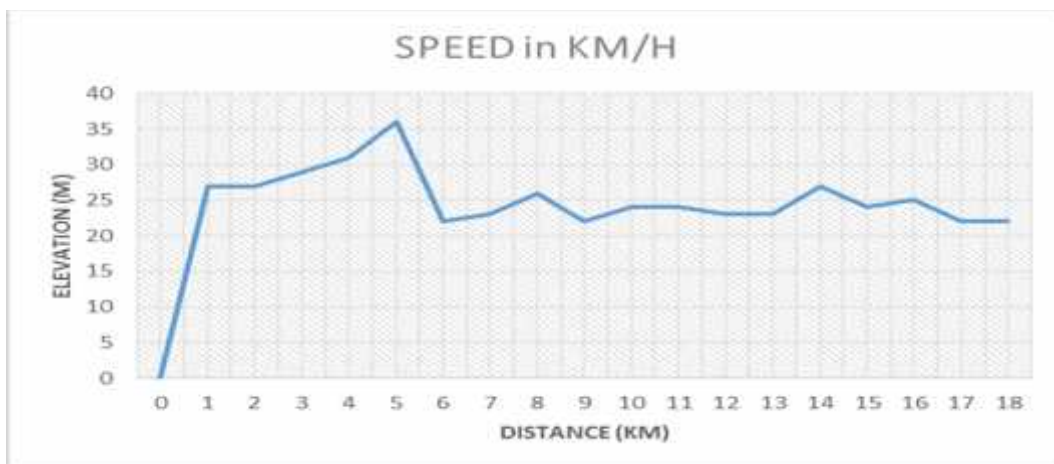
Schematic map of 'straightened' road with features



GPS elevation track



GPS speed track



Description of hub and spoke patterns				
<p>Pujehun town is small, despite being the district capital. This can be partly explained by the fact that it is not along a main trade route. 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 upgraded to a paved highway in 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 condition. On non-market days, few if any trucks or car taxis travel on the surveyed road. One mini-bus travels from Gbondapi to Pujehun town in the morning and returns in the evening. Nearly all transport requirements on non-market days are met by motorcycle taxis. Gbondapi has about 15 resident motorcycle taxi riders. Almost all of the villages along the road, plus many of the villages along roads which feed into 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.</p>				
Intermodal connectivity (one to five stars, the more stars the higher the level of satisfaction)				
‘Feeding’ ⁷ (getting to the road)	User satisfaction	★☆☆☆☆	Development impact	★★★★☆
‘Linking’ ¹⁰ (to onward destinations)	User satisfaction	★★☆☆☆	Development impact	★★★★☆
<p>The more stars (or the higher score) the better. ★☆☆☆☆ = Very dissatisfied (= 1). ★★☆☆☆ = Dissatisfied (= 2). ★★★☆☆ = Medium (=3). ★★★★☆ = Satisfied (= 4). ★★★★★ = Very satisfied (= 5).</p>				

Table 2. Traffic and transport along the road												
Daily traffic flows					Fleet	Passengers and small freight						Change in past year ¹²
	Normal	Busy	Disrupted	Impassable	No of vehicles operating on road	Trip transport		Daily transport		Annual transport		
						normal day		normal day		adjusted for traffic fluctuations ¹¹		
						per vehicle		all vehicles				
						Pax	Frnt	Pax	Frnt	Pax	Frnt	
						(no)	(kg)	(no)	(kg)	(no)	(t)	
14	15	16	17	18	19							
Minibus	5	25	2	0	6	10	213	70	5,120	54,213	4,795	0
Light truck	4	8	1	0	4	4	567	18	2,267	14,905	3,041	+
Motorcycle	190	400	20	70	88	1	23	220	73,920	115,820	10,755	0
Totals	209	433	23	70	105	24	803	350	81,307	184,939	18,600	

Table 3. Rural transport services key operational statistics for major transport modes





				
	Minibus	Taxi	Light truck	Motorcycle
Contribution to annual passenger transport (% of market)	29	No data	8	63
Contribution to annual small freight transport (% of market)	25	No data	17	58
Fare per km in USDc	8	7	4	12
Journey time (average speed on normal days) in km/hr	19	27	37	18
Transport frequency on normal days (number of opportunities to travel per day)	10	No data	5	19
Number of days a year with 'normal service'	144	No data	124	211
Number of busy days a year	101	104	121	104
Number of days a year with disrupted service	90	No data	90	30
Number of days a year with no transport services	30	No data	30	20
Reliability factor(s) (%)	75	No data	77	31
Men as % of passengers/day	29	43	52	58
Women as % of passengers/day	66	57	46	31
Children as % of passengers/day	5	No data	1	11
Cost of 50 kg accompanied freight in USDc per tonne-km	64	59	55	123
Cost of 200 kg consigned freight in USDc per tonne-km	58	88	61	46
Safety: Recalled no. of accidents per 100,000 vehicle trip	206	No data	715	200
Security: Recalled no. of incidents per 100,000 vehicle trip	0	No data	0	60
Typical age of vehicle	No data	21	19	2
Typical fuel consumption of vehicles (litres per 100 km)	No data	No data	22	4
Typical operating distance per year in km	No data	No data	36,720	15,120
Daily hire charge for use of vehicle (entrepreneurial mode)	No data	No data	0	No data
Indicative vehicle operating costs in US\$ per day for entrepreneurial mode, includes all costs and hire charges but not operational labour/profit	No data	No data	10	No data
Daily cost of vehicle ownership/fixed costs (ownership mode)	No data	No data	11	3
Indicative vehicle operating costs per day for ownership mode (includes all costs for ownership mode except profit and operational labour)	No data	No data	35	No data
Total revenue per day (USD)	No data	26	99	24
Total revenue per kilometre (USDc)	No data	No data	55	22
Total revenue per passenger kilometre (USDc)	No data	No data	55	11
Percentage total revenue due to freight (%)	No data	No data	12	67
Regulation compliance (overall assessment)	4	4	4	2
Development impact (overall assessment)	3	3	3	4

Table 4: User satisfaction with main RTS modes (disaggregated by gender)

	Minibus		Light truck		Motorcycle	
	Men	Women	Men	Women	Men	Women
Sample size (N)	7	7	2	1	16	14
Fares	★★☆☆	★★☆☆	★★☆☆	★☆☆*	★★☆☆	★★☆☆
Journey time	★★★★	★★☆☆	★★☆☆	★☆☆*	★★★★	★★☆☆
Operational features	★★☆☆	★★☆☆	★★☆☆	★☆☆*	★★★★	★★☆☆
Freight	★★★★	★★☆☆	★★☆☆	★☆☆*	★★☆☆	★★☆☆
Safety and security	★★★★	★★☆☆	★★☆☆	★☆☆*	★★★★	★★☆☆
Comfort	★★☆☆	★★☆☆	★★☆☆	★☆☆*	★★☆☆	★★☆☆
Universal access	★★★★	★★☆☆	★★☆☆	★☆☆*	★★★★	★★☆☆
Overall satisfaction	2.6	2.0	1.7	1.0	2.5	2.3
<p>The higher the score the better. ★☆☆* = Very Dissatisfied, ★★☆☆ = Dissatisfied, ★★★** = Medium Satisfied, ★★★★ = Satisfied, ★★★★★ = Very Satisfied</p>						

4 Rural transport services: report of survey findings

4.1 Overview of road situation and issues

Hub and Spoke patterns

The 18.3 km Pujehun town-Gbondapi road runs in a south-westerly direction from Pujehun town towards the mangrove and swamp areas which lay between the slightly elevated coastal plains and the Atlantic Ocean. On the still popular but rather outdated Oxford printed map of Sierra Leone (no date), the surveyed road is indicated as a ‘main road, paved’ but there are no indications that the road was ever paved. From Pujehun town it is 24 km to Pandajuma junction where one joins the road which runs from Bo to the Liberian border which, as explained, is currently being upgraded to a paved highway under a €105m EU-funded project. The distance from Pujehun town to Bo is 77 km and the distance from Pujehun town to the Liberian border, via Potoru, is just less than 100 km. The surveyed road is under the authority of Pujehun District Council.

Along the surveyed road, there are six villages between Pujehun town and Gbondapi. Furthermore, leaving Pujehun, after approximately 5 km there is a crossroads at Benga where one can turn right to Sahn along a good road (approximately 15 km) or left to Kalu (approximately 16 km) along a road in deplorable conditions. Along these two feeding roads there are again a few villages.

Road characteristics and accessibility

The physical condition of the surveyed road is mixed. Some sections are relatively free of potholes and have remained in good condition, while others have deep potholes which fill up with water during the rainy season. The road is quite narrow, particularly for one that is frequented by trucks, with most sections between 3 and 4 metres wide. There is limited and irregular clearing of drainage channels or brushing of the road sides taking place. Some of the older villagers blame the influx of NGOs for this, with their discourse of ‘human rights’. This has made it difficult to mobilise the village youth for unpaid ‘community labour’, which traditionally took care of tasks such as road maintenance. The Gbondapi motorcycle union chairman stated that the motorcycle taxi riders regularly do some of the clearing of roadsides and repairing potholes.

Pujehun has a dry season (November to April) and a rainy season (May – October). During the rainy season, and particularly from July to September, the rains are very heavy. The road becomes difficult

to navigate and there are times when only the agile motorcycle taxis and trucks are able to pass. During the rainy season, the Malen River at Gbondapi starts to rise and the low-lying lands around the village become flooded (including the vast Boli-land community rice farm). Even after the worst rains have stopped, the surrounding lands remain flooded for some time. The villages along the surveyed road, along feeding roads and across the river are all built on natural elevations in the area which are not flooded. The highest point (Pujehun) is just 80 metres above sea-level while Gbondapi is 40 metres above sea-level. In-between the road is relatively flat, with 95 metres of ascent and 135 metres of descent over the course of the 18.3 km long road.

Agricultural Characteristics and population

The land, particularly the annually flooded plains, is very fertile. Rice is the major crop for consumption and surpluses are sold. Gbondapi has a community farm covering many square kilometres. Community members can 'reserve' a plot if they can pay for the ploughing, which is done by a community tractor (costing about Le 250,000 for an acre). Palm oil and coconut oil, vegetables such as pepper and garden eggs, groundnuts, and pineapples are just some of the over 20 different grains, vegetables and fruits cultivated. There is some livestock (mainly chicken), but fishing provides the main source of animal protein to be consumed and sold. Most villagers in Gbondapi and on the other side of the river have dug-out canoes and fishing nets. Fishing takes place throughout the year.

Most of the people living in the road catchment area are from the Mende ethnic group, with Mende and Krio the main languages spoken. There are some other ethnic groups (including Sherbro from Bonthe) but none of the interviewees indicated any ethnic tension or marginalisation. Given its somewhat cut-off or end of the line location, Pujehun town and Gbondapi were saved from most of the civil war violence (1991-2002) – except at the initial stage when the main protagonist, the Revolutionary United Front, launched a second invasion into Sierra Leone from Liberia at Pujehun district. Again, in 2014, when the Ebola Virus Disease outbreak started and ravaged across Sierra Leone, Liberia, and Guinea, leading to more than 25,000 deaths, Pujehun was spared the worst of it. It seems that sometimes being somewhat cut-off can have its advantages.

Market Characteristics

The Gbondapi market surpasses the Pujehun market, and operates every Tuesday and Wednesday. On Tuesdays, agricultural produce and manufactured items (cloths, electrical equipment, cooking items, etc.) are marketed, while on Wednesdays it is mainly fish – mainly dried, but also fresh – that is marketed. People travel from as far as Bo, Kenema, Freetown, and Liberia to attend the Gbondapi market. The population during the market days increases tenfold and with people staying overnight – there is a specially constructed guesthouse for the more affluent traders – this is a major money making event for Gbondapi. More people arrive with outboard engine-powered wooden boats, carrying 40 people or so and their produce, from as far as Bonthe and the Liberian border. Many more come from across the river where a large flat-plain is located with over 30 villages, which all depend on Gbondapi as their main market. During the months of February to June, up to 25 passenger boats arrive at the village's jetty – built in 2010 – with men and women who have travelled to sell their produce. The Sierra Leone Maritime Administration has a three person delegation stationed in the village and a specially built office overlooking the jetty. On those days, the traffic between Gbondapi and Pujehun is hectic, with motorcycle taxis, car taxis, mini-buses and trucks all making their way to and from the village on the narrow potholed road. From July onwards, the water level of the Malen river becomes dangerously high and the market dwindles somewhat. Moreover, during these months, only big trucks can reach Gbondapi because sections of the road are flooded.

Social Amenities

As a District Capital, Pujehun town has many facilities including a hospital, government buildings, a police station, a bank, and secondary schools. Gbondapi has a clinic (Basic Emergency Obstetric Care), primary schools, a junior high school, a police station, and even a Marine Administration building. It has a storeroom, a covered market (although this is far too small to cater for all traders), and perhaps most importantly, a 200 m long concrete reinforced jetty which becomes essential during the rainy season when the river floods the low-laying mud quay. Most of the villages along the road have primary schools and water-wells, and the whole catchment area benefits from mobile phone coverage.



Figure 1 (left): The Gbondapi jetty and empty market stalls on a non-market day.

Figure 2 (right): Passenger boats arriving at the Gbondapi quay at the Tuesday market.

4.2 Transport services situation and issues

Transport services on the Pujehun town–Gbondapi road are dominated by the motorcycle taxi. On non-market days just one mini-bus travels to Pujehun in the morning, returning in the evening. Missing this one leaves a traveller with two options: walking or taking a MCT. On non-market days, demand for transport is limited, and if this demand would be served just by mini-buses or car taxis a trip would hardly be financially viable for the operator due to long filling-up times. Waiting two or three hours before the taxi takes off would be equally unpopular with the passengers. On market days the picture is rather different, although MCTs continue to provide the bulk of transport opportunities. During the Tuesday and Wednesday markets, mini-buses (mainly of the smaller 7seater type) frequent the road, often departing from Pujehun car park. Normal mini-buses (known in Sierra Leone as *poda-podas*) with anywhere between 15 and 20 seats come from as far as Bo, Kenema and beyond. Some, but not many, car taxis can be spotted making the journey to Gbondapi, again leaving from Pujehun car park. Medium-sized trucks also ply the road on market days. These nearly always come from Bo, Kenema and further afield and are in most cases hired by one or more traders who deal in larger quantities of products.



Figure 3 Truck from Liberia at the Gbondapi market



Figure 4 Mini-buses loading at Gbondapi market

Besides the weekly fluctuation, there is also some annually. Starting from December and onwards the swamp rice is harvested. During the dry season a wide variety of vegetables are harvested and brought in by the boats. This is the busiest time regarding transport services. Towards the rainy season (from May/June to September/October), trade in fish becomes more dominant, although the Gbondapi market reduces in size due to declining vegetable supply and increasing difficulties in accessibility. These accessibility difficulties concern both travelling over land, given that sections of the road become flooded, and travelling over water, because of the swollen river making boat journeys more dangerous.

Transport Services for Market purposes

Pujehun town has a market day on Thursdays and Kalu has one on Fridays, but neither is the primary market for the villagers in the catchment area of the surveyed road. During the non-busy days of Thursday to Monday, motorcycle taxi transport is the main form of motorised transportation. The traffic counts clearly show this. One count was located just outside Pujehun, approximately 1 km onto the surveyed road. The other traffic count was located opposite a school just before entering Gbondapi. Motorcycle taxis were used by both men and women. Children were also carried, often with their parents, but in some cases MCTs acted as mini school buses, carrying three or four uniformed primary school pupils. This was not perceived as a safety risk by the parents as they often use a 'trusted' rider for these school runs, who they know will not speed excessively.

With few if any other transport services available on non-market days, the motorcycle taxis hold a monopoly position in the transport market. Passengers complained about the high fare for the Pujehun town–Gbondapi trip, of between Le 12,000 to 15,000 (about 1.60 to 2.00 US\$). At the same time the villagers appreciated the motorcycles for their presence – before, people had no other choice but to walk – and availability on demand. On market days, the number of motorcycle taxis in Gbondapi easily quadruples. Most of these come from Pujehun town, but one should not be surprised to see a rider from Bo or Kenema in the pack, with a trip to Bo charged at around Le 60,000. For some of the larger traders these high fares are worth paying – 'time is money' they state – and these costs can easily be recouped by arriving early at a trading site.

The trucks arriving on the market days normally stay overnight in Gbondapi, adding dried fish on Wednesday to the agricultural produce acquired on Tuesday. Few are members of the truck driver union, accusing it of being ineffective at best and conniving with the police at worst. Some of the operators are also the owners of their trucks.



Figure 5 (left): Crossing the Malen River to Bandakor.

Figure 6 (right): Motorcycle taxis riding between Gbondapi and the Bandakor crossing along the community Boli rice lands.

On market days, a police barrier is erected in front of the Gbondapi police station. This must be a regulatory breach, couched under the 'need for security checks.' All vehicles are stopped and, according to the operators, are required to pay between Le 2,000 (for *Okadas*) to Le 50,000 (for trucks), as a one-off. This is irrespective of the technical standard of the vehicle, i.e. if it is fit for road, and whether or not the permits and licenses are in place. The vehicles taking the Koribundu-Sahn by-pass, mainly trucks and mini-buses, encounter another checkpoint, but here they are only checked if they do not have any property that belongs to the palm-oil company on board: no bribes are demanded.

Beyond the feeder road

Standing at the end of the Gbondapi jetty looking across the Malen river, one can see endless plains: a fertile flat land, which is annually flooded. There are about 30 communities on the other side of the water. The gateway to these flatlands is the village of Bandakor: 45 minutes downstream in a dugout canoe or a twenty minute/5.7 km ride on the back of an *Okada* along the massive Gbondapi community rice farm – and then a quick crossing in a dug-out canoe. During the rainy season this last option is not possible because the road squeezed between the river and the community farm becomes flooded as well. Bandakor, and for that matter any of the villages on that side of the river, face severe restraints in accessibility. Medical emergencies require a long journey by foot, carried in a hammock, canoe and/or motorcycle taxi. Gbondapi health centre has a speedboat for these occasions, but it is parked idle next to the clinic because the 75 hp engine uses too much fuel and was therefore unaffordable for most health-seekers. There are basic structures in the village which act as a primary school – one being a former store for drying fish – for Bandakor and the surrounding villages, but junior and senior high students have to travel to Gbondapi or Pujehun town respectively. Because of the long journey, students often stay with relatives in these towns. There are three *Okada* riders in Bandakor providing motorized transport to and from the other villages, but again only in the dry season. During the rainy season it is the dugout canoe that serves as (public) transport provider. Bandakor and the other villages produce significant amounts of fish, vegetables, and rice, but transport, or more precisely the limited availability and capacity of it, seems to be a constraining factor in fully realising the economic potential of these coastal plain areas. Source?

4.3 User perspectives

A total of 28 users of the various means of transport were interviewed. The gender distribution was as follows: 15 men and 13 women. The categories included farmers, traders, the disabled, the elderly, students, health users, maternal health care and those using transport for employment. In a number of cases there was an overlap between the categories, e.g. farmers stating that they were also doing some trading, health users stating that they were farmers, etc. Nearly all of the users indicated that they predominantly use motorcycles. Mini-buses were often preferred, as these are cheaper to use and provide more comfort, but few run during non-market days. In general, users commented on one or two different modes, which helped the users to reflect on and compare their responses.

With mini-buses only serving the villages once a day on normal days, motorcycle taxis are the main form of rural transport available for the population. Given that nearly every community had resident MCT operators, people found it in general relatively easy to find transport, as long as one is willing to pay the MCT premium (approximately double the amount of the mini-bus fare). But with limited competition, people often have no choice. A common problem at 'end of the line' communities, where taxi and mini-buses only leave if full, resulting in long waiting times and few opportunities for people living in communities along the road to find a vehicle not already completely full, was therefore not experienced. While the departure of the MCT is nearly instant

when embarking, it does not travel particularly fast in comparison with the other modes of transport (see table 3). This is likely to reflect the heavy 'load' (e.g. two or three people on it) that the MCT normally takes and the request by the operator to the passengers to disembark when encountering larger potholes. Note that table 5 shows that users were generally dissatisfied with the fares for motorcycle taxis, but so they were for the fares for minibuses and light trucks. More generally, all users are rather dissatisfied across the issues raised, with only satisfaction of males with minibuses scoring a number of 3 stars (moderately satisfied). Women are significantly less satisfied with the services of both minibuses and trucks.

Table 5: Summary of user satisfaction responses (disaggregated by gender)

Means of transport	Minibus		Light truck		Motorcycle	
Gender of respondent	M	F	M	F	M	F
Sample size (N)	7	7	2	1	16	14
Passenger fares						
Journey times						
Service frequency						
Service predictability						
Passenger capacity						
Small freight availability						
Small freight charges						
Small freight handling						
Medium freight						
Medium freight charges						
Medium freight handling						
Courier services						
Road safety						
Security						
Comfort: space						
Comfort: seat						
Comfort: surrounding						
Comfort: environment						
Access for vulnerable						
Average	2.6	1.9	1.6	1.0	2.5	2.3
Satisfaction for all transport types						
Gender of respondent	M		F			
Facilities at roadside stops						
Feeding intermodal connectivity						
Linking intermodal connectivity						
Average	1.8		1.6			
<p>The higher the score the better. = Very Dissatisfied, = Dissatisfied, = Medium Satisfied, = Satisfied, = Very Satisfied</p>						

The very low appreciation score of trucks by the one woman who indicated that she had experiences with travelling by truck, should be interpreted with care. However, if this is representative it can then perhaps be explained by the fact that trucks are often chartered and hardly take the time to take passengers on board, particularly if they have small freight with them. This reduces the overall number of transport modes easily available to women. Men may be able to hop on board, but women may be less able to do so if they travel with freight, or may find it physically more challenging to climb up at the back of a (fully loaded) truck. Indeed, the team found it difficult to find women who used the truck for transport in the first place. The services offered by the motorcycle taxis are more or less equally appreciated across the genders – or better put, both men and women are equally dissatisfied. But, as can be seen from table 3, women make up the largest percentage of users for the mini-bus and taxis. These modes are particularly convenient when trading medium quantities of freight, which is something women are more involved in than men.

MCTs offer the ultimate ‘service on demand’ and where there is mobile phone coverage (as is the case along the surveyed road) the MCT can even collect you (and your freight) at your house or farm. This is particularly useful for older or disabled people. One transport user commented on this: ‘*an old or disabled person can be picked up from his house and can travel between the rider and another passenger at the back. A farmer who doubled as a section chief in Gbondapi provided further insights: before we had to carry our sick people in hammocks to the hospital. Now they can take the Okada.* For those living close to Gbondapi town centre or for those who do not have a mobile phone, a short stroll to the centre will suffice because here the MCTs normally gather around a simple motorcycle bike repair shop. Hence, there is no need for time-tables. For the daily mini-bus service, again there is no timetable. It can come anytime between 7 and 10 in the morning (partly depending on where you are living

along the road) and average waiting times are around 1 to 2 hours. It is perhaps somewhat surprising that there is only one service by mini-bus per day, and given that most of the users indicated that there was a fair chance to get on it, it seems not even that popular. As in many rural areas, villagers tend to bundle their transport needs in one day per week, so on the market day they travel to sell and buy, visit services if necessary and see friends and family. The remainder of the week, there is no or less need to travel. In case of emergency there is always

A non-transport user

I am 44 years of age and was born in Gbondapi. I have been disabled for nearly all my life. As soon as I tried to walk as a toddler I developed this problem with my legs. My parents sent me to one of the small villages across the water to live with my aunt. There was no school in that village, so I never received any education. After the war I returned to Gbondapi. I was married here but my husband died ten years ago. Now I am a widow with three children to look after. I had three other children but they died. I survive by grinding peanuts and making it into butter for oil. It is very hard. Since I returned to the village I never travelled. Only once I went to Pujehun town because before the re-election of Kabbah [2007] he called upon all the disabled people to come to Pujehun town so that he could give them support. But the wheelchair I received then has long since been broken. Fortunately, I received another one from an NGO just two months ago. If I needed to travel I could take a taxi, but there is no need for me to go to Pujehun town. All I need is enough money to send my children to school, because here education is not free – we have to pay Le 5000 for each child.

the opportunity to take a motorcycle taxi or, as many of the users indicated and depending on type of emergency, one could use the *Okadas* as a courier. Actually, according to a motorcycle taxi operator courier services have become quite popular: *I transport fewer people than before because now people just ask me to bring something from town, rather than travel there themselves.* Because many of the riders were born and are based in the village (‘sons of the soil’) they would hardly refuse

to pick up an item for a small fee in Pujehun. The fact that table 5 indicates that both men and women are still dissatisfied with the courier services of the motorcycle taxis may either suggest that the fee for this courier service is still deemed too high or that not all MCT operators are keen to go around picking things up and wasting time. Many respondents felt that more frequent mini-bus services on non-market days would be appreciated and used. However, confronted with the rather likely scenario where one had to wait for one or two hours for the mini-bus to fill up, a large percentage of these respondents admitted that they would in the end opt for the motorcycle taxi.



Figure 7 (left): Head-loading now mainly takes place over shorter distances since the arrival of the Okadas.

Figure 8 (right): A mini-bus navigating a pothole on the Pujehun town–Gbondapi road.

Road Safety

Road safety and security were considered satisfactory by all users, except for the motorcycle taxis which tend to be considered as fairly unsafe. Two deadly accidents happened on the surveyed road in 2016. One involved a collision between a MCT with two passengers and a mini-bus. Both rider and passengers on the motorcycle died. Another deadly incident involved a motorcycle rider too. Two deadly incidents on an 18.3 km rural road is significant. The head of the MCT union in Gbondapi blames riders from Pujehun and further afield (Bo and Kenema) who are unfamiliar with the road. Lack of maintenance of the road itself may have further added to this. While a badly maintained road normally reduces the speed at which vehicles travel and thus increases safety, potholes make the bikes zig-zag to avoid these, where possible. As a result, they often find themselves on the wrong side of the road, and if there is no side-brushing, visibility in the corners is limited. This may offset the safety resulting from lower speeds. Indeed, the deadly incidents referred to above happened at a bend in the road. Table 3, perhaps remarkably, shows the highest accident rate for trucks. This can be partly explained by the long distances these trucks travel for each trip and partly by the fact that passengers travelling on trucks are somewhat exposed, therefore making them more prone to accidents (see picture 12).

All respondents were dissatisfied with the roadside waiting facilities. This is of little surprise as they were non-existent. Construction of these could be easily managed by local communities with local materials through a small financial incentive. However, with the instantly ready to go MCTs, there is arguably less need for roadside waiting facilities.

4.4 Operator perspectives

Three motorcycle taxi operators, one operator of a bush taxi and three minibus operators were interviewed. The team also interviewed three operators of trucks. Truck operators, as can be expected because of their sturdy vehicles, were the least dissatisfied about the road condition.

Vehicle Operating Costs

All operators complained about the high operating costs for their vehicles due to the poor state of the road. This resulted in higher fuel consumption, frequent oil changes and lots of repairs. In particular, those who were owner operators spent considerable money on their vehicles. Maintenance costs were so high in some cases that some found it difficult to make sufficient savings to replace the vehicle at the end of its working life.

Motorcycles

To illustrate, a new motorcycle costs around Le 6,500,000. The average lifespan of a commercial motorcycle in the rural areas is about 1.5 to 2 years. After that, maintenance costs become uneconomical and the bike is sold to someone at the lowest rungs of the MCT hierarchy or for spare parts, perhaps receiving Le 1,000,000 at most. Within this time, the owner-operator must not only save enough to purchase a new motorcycle, but will see daily costs of fuel, weekly costs of engine oil and police bribes, monthly costs of small repairs (punctures, light-bulbs, etc.) and six monthly costs for replacing tyres.

Furthermore, all operators complained about the need to pay bribes to the police. According to a motorcycle taxi operator in Gbondapi: *even if your bike is perfectly in order, you have to pay Le5000. If something is wrong it can be Le50,000 or they confiscate your bike.* Some riders do make good money (especially if they are the owner of the motorcycle), but with the first generation of young riders now becoming middle-aged and having started families, financial responsibilities are increasing as well.

Gbondapi's first Okada rider

I was born in Gbondapi 35 years ago. In 2000 I was made a Peacemaker by the German NGO Kinderwelt Monitor. What I had to do was to go around to the various villages in case there was a conflict between people or villages. I was provided with a motorcycle from the project. In the next few years I saved money from my salary and in 2004 I bought my own motorcycle so I could become a MCT rider. I was the first in my village to do so, but I saw the *Okada* business in Bo and Kenema, so I knew it is was a profitable business. It was only in 2010 that another person started to ride in this village. Now there are nearly 20 riders based in this village and when you take into account all the villages along the Gbondapi – Pujehun road, and the villages that are just off it, there must be 250 Okada riders. I have ridden the bike for many years now, but what I would really like is to get the money for a car taxi. The weather, both the sun and the rain, plus the dust, affects your health. In a car I would not be exposed to that. And because people know me and trust me, I know that I will get customers, just like I get now for my MCT riding.

Table 6: Summary of operator perspectives

Means of transport	Minibus	Taxi (saloon/estate)	Light truck	Medium truck	Motorcycle
Sample size (N)	3	1	2	1	3
Road condition for operations	★☆☆☆☆	★★☆☆☆	★★★★☆	★★★★☆	★★☆☆☆
Adequacy of working capital	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆
Facilities for formal credit	★☆☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆
Facilities for informal credit	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆
Adequacy of technical facilities	★★★☆☆	★★★☆☆	★★☆☆☆	★★☆☆☆	★★★☆☆
Regulatory disincentives	★★★☆☆	★★☆☆☆	★★★★☆	★★☆☆☆	★★★☆☆
Regulatory incentives	★★☆☆☆	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆
Active associations	★★★★★	★☆☆☆☆	-	-	★★★☆☆
Security risks	★★★★★	★★☆☆☆	★★★★☆	★★★★★	★★★★★
Average	2.5	2.1	2.2	2.4	2.6
<p>The higher the score the better. ★☆☆☆☆=Very Dissatisfied, ★★☆☆☆=Dissatisfied, ★★★☆☆=Medium Satisfied, ★★★★☆=Satisfied, ★★★★★=Very Satisfied</p>					

Furthermore, with so many motorcycle taxis present, competition is intense, and even price-setting by unions is only partly effective, with so many riders not being part of a union.

Mini Buses

The mini-buses (with a capacity between 10 and 20 passengers) provide limited services on non-market days. In the Pujehun town car park there were only two mini-bus operators who served the Pujehun town–Gbondapi road on a daily basis. Even during the Gbondapi market day, they only make one trip per day. This was not as a result of limited demand but more because of an over-supply of mini-buses during these days, with many coming from Bo and Kenema. Mini-buses have to queue and end up with just a single trip. The mini-bus operators indicated a small increase of their means of transport on the road, as compared to last year. The poor road condition results in regular repair jobs for the mini-buses. A 37 year old mini-bus operator complained: *because of the bad road we have to constantly repair the suspension and propeller shaft on our vehicles. Also, the tyres will not last long.* Basic repairs were done in Pujehun town, but for spare parts one has to travel to Bo. A total of two mini-buses and one car taxi regularly operate on the Pujehun town – Gbondapi road and all are members of the same union. In other words, and contrary to the MCTs, nobody operates outside the union.



Figure 9 (left): Okada hub at Gbondapi.



Figure 10 (right): Car taxi park at Pujehun town.

Operational Capital and Security

Access to credit is limited or non-existent, as table 6 indicates, but many of the car and mini-bus operators have joined informal saving clubs (*susu*). The mini-bus operator quoted before illustrates this informal saving mechanism: *we drivers are part of a susu. At any time there about 10 members. Every week we all pay LE250,000.* However, the amounts saved, are by far not sufficient to purchase a new vehicle, instead covering repair or household bills. All operators, except for an operator of a taxi, indicated that they are satisfied with the security issues: there are no particularly security risks on the road.

4.5 Regulator perspectives

The team interviewed three people who were in a position to provide a regulator perspective on rural transport services. These included a police officer at Gbondapi and a police officer at Pujehun town. A representative of the drivers union was also interviewed. While clearly the driver union represents the interests of their members, there is some degree of internal or self-regulation. Furthermore, recurring negative encounters of their members with other regulators, such as the police, may result in the union taking action to prevent these in the future. The Union representative commented on car taxis, mini-buses and light trucks – the MCTs have different unions – and indicated that technical compliance was medium at best: *poor roads attract poor vehicles.* However, he indicated that the modes of transport did fully comply with tax, financial and passenger insurance

regulations. Compliance with these is straightforward to check, as complying vehicles will show the appropriate window badge or sticker. However, compliance with operational, speeding and environmental regulations was moderate at best. Overloading and heavy overloading is common, and while the union may prevent this at the car park (to some extent) – perhaps because other vehicles have already lined up to take passengers – little can be done en route to prevent the driver from picking up more passengers and/or freight. At police checkpoints the driver may be fined because of this, but there is the general feeling that they will be fined anyway. A key concern for the drivers, according to the union representative, was the bad state of the road. Numerous potholes and the lack of side brushing made the road ‘fairly dangerous’ according to the interviewee.



Figure 11 (left): Overloading of motorcycle taxis is common in rural areas.

Figure 12 (right): The use of trucks for mixed freight/passenger transport is also common in rural areas.

Table 7: Summary of regulator perspectives					
Means of transport	Midi-bus	Minibus	Taxi (saloon/estate)	Light truck	Motorcycle
Vehicle technical compliance	★★★★	★★★★	★★★★	★★★★	★★★
Vehicle fiscal compliance	★★★★	★★★★	★★★★	★★★★	★★★
Insurance compliance	★★★★	★★★★	★★★★	★★★★	★★★
Operational compliance	★★★★	★★★★	★★★★	★★★★	★★★
Safety compliance	★★★★	★★★★	★★★★	★★★★	★★★
Environmental compliance	★★★★	★★★★	★★★★	★★★★	★★★
Regulatory planning framework	★★★★	★★★★	★★★★	★★★★	★★★
Safety of the road	★★★	★★★	-	★★★	★★★
Average	3.4	3.6	3.6	3.4	2.1
Number of people interviewed	3				
<i>The higher the score the better. ★★★★★=Very Dissatisfied, ★★★★=Dissatisfied, ★★★=Medium Satisfied, ★★★★★=Satisfied, ★★★★★=Very Satisfied</i>					

Overall, there is little difference between the midi-bus, mini-bus, taxi, and light truck regarding compliance issues, according to the interviewees. Clearly, as table 7 shows, the motorcycle taxi has the lowest compliance level. However, there are fewer compliance regulations (such as no financial or passenger insurance compliance conditions) for motorcycles in the first place. Being the most dominant form of transport in rural areas across Sierra Leone, there is definitely a need for further regulation of motorcycle taxis. Such regulation should however fully recognise the pivotal role the MCT plays in rural transport.

4.6 Development perspectives

For a development perspective and the contribution of the various modes of transport to this, we interviewed four people, including a midwife, a section chief, and a trade fair contractor, all at Gbondapi. The MCT was praised for its ability to pick up and drop off people at their preferred location, which was, according to the midwife, particularly useful for people with disabilities, for women with maternal health issues, and for people with health issues in general. She also praised the *Okada* as an ‘employer of youth’, although she believed that some teenage pregnancies in the community were caused by MCT

riders, perhaps enabled by the relatively good money they are able to earn. She also recalled the two deadly incidents over the last year which involved MCT riders.

The section chief generally praised the contributions of the MCTs to development and considered these more favourable than those of the car taxis, mini buses and trucks, but these are at least partly explained by the fact that the latter three only frequent the road during the Gbondapi market days. He mentioned that most villagers who had a mobile phone had the numbers of at least some MCT riders and in some cases of the taxi drivers as well. The section chief complained about the unsafe road as a result of lack of maintenance.

He explained that before the war this would have been sorted out by mobilising the community to do side-brushing and filling potholes under the obligatory ‘community labour’. However, as a result of the war and the post-war influx of NGOs sensitising the youth about their ‘human rights’, young people were no longer willing to do this and instead demanded payment for their labour. The involvement of the MCT riders in

Bicycles for Health

With motorcycles omnipresent in both urban and rural Sierra Leone, one may wonder what happened to its non-motorised cousin – the bicycle. Although of course not practical as a public transport provider – unless in rickshaw format – they are nevertheless quite convenient for individual transport of people and goods, particularly where roads are relatively flat. Purchase costs are low and so are maintenance costs, while running costs are non-existent. Over the last few years, thousands of mainly traditional birth attendants have received basic health training and have become Community Health Workers. As part of their training and to fulfil their job more efficiently, they are now provided with bicycles, donated by the Ministry of Health and Sanitation through international funding. Just in Pujehun alone there are now over a thousand bicycles stored (see picture) ready to be handed out, together with a basic health kit, to the newly trained CHWs. Perhaps this will reignite Sierra Leoneans’ appreciation for this humble form of transport.



Figure 13 (left): The out-of-use medical speedboat, parked at the Gbondapi clinic.

Figure 14 (right): Hundreds of bicycles stored in Pujehun town, awaiting distribution to Community Health Workers.

side brushing and road-repairs, as raised above, illustrates one conclusion of this literature: youth are not necessarily unwilling to involve themselves in unpaid community labour, but they would like to be consulted in the process and prefer to work on something they will benefit from as well. The trade fair contractor – appointed by the council to oversee and regulate the Gbondapi market – indicated that the contribution of the MCT to agricultural and rural enterprise development was limited because of the motorcycles’ limited loading capacity. His views however maybe partly influenced by the bulk quantities that are traded during the market days and may not fully take into account the smaller petty trading of agricultural products taking place throughout the week.

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	★★★☆☆	★★★☆☆	★★★☆☆	★★★☆☆
Average	2.7	2.9	2.9	2.9
Integration with feeder transport			★★★★☆	
Integration with external transport			★★★★☆	
Road maintenance adequacy			★★★☆☆	
Number of interviews (people answer questions relevant to their experience)			4	
<p><i>The higher the score the better, from the development perspective. For example, the contribution of each mode of transport to the achievement of development goals in that area of concern by the people interviewed as: ★☆☆☆☆ = Very Poor, ★★☆☆☆ = Poor, ★★★☆☆ = Medium, ★★★★☆ = Good, ★★★★★ = Very Good</i></p>				

He also pointed out that the fares were too high: *to fight Ebola, an order was issued that MCTs could only take one passenger at the time and on top of that there was a recent fuel price increase, resulting in even higher fares.* In addition, he accused the MCT union of acting like a cartel, setting the fare prices. Perhaps because his function was directly related to the market, a time when car taxis, mini-buses and trucks visited the area, he was perhaps too negative in his assessment of the

MCT. For the future, he stated that unless the surveyed road was paved, the number of car taxis and mini-buses would not go up and the number of MCTs would not go down.

As can be seen from table 8, the development impact is deemed the highest for motorcycle taxis. This mode of transport scores high across the board. Light trucks also contribute significantly to development, but have some low scores for contributions to (maternal) health, education and access for disabled people. The mini-bus and taxi have a similar un-weighted average of 3.4 being generally considered as a positive force for development.

4.7 Conclusions

The Pujehun town-Gbondapi road is an interesting case. What looked very much like a dead-end road on the map – often an indication of limited economic activity and few traffic movements and transport services – turned out to be the opposite. Gbondapi – no more than a large village – becomes a bustling market town for two days each week. During those days it attracts traffic – mainly minibuses and light trucks – from as far afield as Bo, Freetown and the Liberian border. Much of the market activity is made possible because Gbondapi is the economic epicentre of a huge hinterland, where the land is fertile but transport difficult due to many rivers, deltas and creeks. There, transport takes place by boats, which for two days each week moor at the jetty of Gbondapi. As such there must be other villages in Pujehun and Bonthe Districts which are somewhat similar to Gbondapi: looking like end of the line sleepy communities, but becoming alive during market days because they serve a significant hinterland. The fact that there are few roads in this coastal hinterland does not mean that there are no people living there or that the people there are not involved in the market economy.

So the Pujehun town-Gbondapi road is one of two extremes. During five of the seven days each week, transport movements are limited and are mainly fulfilled by the motorcycle taxi. These, as in nearly everywhere in Sierra Leone, play an important role in the daily life of villagers, the socio-economic development of rural communities, and act as life-lines in cases of medical emergencies. But during the two market days transport movements increase dramatically and the modes of transport that can be spotted navigating the road are much more diverse.

It became clear to the team that the surveyed road – narrow and potholed – is a major brake on the development of its catchment area, more so because the road's catchment area includes the huge coastal plains area between Gbondapi and the Atlantic Ocean. Although it is beyond the Terms of Reference of this research – which focuses on transport services in rural areas, not on feeder roads as such – the surveyed road seems to be a case where paving or at the very least widening and regularly maintaining the road makes economic sense. Upgrading a feeder road to a paved road will always see an increase in the quality and quantity of transport services. However, this does not occur to the same extent everywhere. For Gbondapi, we are convinced that the multiplier effect on development by paving the road will be significant and economically viable. More so if one takes into account the current paving of the Bo -Liberian border road.

On non-market days, Gbondapi represents a dilemma which is quite common in rural areas. Users prefer the services of car taxis and mini-buses because they are cheaper, safer, more comfortable and are able to carry greater loads, but are willing to pay extra for motorcycle taxis because they are willing to depart instantly. Any user opting to use a motorcycle taxi rather than waiting for a car or mini-bus further increases the waiting time for the remaining passengers at the car station. The slow but steady introduction of the cargo motor tricycle – relatively cheap to purchase and run, but with a large capacity to transport people and/or freight – may overcome this dilemma, or at least ameliorate it to some extent. Fares can be lower than those for the motorcycle taxis, and due to lower operating costs as compared to the car taxi, they can run more frequently. Even if they are not fully loaded, the operator still makes a profit. Most (MCT) operators highlighted having no or limited

access to credit/loans as a major constraint. Here there can be a role for the government to make loans available (perhaps via transport unions) to further stimulate the introduction of the cargo motor tricycle.

Gbondapi services an extensive hinterland, which at the moment is characterised by poor and seasonally limited accessibility. Improving access is possible but may not be justifiable on solely economic grounds. That said, a basic cable ferry for the transport of people and motorcycles at Bandako does not have to cost much. While it would not be able to operate during the peak of the rainy season, the Malen river crossing would be safer, more convenient and extended by several months each year.

Finally, the police can play an important role in preventing vehicles from excessively speeding, overloading, or running while technically inadequate. Preventing these most extreme violations is clearly in the interest of passengers' safety. However, according to transport users and operators, police interventions at barriers are primarily aimed at extracting money. If the operator is willing to pay a bribe, no further action is taken. Hence, the suggestion is to remove as many police barriers as possible and work closer with the various transport unions to educate operators about the dangers of the above mentioned extremes.