Secure Livelihoods Research Consortium

Researching livelihoods and services affected by conflict

Rural road (re)construction

Transport and rural livelihoods in the conflict-affected and fragile state environment of South Kivu

Report 2

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About us

The Secure Livelihoods Research Consortium (SLRC) is a six-year project funded by DFID, Irish Aid and EC. SLRC aims to bridge the gaps in knowledge about:

- When it is appropriate to build secure livelihoods in conflict-affected situations (CAS) in addition to meeting immediate acute needs;
- What building blocks (e.g. humanitarian assistance, social protection, agriculture and basic services) are required in different contexts;
- Who can best deliver building blocks to secure livelihoods in different contexts; and
- How key investments can be better and more predictably supported by effective financing mechanisms.

The Overseas Development Institute (ODI) is the lead organisation with 7 core partners; Focus1000, Centre for Poverty Analysis (CEPA), Feinstein International Centre (Tufts University), The Afghanistan Research and Evaluation Unit (AREU), The Sustainable Development Policy Institute (SDPI), Humanitarian Aid and Reconstruction based at Wageningen University (WUR) and the Nepal Center for Contemporary Research (NCCR).

Acronyms

AFCAP	African Community Access Programme
ALOVETRACO	Association de Loueurs des Véhicules de Transporte de Congo
ANOVA	analysis of variance
CBA	cost-benefit analysis
CDF	Congolese franc
CEA	cost effectiveness analysis
DFID	Department for International Development
DRC	Democratic Republic of Congo
FHI	Food for the Hungry International
FONER	Fonds National d'Entretien Routier
IDP	internally displaced person
IMF	International Monetary Fund
IRC	International Rescue Committee
ISDR	Institut Supérieur de Développement Rural
LIC	low-income countries
MCA	multi-criteria analysis
MONUSCO	United Nations Stabilisation Mission in the Democratic Republic of the Congo
NGO	non-governmental organisation
FARDC	Armed Forces of the Democratic Republic of Congo
FDLR	Democratic Forces for the Liberation of Rwanda
PAM	Programme Alimentaire Mondial or World Food Programme
RTI	rural transport infrastructure
SLRC	Secure Livelihoods Research Consortium
SSATP	African Transport Policy Programme
UNOPS	United Nations Office for Project Services
USD	United States dollar
WFP	World Food Programme
WUR	Wageningen University

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Preface

The rural road (re) construction, transport and rural livelihoods study in the conflict-affected and fragile state environment of South Kivu Province is part of the Secure Livelihoods Research Consortium (SLRC) research programme in the Democratic Republic of Congo (DRC). The SLRC is a six-year global research programme in Afghanistan, Pakistan, Nepal, Sri Lanka, the DRC, South Sudan and Uganda.

In the DRC, research is located in South Kivu and Equateur and is executed by the Institut Supérieur de Développement Rural (ISDR) in Bukavu (DRC) and the special chair of humanitarian aid and reconstruction of Wageningen University (The Netherlands).

The programme in the DRC includes two surveys in years 2012 and 2015. The surveys explore people's views about the legitimacy of the state and how these are influenced by livelihoods status, access to social services and different types of service arrangements. It further includes in-depth research on the governance of the health sector, on the construction of livelihoods of internally displaced persons (IDPs) in the urban context and an explorative study on the effects of road construction and reconstruction, as well as transport, on rural livelihoods.

A great deal of effort has been made and substantial international investment has gone into the rehabilitation of the road infrastructure in the country, but little is known about the effects of road rehabilitation on the organisation of urban-rural transport or on rural people's lives. This report is based on a survey among 1250 households in South Kivu, a review of the transport sector and qualitative community research conducted in the fall of 2012. A second phase of the study is planned. When the second phase is completed (probably in 2015), a longitudinal analysis of these phenomena will be possible.

The authors wish to thank the senior staff of the ISDR, especially Mr Meschac Bilubi, who provided indispensable input into the realisation of this study. They would also like to thank Bart Weijs and Cecile de Milliano for contributions to the literature review and John Kadjunga and Alain Bamba for their assistance with the field interviews. A special thanks to Carolien Jacobs for her advice, and Jennifer Barrett and Maryam Mohsin who have done a wonderful job in reviewing and editing the report. They want to express especially their gratitude to Justin Hinyiza and the members of the survey teams for their commitment and dedication to work in sometimes very difficult circumstances as the security situation deteriorated significantly during the fieldwork.

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1 Introduction

1.1 Background to the study

The DRC has a long and tragic history of exploitation, plunder, predation and pillage, first under Belgian colonial rule and then under the regime of President Mobutu. The country's recent history is one of armed conflict, poor governance, pervasive poverty and massive human suffering. Since 2002, the country has been in a condition of no-peace-no-war, where processes of violent conflict and development coincide, alternate or intertwine. How socio-economic dynamics evolve in these conditions is a major question for governments, civil society and the private sector alike. How do families survive, how do economic institutions fare and how can governance and development initiatives affect positive change?

This study focuses on road transport and the use of newly rehabilitated roads in South Kivu, DRC. The transport network and sector reflect the history of Congo. Under colonial rule, an elaborate river, rail and road transport network was established. This network gradually collapsed after independence, first through lack of maintenance during the Second Republic under the leadership of President Mobutu and thereafter due to the armed conflicts that lasted from 1996 until 2002 (and to some extent subsequently) (Tefron 2011).

The importance of transport in the DRC became clear during the DRC stakeholder consultation (Hilhorst and Ferf 2011) and when conducting the research for the evidence paper (Weijs et al. 2011) for the SLRC. The transport infrastructure had disappeared almost completely after decades of neglect and war, and the country essentially broke apart into enclaves, severely hampering livelihood development and access to services (FMI 2010). Rehabilitation of this infrastructure was a priority after the war, and substantial international funding was used to improve roads, rail and water transport systems.

Although the international community has made large investments in road reconstruction in the DRC, we actually know little of whether connections have improved and if they brought about the anticipated effects. This study set out to explore how, by whom and for what purposes the roads are being used. Which people make use of transportation and why? Is the transport sector comprised of numerous entrepreneurs, the free flow of goods and price competition, or do we find the formation of cartels and patrimonial practices where state actors misappropriate economic opportunities? What is the role of formal and informal taxation connected to road use? These are important questions, considering the

large investments in road rehabilitation and the recurring burden of maintenance. This paper takes up these questions and analyses the political economy of road rehabilitation and the meaning of roads in people's livelihood strategies, with specific attention to issues of gender.

The governance and organisation of transport, as well as how people gain access to transport intertwine strongly with SLRC research objectives. These issues relate directly to people's livelihood opportunities and access to services, but they are also linked to legitimacy, the reach of government and people's perceptions of the state. Fairhead, in his analysis of road building in Eastern Zaire (2004), argues that roads in colonial times represented 'paths of authority'. 'From colonial times, roads were associated with the exercise of power by the state or the chiefs; forced labour was recruited to build them, personal movement along them was taxed and controlled and indigenous land near them was expropriated for plantations and mission stations.' Indeed, road networks can be related to power and unequal distribution of benefits, to gender and social group differences and to determining winners and losers, as shown for instance in De Herdt's (2011) study of charcoal transportation in Équateur. The symbolic power and political economy of roads and transportation may point to a more complex situation behind the rhetoric of 'roads bring development', and this study begins to unveil these complexities in South Kivu.

As in other parts of the DRC, the road network in South Kivu had largely been destroyed during the armed conflicts. The national and provincial governments of South Kivu are making considerable efforts to rehabilitate the road network, based on the assumption that this is a necessary condition for socio-economic recovery, poverty reduction, food security and national and provincial integration. However, even today, most of the road network is – because of bad conditions and insecurity – still inaccessible, and transport between the provincial capital, Bukavu, and other parts of the province, such as Mwenga and Shabunda, can only be accomplished by air. Or, between Bukavu and Goma, by lake (Provence de Sud Kivu 2011).

This study intends to provide a better understanding of the factors that play a role in the relationships between road reconstruction and rural-urban transport as well as the effects of road reconstruction on the livelihoods of local communities in three areas in South Kivu. The study will present three case studies and an analysis of livelihood effects by gender and social group. Importantly, the study does not include the transport of minerals, as roads and transportation for mineral products are organised separately and would therefore merit a separate study.

1.2 Explorative nature of the study

This study can provide only tentative answers to the larger questions we set out to explore. The first reason involves the long-term nature of the major effects of road rehabilitation. Claiming to offer a full analysis of the long-term impact of road rehabilitation based on data collected in the short term would be imprudent. We intend to repeat the survey and revisit our questions in 2015 to explore the longer-term trends.

The second reason that the report is exploratory in nature concerns the lack of past work on related issues in South Kivu as well as difficulties accessing the small amount of information that does exist. The lack of reliable statistical information hampered the study. No statistical information could be obtained from the Provincial Transport Ministry. Information on transport is mainly collected on an ad hoc basis and is often scarce or inaccessible (Weijs et al. 2011). No baseline or impact studies of road rehabilitation in South Kivu were identified, and available reports on the road and transport sector provide little information on transport flows and give almost no attention to distributional effects, gender and social differences or the impact of state fragility and (in) security.

The present study provides an overview of the transport sector and a closer picture of the use of three rural roads in South Kivu. Due to the reasons described above, the study is exploratory. It takes the essential first steps in answering the larger research questions.

1.3 Report structure

Chapter 2 provides the research questions, key concepts and data collection methods of the study. Chapter 3 gives an overview of key issues identified in the literature on rural road (re)construction. Chapter 4 describes the context and presents a review of the transport sector in South Kivu. Chapter 5 describes the movements on three rural roads and shifts the unit of analysis to households, investigating how rural families in three communities use transport as part of their livelihood strategies. Chapter 6 analyses some of the effects of roads, and Chapter 7 presents the conclusions.

2 Research questions and methodology

2.1 Research questions

The study started with an exploratory phase that included the literature study and an initial field visit. This was followed by a period of field research in Bukavu and the three research areas. The research was completed and the findings were validated during a visit to Bukavu and Kinshasa in February 2013. A second phase of this study is planned for 2015 to capture some of the longer-term effects of road reconstruction.

The research questions are

A How is the political economy of rural-urban transportation organised in South Kivu?

1. What are the institutional arrangements governing the transport sector in South Kivu (formal as well as informal regulations and norms)?
2. Which are the main characteristics of transportation on the pre-selected roads (main connections, frequencies, use and users, tariffs)?
3. What are the patterns of access to and exclusion from enhanced opportunities of mobility?

B What are the effects of road rehabilitation on rural livelihoods, local economic growth and mobility?

4. How is the mobility of rural households differentiated by gender and social groups; how frequently do people move, by what means and for what purpose?
5. How do changes in transportation (differentially) affect rural livelihoods and economic growth?

These questions are set against an international literature study focusing on the outcomes and systematic features of rural-urban road and transport projects with respect to mobility, relevance for rural communities, livelihood development and social services, especially for poor people.

2.2 Case selection

The core of the study focuses on three areas in South Kivu: Nyangezi, Zibera and Bunyakiri. They were selected to represent the effects of road rehabilitation in different contexts. The specific cases were selected to include variation between cases in terms of

- Distance to the central town in the province, Bukavu
- Socio-economic system
- Territory (geographical area)
- Level of security

Additional selection criteria were the presence of at least one rehabilitated road funded by DFID and, for practical reasons, a sufficient level of security to realise the fieldwork.

Within each area, we intended to select three locations at different distances from the road: one village along the road, one 1–2 km from the road and one 4–5 km from the road. However, mainly due to the deterioration of security, follow-up on the survey was only partially possible in two of the three areas. The security situation in Bunyakiri deteriorated considerably just after the research started, making research away from the road impossible. For this reason, villages along the road were selected. While the survey could be realised at all three selected villages, the field interviews planned to take place after completion of the survey work could not be conducted. In Zibera, three villages were selected according to the planned criteria, but when the security situation deteriorated, field interviews were made impossible in one. In Nyangezi, villages were selected according to the planned criteria, but during the fieldwork we discovered that the village supposedly more distant from the road had constructed an additional road connecting them directly to the main road.

The deviations from the original criteria for village selection meant that the initially intended comparison between villages of different distances to the main road was not possible. The deterioration of the security situation especially affected the analysis of the data collected in Bunyakiri, as further qualitative research was not possible.

2.3 Methodology

The following data collection methods were used:

Document analysis.
The project began with a review of relevant literature, policy documents and project documentation. We reviewed the development literature on transport, roads and infrastructure and adapted its findings, methods and insights so that they were relevant for situations of conflict and fragility. Other reviewed documents included national, provincial and donor policy and strategy documents.

Survey.
We conducted a survey in 2012 (with plans to repeat in 2015). The survey incorporated questions on mobility, transport use and people's perception on the relevance and impact of road development. The survey also included questions on social status, assets, use of health services and perceptions of the local and national government relevant for this research. Approximately 1250 individuals responded to the survey.

Interviews and focus group discussions.
Based on a semi-structured interview protocol, we conducted group and individual interviews with local officials, members of the local elite and villagers in two of the three research areas. In total, 20 (mainly group) interviews were conducted in the research sites.[1] In addition, 13 individual and group interviews were conducted in Bukavu with transporters, traders, government officers, representatives of international organisations and key informants.

Participatory observation.
Researchers followed goods and passengers on two selected connections. They made four trips to observe directly the access, performance, behaviour of transporters and users and direct and indirect costs (including taxation).

Roadside counts.
In each of the three research areas, researchers counted at the roadside the types of transport, frequency and quantity for one full week.

Survey of urban to rural minibus and trucks users. Over a one-week period, we interviewed a sample of minibus taxi and truck passengers in Bukavu regarding the reason for their minibus or truck trip to Bunyakiri.

Case studies. The survey data, interviews, participative observation and roadside counts provide an empirical base for three case studies of (re)constructed roads. The selected research areas are connected to Bukavu by different types of roads (two along roads of regional importance and one along a feeder road), are in different parts of the province at varying distances from Bukavu and have diverse livelihood systems and contexts (especially with regard to security). In two of the research areas, we collected information in three villages, each at a different distance from the road. In the third research area, all three selected villages were, for security reasons, located along the main road. The selected villages

1 This includes four interviews with the survey teams or team-members on household and transport characteristics in the research areas.

differed in size and included two with more-developed commercial sectors.

A second phase of data collection is planned for 2015; this will allow for a longitudinal approach to capture some longer-term effects. However, the time span of our study will only be three years, while long-term effects may become visible only over decades.

3 Key issues from the literature

Road construction has always been considered an important aspect of development and progress, but the rationale and approach – or the theory of change – of road construction have changed.

In the 1960s and 1970s, roads were seen to help to drive economic growth, for example by connecting areas of potentially profitable agriculture (Howe 1984). The assumption that roads would equal development was challenged by studies finding that roads could negatively affect income distribution. Howe emphasised that the (limited) findings were overwhelmingly negative in terms of 'the likely effect of the investments on the poorest' (Howe 1984: 6; see also Donnges, Edmonds and Johannessen 2007).

In the 1980s, road projects began to be conceptualised as alleviating poverty. The assumption was that if road construction generated employment, this would trigger more opportunities for the poor. This assumption contributed to a move to concentrate on feeder roads instead of main roads and a change in construction techniques from bulldozers to labour-intensive spades. There were also calls for a more integrated approach, where roads in combination with agricultural extension were meant to enhance the potential of roads for the poor (Maconachie and Binns 2007 referring to Blaikie et al. 1977.) More recently, attention for road maintenance has increased (see Porter 2002; Donnges et al. 2007; Bryceson et al. 2008; Olsson 2009) and efforts have begun to include mobility and services. Roads should be considered in conjunction with vehicle services and the location of essential facilities and services (Ellis 1997). Rural roads are increasingly seen as a prerequisite for growth and for the achievements of the Millennium Development Goals (Fan 2004; Kingombe 2011). A theory of change is thus emerging that emphasises the potential of economic growth and poverty alleviation and outlines conditions to enable the mobility (access to transport) of the poor. Major policy-oriented projects such as the African Transport Policy Programme (SSATP) and the African Community Access Programme (AFCAP) contribute with methodologies and policy and strategy recommendations (Starkey 2007; Banjo et al. 2012; Starkey 2013). We also find further increasing interest for potentital negative effects of roads. For example, DFID requires that road construction plans for South Kivu demonstrate measures to counter environmental depletion and has plans to monitor long term roads' social, economic and environmental impacts.[2] A rapid

2 Interview UNOPS-Bukavu.

appraisal methodology to assess and monitor these effects was recently developed (Starkey 2013).

Road projects in practice seem to combine different rationales. The World Bank rationale, for example, states the rehabilitation of (rural) roads in the DRC will increase mobility and access to markets, connect supply and demand, decrease transportation costs, enhance economic growth and help people move out of poverty (World Bank 2010). The World Bank also links the agricultural recovery witnessed between 2006 and 2010 to the rehabilitation of rural roads, which started between 2001 and 2005 (World Bank 2011).

The literature review found, first, that there is relatively little research investigating the effects of roads or critically analysing the impacts of rural roads on enterprises and households, especially given the enormous investments in rural roads by governments, donors and agencies (Kingombe 2011). The limited research is mainly technical or concentrates on the economic aspects of market development and poverty reduction (see Airey 1985; Pirie 1993; Minten and Kyle 1999; ADB 2002; van de Walle 2002; Hettige 2006; Cirera and Arndt 2008; Ulimwengu et al. 2009; Mu and van de Walle 2011; Kingombe and di Falco 2012). Few studies (e.g., Starkey 2007) include the role and functioning of the transport sector in their analysis.

There is evidence for the positive impact of rural roads and the provision of rural transport infrastructure (RTI). Mu and van de Walle (2011) point out roads can reduce travel costs to existing markets and institutions but can also encourage the (re)location of markets close to the roads. Others (Donnges et al. 2007; Frahat et al. 2013) emphasise that rural roads are the most important link for communities in terms of access to basic services such as education, primary health care, water supply, local markets and economic opportunities. Roads can make a major difference to people's everyday lives, including, , "the drudgery and isolation of living in a walking world (Porter 2002), to stand a better chance of gaining and interweaving livelihoods (Bebbington 1999), to qualify for a higher level of service provision, especially in education and health, and to feel themselves incorporated as citizens in national life" (Wilson 2004). Rural roads can also enhance income sources, as they improve non-agricultural income opportunities, especially from wage-employment sources (Escobal and Ponce 2002). Even the poorer segments of the population that often walk rather than using motorised transport services often value improved transport services as they provide a safety net in case of a livelihood crisis and fast access to medical services.

Although the importance of roads for development is generally uncontested, the literature points to a number of key issues remaining unaddressed.

First, although roads are related to development, the causal links are often unclear. Scholars emphasise that the benefits of roads have often been taken for granted, resulting in a lack of critical discussion on their impacts (Wilson 2004). As stated by Blöndal (2007), 'Rural roads are assumed to have a positive effect on people's livelihoods and social and economic welfare but there continues to be little scientific evidence of such impact or of the distributional effects of rural infrastructure projects.' Khandker (2011) found that the distributional impacts of road investments are an important policy concern, with the poorest 25 percent of households not sharing in the benefits of rural roads, and Farhat and Hayes (2013) conclude from various studies that '[roads'] benefits tend to accrue disproportionally to influential and well educated groups'.

There is little insight into the conditions under which road construction may have higher impact. Scholars emphasise that the extent to which a country is moving from low- to higher-income status strongly influences the effectiveness of road building (Allum 1995 in Ellis 1997). Ellis (1997) reviews a number of studies that all suggest that a certain overall social and economic dynamism in communities is required before roads can engender economic opportunities. When a country has a low-income status, factors such as lack of education, health and access to capital may hinder growth potential. In medium-income countries, roads enable the exploitation of underutilised natural and human resources. In higher-income countries, saturation may be reached, limiting the added value of roads for development.

We have found almost no literature exploring the effects of road construction in conditions of conflict or weak governance, and there is no hard evidence that road construction has a positive impact on political stability and security (Farhat and Hayes 2013).

Second, little attention has been paid to the difference between immediate (direct) and longer-term (indirect) influences of roads (Howe 2007; Khandker 2011). Direct effects include employment to improve the road, lower or higher transport costs, more traffic and shorter travel times. Indirect influences can include changes in

employment, transport, agricultural production, non-road related employment, income, social patterns and institutions. The effects differ over time and between sectors (Khandker 2011). This study aims to capture some of these effects by employing a longitudinal approach. However, the time span between T1 and T2 in our study is three years, but the long-term effects may become visible only across decades.

Third, most studies on the effects of road development lack robustness, especially regarding indirect effects. To measure the impact of rural roads, the three most common methods are multi-criteria analysis (MCA), cost effectiveness analysis (CEA) and cost-benefit analysis (CBA) (van de Walle 2002; Kingombe 2011). Of the three methods, MCA is the only approach that takes into account the broader set of benefits. Authors emphasise the importance of appraisals being holistic and thus take into account economic, social and environmental impacts (Mackie et al. 2003; Kingombe 2011). In terms of evaluations of public projects, the methodological frameworks have built on 'propensity score matching' techniques, which allow the construction of counterfactual scenarios and enable researchers to explore and claim causal relations (Escobal and Ponce 2002).[3] Kingombe stresses that 'rigorous empirical evidence is needed to support the underlying economic analysis of the view that investments in the rehabilitation and maintenance of rural feeder roads are beneficial to the broad-based growth of the rural (farm and non-farm) economy and rural livelihoods'(Kingombe 2011: 5). However, such evidence is difficult to obtain, as Kingombe's study in Zambia demonstrates (Kingombe 2012). It is important to mention that our study cannot meet these requirements as it is exploratory in nature and cannot build upon statistical data.

Fourth, little attention has been given to the political aspects and effects of road construction. Often, development planning views feeder roads as socially and politically neutral, or as a 'technological fix' (Wilson 2004). As we already quoted in the previous chapter, in his analysis of road building in eastern Zaire, Fairhead (2004) argues that roads in colonial times represented 'paths of authority'. Roads allow states 'to govern': they provide access to populations and are central tenets in the planning of services and ultimately the control of population movements. In some cases, opponents of the state likewise focus on roads, such as in Nepal, where the Maoist movement mobilised its followers to engage in road construction to bring about development (Stel et al. 2011). The experience of the impact of rural roads and accessibility can be strongly related to the scope and actors involved. Wilson (2004: 528) emphasises that assessments of roads is coloured by an either/or position on the part of the observer. Based on research in the Andes, this author calls for more attention to the political economy of roads.

Fifth, we found limited attention in the literature to the symbolic power of roads. This relates to the previous point, this symbolic power is exactly what provides the legitimising effect of roads to authorities. Fairhead's notion that roads were pathways of authority in colonial times in the DRC resonates in the current day, when road construction remains strongly in the domain of the traditional or government authorities. For example, it was demonstrated that in community-driven reconstruction projects (the Tuungane programme of IRC in eastern DRC), communities dominated by church elites would favour health or education projects while communities with a strong traditional leader would favour road construction (Kyamusugulwa et al. forthcoming, a). The 'voluntary' labour component or 'salongo' of these projects was seen by local communities as a continuation of forced labour from colonial days (Kyamusugulwa et al. forthcoming, b). The tension between the government, with its focus on roads that connect all provinces and major urban concentrations, and the international community's emphasis on economic viability also support Fairhead's notion of roads as pathways of authority. Additionally, as Ellis (1998: 27) noted, roads have been described as 'one of the most frequently cited desirable items on village wish lists' (). Recent ethnographic African studies refer to roads as sources of 'promise and uncertainty' (Dalakogoulo and Harvey in Klaeger 2013) while Pandya (2002) observes that roads are instruments for the very visualisation of modernity. However writings about roads, transport and auto mobility in the African context appears to have been rather scattered, unsystematic and sometimes a mere by-product of other topics (Klaeger 2013). The population in South Kivu and three other provinces rated transport as the fourth highest priority (RD Congo 2010), and our study confirmed the symbolic power of roads to be very high in the perception of local people. For this reason, we emphasise the importance of symbolic power not just as a derivative of the politics of roads, but as a property that can have a distinct and separate impact.

3 The propensity score matching techniques were developed by Rosenbaum and Rubin (1983) and extended by Heckman, Ichimura and Todd (1998).

Finally, research on roads usually lacks sensitivity to the unintended – negative but also positive – effects of road construction. Roads may, for example, have mixed effects on livelihoods, which may be generated and destroyed at the same time (Chambers 1987). De Herdt (2011)found that roads reduced transportation costs, but also that many cyclists involved in charcoal transportation lost their jobs. Roads can also lead to perverse development effects (Blaikie et al. 2002). Effects on women are often less positive or even negative compared to effects on men, for example, with respect to choices made, job opportunities during the construction phase and security (Porter 1995; Zuckerman and Greenberg 2004). There have also been cases documented where road construction led to instances of land grabbing (Unruh and Shalaby 2012). Roads may lead to increased bush-meat hunting (Wilkie et al. 2000), and those living 'off-road' can become increasingly marginalised (Porter 2002). By leading to the breakdown of communities' autonomy, roads have also been experienced as a threat, and they have led to the impoverishment of 'isolated' communities.

Issues of special attention are the assumed positive and negative security impacts of road construction in conflict-affected areas. Although roads are assumed to potentially play a role in peace building and conflict reduction, a recent review did not find any direct evidence in the literature that roads had a security impact (Farhat and Hayes 2013: 3).. On the contrary, roads are known places for ambush and assault and are frequented by delinquents, terrorists, smugglers and drug dealers; they are places where deals are done with bad cops. Roads on the fringes of the state have become war zones (Wilson 2004: 544).

To conclude, roads are generally highly important for development and therefore generate large investments from government and international donors. Important issues, however, remain under-addressed in research. These include insights into the effects of roads in fragile and conflict-affected contexts on development and security, the role and functioning of the transport sector, the differentiated and indirect socio-economic effects of roads, the politics and symbolic operations of roads and a range of unintended effects that roads may bring.

This study aims to contribute to the literature by focusing on the everyday use of roads in eastern DRC. It explores the organisation and operation of the transport sector and explores when, how and why local men and women make use of roads as part of their livelihood strategies.

4 Context: roads and transport

4.1 Roads and transport in the DRC

In a country as big as a continent, with a very low population density and low economic development, developing and maintaining a transport network is a particular challenge. Natural rivers and large lakes provide an enormous opportunity for relatively cheap and effective transport to large parts of the country. However, these important transport channels require an extensive road network connecting the waterways with the interior and, in other parts of the country, roads are the only option for transport. DRC's geography, with its rivers, streams and mountainous areas, presents certain challenges for the development and maintenance of the road transport infrastructure.

The road network in DRC has a total length of 152,400 km, of which 58,129 km are roads with general importance, 86,871 km with regional importance and 7400 km are urban roads (EGIS International 2012). Compared to road networks of other countries, DRC remains far behind. The DRC has 1 km of paved roads per 1000 square kilometres, compared to other low-income countries (LICs) of 16 km and fragile states of 21 km per 1000 square km. The DRC has 14 km of unpaved roads per 1000 square km, compared to 68 in LIC and 75 in fragile states (Foster and Benitez 2010).

The DRC has a particularly sad history of deterioration of its transport infrastructure. First because of lack of maintenance during the Second Republic under President Mobutu and thereafter due to armed conflicts and collapse of government services that lasted from 1996 until 2002 and to some extent thereafter. Road network conditions are extremely poor. Of all roads of general importance, only 23 percent are considered good or average, and the regional roads are highly deteriorated (EGIS International 2012).

The rehabilitation of the transport sector is one of the main priorities of the national government[4] and the international community. The recuperation of the economy is considered 'to pass through the rehabilitation of transport infrastructure as a sector that supports the growth and contributes to the mobility of people and goods', and 'the transport sector is considered to be the "locomotive" of the economy' (RD Congo 2006).

Large investments, mainly funded by the international

4 It is one of the five 'chantiers' of President Joseph Kabila (5 Chantiers, La Révolution de la Modernité en Marché).

community,[5] have been made, and remarkable progress is reported in the rehabilitation of the road network. The progress report, Growth and Poverty Reduction Strategy 2010, mentions that 22,900.6 km of roads have been reconstructed, reopened or modernised. This is 13 percent more than was planned. Of these improvements, 5000 km of general roads were constructed, of which 4842 km had international funding; 158 km of urban roads were constructed, 58 km with international funding; and 17,817 km of rural roads (pistes), all with foreign funding (RD Congo 2010–12).

The International Monetary Fund (IMF) complimented the government on the progress made in developing an integrated transport infrastructure and mentioned that as especially encouraging that the length of rehabilitated rural pistes was nearly double the number planned.

However, the investments to date cover only a small part of the immense funding requirements. The Africa Infrastructure Country Diagnostic calculated that, to reach the level of paved roads that would ensure national and regional connectivity,[6] an annual investment of USD 1,082 million is needed.[7] This amount is close to 10 percent of the 2010 gross domestic product and is far more than the USD 208 and 276 million annual investments made in 2007 and 2008, respectively (Pushak 2011). Although it is expected that international funding will increase in the coming years, it will take many years before the national road network will be fully operational.

The IMF and many others stress that proper maintenance should have the highest priority to avoid neutralising the progress made so far. They foresee an enormous engineering, technical, organisational and especially financial challenge in maintaining the road network in a country with a notoriously weak administration (FMI 2010; Foster and Benitez 2010; Pushak 2011). In 2008, the Fonds National d'Entretien Routier (FONER) was established and collects USD 60 million annually from petrol and road taxation. Only half of these funds is used for maintenance, although it is estimated that 'almost 400 million US$ a year just to keep the transport infrastructure in usable conditions' will be required (Foster and Benitez et al. 2010).

Clearly, however, the focus is on physical infrastructure and little if any attention is given to the organisation, regulation and development of the road transport sector, road security, transport-related infrastructure, or training (RD Congo 2002).[8] Attention for the transport sector would be justified, as the DRC remains far behind other LIC and fragile countries in terms of road use. The daily traffic counts recorded only 257 movements on paved and 20 movements on unpaved roads, compared to 1027 and 55 movements for LICs and 843 and 55 movements for fragile states (RD Congo 2010–11).

With respect to transport prices, little is known, but anecdotal evidence indicates that freight costs are very high, even by African standards. Prices of USD 5000 for moving one container over 400 km were observed between Matadi and Kinshasa (EGIS International 2012). World Food Programme (WFP) noted prices of USD 0.7–1.00 per km in South Kivu[9] compared with USD 0.10–50 on similar roads in Tanzania, USD 0.30–1.00 in Zambia (Starkey 2007), 6–11 cents per ton per km on the main corridors in Africa (Teravaninthorn and Raballand 2008) and 5 cents in South Africa (Forster). This underscores the importance of addressing not only physical infrastructure constraints but also the regulatory frameworks governing the trucking industry (Foster and Benitez 2010).[10]

4.2 Roads and transport in South Kivu

The capital city of South Kivu is Bukavu, which is by far the largest city and the political and economic centre of the province. It is also the major node in the road network of the province. The city borders Lake Kivu, which constitutes the main connection to the neighbouring province of North Kivu. From Bukavu, a road connects to the port and the Rusizi River, which connects Lake Kivu to the other major lake that borders the province, Lake Tanganyika, lying between Burundi and Tanzania. Additional roads from Bukavu lead to Rwanda, the neighbouring provinces and the province's small towns and main villages. This road network has a length of 2,784 km, of which only 236 km are asphalted. With only 0.5 km per 1,000 habitants, the

5 This funding has come from, among others, the World Bank, the EEC, the ADB, Belgium, the UK, the Netherlands and increasingly China as a, if not the, main donor.
6 Defined as follows: connection to rural roads for 80% of the highest-value agricultural land and road access in urban areas within 500 metres.
7 Figures about road conditions and investments realized and needed for road construction and maintenance differ significantly between studies and plans. However, they all point in the same direction and give a sufficient understanding of the size of the problem.
8 Starkey has similar findings for the national policies of Tanzania, Zambia, Burkina Faso and Cameroon (Starkey 2007).
9 See Chapter 4.4.
10 Foster observed that 'In theory improvements in road infrastructure should reduce road haulage and lead to lower tariffs but in much of Central Africa the presence of trucking cartels and tour de role regulations whereby governments allocate freight to companies based on a queuing system lead to major profit mark ups and prevent the benefits of improved infrastructure from being passed on to business in the form of lower freight tariffs' (Foster et al. 2010).

road network density in the province is very low and far below the national average.

As most of the province is mountainous and rich in rivers and small streams, road construction implies the costly (re)construction of many bridges and other civil works. This, combined with heavy rainfall, landslides and erosion, results in a need for frequent maintenance'. Consequently, as elsewhere in the country most roads are still inaccessible or in a very bad state. Large parts of the province can be reached by road only under difficult conditions and at high cost. Other areas in the province, such as parts of the territories of Mwenga and Shabunda, depend fully on air transport and cannot be reached by car or truck.[11]

The province estimates that it has rehabilitated 149 km of national, 321 km of regional and 230 km of agricultural roads.[12] The investment budget of the province for 2010–15 anticipates the rehabilitation of another 4600 km of roads (Provence de Sud Kivu 2011–12) and construction of a number of proper 'parkings' (terminals), areas for handling people and goods. This would be an enormous step forward, as these parkings are now located on over-crowded sites and roads in town.

Maintenance remains a major issue. The condition of the recently rehabilitated roads is often mediocre, and in some instances these roads are barely passable after a few years, as is the case with the road from Burhale to Mwenga and Kamituga. The limited transport flows on rehabilitated roads imply that direct contributions to the road maintenance fund FONER are few and consequently dependence on the national contribution from the petrol tax to this fund is large. As financial flows from the central government to the provincial government are often not forthcoming, funding of road maintenance in South Kivu is highly vulnerable.

The provincial policy framework with respect to transport is limited and focuses largely on road safety. It aims to improve the present technical inspection of vehicles, the use of seat belts and motor helmets, on limiting the number of passengers per vehicle and controlling licences and other documents. To protect roads, it aims to inspect truck weights more rigorously. It does not include initiatives to organise, regulate or support the sector, e.g., in terms of facilitating credit, decreasing taxes and levies or strengthening the traffic support structure (spare-parts supply, repair facilities, training of technicians, etc.).

Implementation of the policy's priorities is weak and mainly limited to providing a source of income to enforcers. Trucks are generally too heavily loaded, and the number of passengers in taxis and minibuses is above the set standards. Interviewees felt that the requirements only added to the costs without being accompanied by adequate services in return. For example, the annual technical inspection is superficial yet expensive, while the obligatory insurance with the state company was considered expensive and compensation in case of damages or accidents were at best hard to get, requiring considerable effort and with only a small chance of delayed success. It was often felt to be not worth the effort.

The interviewed transport entrepreneurs perceived the administration mainly as a nuisance and a costly barrier to the development of the sector. Suggested initiatives to solve sector problems jointly and increase efficiency by, for example, the joint import of spare parts, were felt to be too risky, as they would catch the eye of the administration and become subject to all kind of levies.

4.3 Transport providers and markets in South Kivu

The roads are still mainly used by pedestrians to move from one place to another as well as to transport goods, often over large distances. Bicycles are extremely rare and animals are not used at all for transport. Motorised transport consists mainly of motorbikes, followed by trucks, minibuses and taxis. Motorbikes play an increasingly important role in urban and rural transport, mainly for short distances. They are found in large numbers and reach many places that could not formerly be reached by motorised transport. Even in smaller villages, motorbike transport is now often either permanent or available on call. Minibuses and taxis provide further transport options for passengers and small quantities of freight. Trucks transport freight as well as passengers (trucks from Bukavu to Bunyakiri transported, on average, 34 passengers).

While the transport of goods by foot is nearly exclusively a task of women, motorised transport is dominated by men as owners, drivers, technicians, and truck (un)loaders.

11 The road to Shabunda is in extremely bad condition, with broken-down bridges. Passengers must go by foot at least one stretch. Insecurity is extremely high, with frequent robberies, regular fighting, etc.

12 Much of this rehabilitation was carried out under humanitarian programmes and was mainly of a temporary nature, such that the roads are no longer in good condition.

During the wars, the transport fleet was significantly reduced, as many trucks, pick-ups and minibuses were confiscated by the warring parties, and many transporters lost most if not all of their vehicles and had to start anew after the war.

Box 1: Interview with truck owner

'I lost my three trucks in the second war and was left with only one pick-up. I sold my house to start again. Credit for investments doesn't exist. Before 1996 there was little corruption and illegal charges, but the roads were safe and reasonably maintained and I could earn well. The best period was in between both wars under Kabila Vieux; there was no corruption and full security. Now it is very unsafe, there is a high risk of being killed and as the roads are very bad, maintenance costs are high and endless charges have to be paid. State intervention kills all initiatives and profits are low. Even more since the transport of minerals is forbidden.'

– Owner of fourtrucks in Bukavu (Interview 4)

In South Kivu, the state does not provide public transport, and public buses are not seen in the streets of Bukavu or on the roads in the province. All public and freight transport is private.

As with many small businesses, the transport market is highly fragmented; there are no large parties on the market that with a large capacity or capable of influencing the market.[13] Nearly all public transport is provided by individuals who own and rent out or exploit one or a few trucks or minibuses (seldom more than three or four) or motorbikes. Only a few larger commercial companies in Bukavu have trucks for their own activities. Recently, a company started urban transport with a larger fleet of minibuses, but this is not a common practice.

The fleet consists largely of second-hand imported trucks of 7–10 tonnes, second-hand cars and minibuses. Most vehicles are in poor condition and fuel inefficient and require intensive maintenance. The owners and drivers or local technicians do most of the maintenance under primitive conditions at the roadside. New or second-hand spare parts are available in the local market or directly imported by the truck owners from Burundi, Nairobi or even from as far away as Dubai. Most motorbikes are imported from China and India.

Reliable statistics on transport capacities are not available, but figures of the national insurance company SONAS in Bukavu indicate[14] that the number of motorised transport vehicles in the province is increasing.

Table 1: Number of motorbikes, trucks, pick-ups, minibuses and cars registered with the national insurance company SONAS in Bukavu (November 2012)

Type	2006	2007	2008	2009	2010	2011
Motorbikes	609	732	702	853	931	984
Trucks	132	148	141	155	145	151
Pick-ups	160	183	174	172	189	198
Minibuses	110	101	109	123	144	206
Cars	201	238	222	302	399	405

The figures show a fast growth of transport capacity, with an increase of over 60 percent for motorbikes (mainly used as motor taxis), nearly 90 percent for minibuses, and a near doubling for cars (over 70 percent of all cars in the province circulate as taxis).

Increases in the freight transport capacity are more modest. The number of pick-ups increased only by 23 percent, and the number of trucks by 15 percent over the period when important roads were rehabilitated.

The slow growth in number of trucks indicated by the SONAS statistics is consistent with the picture that emerged from interviews. Truck owners interviewed explained that investment in trucks is still highly risky, with a great deal of (formal and informal) government interference and relatively low profits, as roads are still bad, causing high operational and maintenance costs. Other problems include road insecurity. The low levels of economic development in the province, the consequently low demand for freight transport and insecurity may well together explain the apparently low increase of investment in freight transport and the formation of companies that would increase transport efficiencies. The truck owners clearly prefer to invest profits in construction activities, as this was considered less risky and more profitable.

13 One of the large users of transport is Programme Alimentaire Mondial (PAM) (as WFP is known in French-speaking DRC), with its programme to import and supply food aid to the many IDPs in the provinces. As no individual transporters have the capacity to respond to PAM's needs, PAM contracts transporters associations that offer the combined capacities of its members (interview with PAM officers).

14 SONAS has a monopoly, and it is obligatory to insure every motorbike or vehicle. However, another insurance office exists in the province (in Uvira), and SONAS offices in neighboring provinces offer lower fees to attract customers from South Kivu. Simultaneously, as bribing police is common practice, not all vehicles are insured. Information from interviews suggests higher numbers than those presented by SONAS Bukavu. The presented figures in Table 4.1. should therefore not be considered as absolute counts but only as likely trends.

Individual transport providers are organised in associations. For each type of transport, one or more associations exist, even for transporters by foot. The different transport associations are organised at the provincial level in a federation. They are democratic organisations with administrators elected by the members, but a special position is reserved for the association founders. Membership is open and there were no indications that newcomers were refused. The associations have their head office in Bukavu and branches in the major centres of the province. Their main functions are to regulate transport at the so-called parkings on the principle of first come–first go ('queuing'), to negotiate fixed prices and conditions with clients' organisations and to negotiate with the administration on roadblocks and charges to be paid. They further provide assistance in cases where individual drivers have problems with the authorities and to members who are wounded in accidents or have family problems or other issues.[15] The associations require approval by the provincial authorities, but there are no indications that the authorities play a directly or indirectly active role in the associations or refuse registration to new associations. However, membership in an association is a condition to operate on the transport market for owners as well as drivers, and this membership comes at a cost. An entrance fee and a daily or weekly contribution[16] to the association must be paid. These fees are collected when loading or unloading at the parkings in Bukavu and in the provincial towns and villages.

Foster and Benitez (2010) observed that so called 'queuing systems' like those organised by the associations in South Kivu have led to market imperfections in many sub-Saharan countries, causing artificially high prices while the benefits of better roads (e.g. lower maintenance and fuel costs) are not passed on to the transport users but are shared by the state and the transporters. Such negative effects on competitiveness were not observed by Starkey (2007) in Cameroon, Burkina Faso and Tanzania. Market imperfections were observed in Bukavu when a minibus company tried to enter the urban market with low prices, infuriating the minibus associations. Only after a period of heavy contestation, including, for example, damaging minibuses and picking personal fights, could the newcomers operate freely, while prices went down and remained under past levels (interview 28). No such evidence of artificially high price levels existed for rural-urban transport. However, freight prices to several destinations were generally steadily increasing without downward flexibility following road improvements and, therefore, lower production costs (see Table 4.4.), which could indicate similar market imperfections.

A study of the African transport sector observed that the 'queuing' system, entrenched in Africa, has a negative impact on the performance of the trucking industry. It led to poor service, low productivity and overcapacity, and the system lacks incentives to improve efficiency. It gives power to large fleets in poor condition, and efforts to abolish it have largely failed (Teravaninthorn and Raballand 2008). Whether this is also true for South Kivu could not be established, but the low number of trips that trucks (two) and minibuses (three) make per week points in the direction of regulated overcapacities (survey on the Bukavu–Bunyakiri–Hombo road).

4.4 Users of public transport

A survey of 474 passengers of trucks and minibuses in Bukavu at the parking on the road to Bunyakiri–Hombo over one week provides the following information on the characteristics of the passengers and reason for the journey.

Table 2: Characteristics of passengers of minibuses and trucks

	Male	Female
Travel by minibus	151	71
Travel by truck	162	90

	Adult	Youth
Travel by minibus	188	36
Travel by truck	196	54

	Commercial	Social	Professional	Not given
Travel by minibus	65	101	47	9
Travel by truck	183	48	21	0

Motives for the journeys vary, with minibus passengers having mainly social motives followed by commercial motives. The truck passengers have overwhelmingly commercial motives. Professionals (e.g. teachers, nurses and administrators) travel mainly by minibus.

15 Some interviewees mentioned that obtaining the support of the association largely depended on having good relationships with its administrators.
16 Motorbike drivers pay a USD 10 entrance fee and car owners a USD 20 fee, whereas in Zibera, motorbike drivers pay a charge of CDF 500 per week and in Munya CDF 200 per day. In Zibera taxis were CDF 500 per day and minibuses CDF 1000 per day.

Transport by truck is cheaper and attracts more passengers (252 compared to 222 by minibus). A slightly higher percentage of women and youth travel by truck, and more passengers by truck have a commercial objective, compared to those travelling by minibus.

Table 3: Passengers with a commercial objective

	Large trader	Medium trader	Small trader	Mini trader	**Total**
Travel by minibus	11	24	21	9	**65**
Travel by truck	7	49	90	37	**183**

Notes. Large trader: Has a warehouse and sells only *en gros* (wholesale). Medium trader: Sells *en gros* as well as directly to shops and restaurants. Small trader: Buys and sells in small quantities at the market. Mini trader: Sells along the road at the parking.

Petty trade is a very important motive for travel. Nearly 50 percent of all traders in minibuses and over 70 percent of the traders in trucks are small or mini traders. Many are women that buy in very small quantities to sell at the local market or, after returning to Bukavu, at the Bukavu market, and they often make several trips per week.[17] Large and medium traders often travel for free by truck and only pay for their merchandise.

Finally, there was no evidence of discrimination against female passengers, minorities or other groups; all had access to transport. There was positive discrimination towards the police and military; transport was often provided to these groups free of charge.

17 From road-side conversations and participatory observation reports.

4.5 Transport prices

Freight prices fluctuate with the seasons and are especially high in the rainy season, reflecting road conditions.

Net rental prices per tonne per kilometre (for eight-tonne trucks) varied between 48.8 US cents per kilometre to Hombo and 76.3 US cents to Ngalula. On top of the net rent, approximately 50 percent more was charged for fuel,[18] and between 13 percent and 24 percent for parking, taxes, police, army charges and other road taxes, food and beverages for the driver and porter. This brings the total cost per kilometre to between approximately 79 US cents and USD 1.32 (See Table 4-4).

These prices are comparable with the (all inclusive) prices per tonne paid by WFP, considering that these are bulk contracts.[19]

Compared to freight prices elsewhere of 6–11 cents/tonne/km on the main corridors in Africa in 2007 (Teravaninthorn and Raballand 2008), freight prices in South Kivu are extremely high. Teravaninthorn and Raballand calculated that road rehabilitation can reduce transport costs by 20 percent. Such decreases were not observed in DRC. Instead, prices charged by the truck drivers and owners have systematically increased and have not shown downward flexibility in response to road reconstruction. Interestingly, the only instance we found where prices reduced after road improvement was in the case of WFP, where a competitive bidding process may explain why the prices paid by WFP on the Mwenga road do fluctuate with road improvements as well deteriorations.

Both the very high prices and the lack of downward flexibility when roads are rehabilitated point to an imperfect transport market with price controls enforced by the associations. However, other factors, such as continuing bad conditions on the improved roads and increases in taxes and levies (creaming off part of the productivity gains) may also play a role. Transport is heavily taxed in formal and informal ways. Transport-related taxes, levies and charges must be paid to the municipal authorities, for other services (e.g., inspection on illegal arms), to the road maintenance fund, police, national park authorities and workers, and sometimes to official and unofficial road-workers. These charges increase transport costs and cause delays and nuisances during journeys. For example, between Bukavu and Bulambiki (approximately 75 km), a vehicle has to stop 13 times for roadblocks, and each time a payment is required.[20] These taxes and levies increase transport prices between 13 and 23 percent (see Tables 4-6. and 4-7.).[21]

The number of roadblocks varies. Powerful local groups or people (e.g., local traditional leaders) can decide to construct a barrier, and the associations negotiate such barriers with the provincial and local government. These negotiations are not without success, but the number of such barriers that remain is still extremely high.

On top of these variable taxes and levies, there are other costs for services, such as technical control of the vehicles and car insurance, that increase the cost of transport while contributing little to the functioning of the sector. The technical controls are costly and time consuming and contribute little to the quality of a fleet, and the insurance is equally costly and the companies rarely compensate clients when damage occurs.

The World Bank observed that the multitude of taxes and levies were higher for the small entrepreneurs than for larger companies and that these costs constrain the development of private sector initiatives and investment. This is certainly true for the transport sector, and effects are far reaching on the economic development of the province. There is evidence that the largest share of all taxes and levies do not enter state accounts but provide an income to the many state officers and others that receive no or very low salaries.[22]

18 According to the association of truck drivers and owners, fuel costs increased from USD 1.2 per liter in 2007, to USD 1.3 in 2008, USD 1.4 in 2009, USD 1.5 in 2010, USD 1.6 in 2011 and USD 1.8 in 2012.
19 Information provided by the senior logistics assistant of WFP from their own records on 19 November 2012.
20 This information was collected during several participatory observation trips.
21 Starkey (2007: 103) observed, 'However, in most regions visited, the controlling officers accept tips or bribes to allow rapid transit…' and, 'In exceptional cases, operators considered that "bribe" barriers accounted for one third of their operating costs, a figure comparable to their fuel costs.'
22 An unpublished study on the lake transport taxes concluded that less than 5% of all taxes and levies entered the state accounts.

Table 4: Truck rental (excluding fuel, taxes, parking, loading, food and beverages for drivers, etc.)

Average truck net rent per loading capacity of 8 tonnes, in USD	2007	2008	2009	2010	2011	2012	Increase of rental costs
Bukavu–Uvira–Salamabila (600 km)	—	—	—	2750	2850	3100	17.5%
Bukavu–Hombo (116 km)	360	375	375	370	400	450	18.0%
Bukavu–Nyangezi (30 km)*	150	180	195	200	225	250	66.0%
Bukavu–Uvira–Misisi–Ngalula (380 km)	1000	1750	2338	2125	2320	2320	264.0%
Bukavu–Zibera–Kigulube (170 km)	800	800	800	900	1000	1000	25.0%

* Trucks for 10,000 bricks. Source: ALOVETRACO (Association de Loueurs des Véhicules de Transporte de Congo.)

Table 5: Freight prices paid by WFP, in USD

Route	Maximum distance (in km)	2006	2007	2008	2009	2010	2011	2012
Bukavu–Bunyakiri	141	—	0.74	0.73	0.70	0.80	0.75	0.73
Bukavu–Mwenga	225	—	—	0.80	0.70	0.80	0.70	1.00
Bukavu–Nyangezi	38	0.80	0.90	—	0.80	0.75	0.80	0.78

Table 6: Average formal and informal road taxes and levies per truck per journey in USD

Road		2007	2008	2009	2010	2011	2012
BKV–Uvira–Salamabila	Parking/taxes	—	—	—	278	278	278
	Police/military	—	—	—	374	374	374
Bukavu–Hombo	Parking/taxes	158	158	158	158	158	158
	Police/military	31	31	31	31	31	31
Bukavu–Kamituga(–Kitutu)	Parking/taxes	155	155	190	190	175	175
	Police/military	104	104	104	65	72	72
Bukavu–Uvira–Misisi–Ngalula	Parking/taxes	367	367	367	367	431	431
	Police/military	209	209	209	209	473	473

Source: Information supplied by the truck drivers and owners association.

Table 7: Formal and informal road taxes and levies as percent of transport costs

Road		2007	2008	2009	2010	2011	2012
Bkv–Uvira–Salamabila	Parking/taxes	—	—	—	6%	6%	6%
	Police/military	—	—	—	8%	8%	7%
	Total	**—**	**—**	**—**	**14%**	**14%**	**13%**
Bukavu–Hombo	Parking/taxes	19%	19%	18%	18%	17%	16%
	Police/military	4%	4%	4%	4%	3%	3%
	Total	**23%**	**22%**	**22%**	**22%**	**20%**	**19%**
Bukavu–Kamituga(–Kitutu)	Parking/taxes	11%	11%	13%	13%	12%	12%
	Police/military	7%	7%	7%	4%	5%	5%
	Total	**18%**	**18%**	**19%**	**17%**	**17%**	**17%**
Bukavu–Uvira–Misisi–Ngalula	Parking/taxes	15%	11%	9%	10%	11%	11%
	Police/military	9%	6%	5%	6%	12%	12%
	Total	**24%**	**18%**	**15%**	**16%**	**24%**	**23%**

4.6 Transport flows

As reliable transport statistics do not exist, the impact of road rehabilitation on transport flows is difficult to establish.

From Table 4-8. (based on road counts) it is concluded that transport flows on the rehabilitated roads in South Kivu remain generally low with an average of approximately 110 motorised movements per day. Interviews and field research indicates that several factors explain the low transport frequencies. First, the general low level of development and therefore minimal purchasing power among the population leads to low demand for transport services. Second, high levels of insecurity have a direct negative effect on road transport. The indirect effects of insecurity are even more important, as insecurity (among other factors) limits access to productive land, reduces rural production and consequently limits the supply and demand of goods to be transported. Third, social and economic environment in the rural areas of South Kivu lacks the dynamism that would accelerate economic development and create demand for transport services.

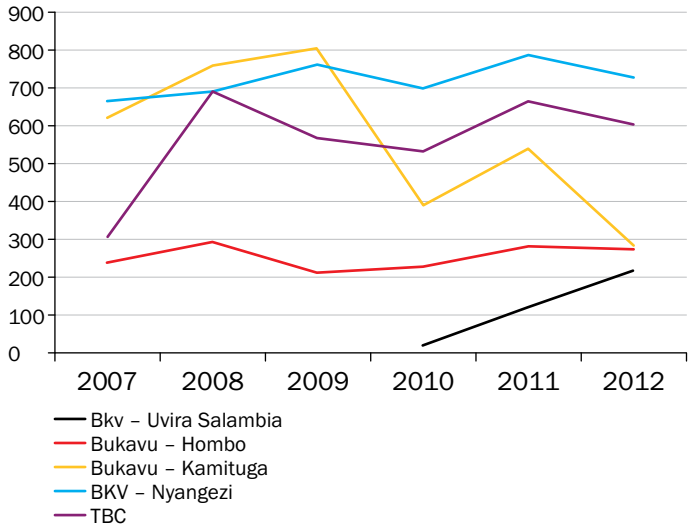
Table 8: Transport movements on two rehabilitated roads

Road	Average number of daily motorised transport movements
Bukavu–Zibera	102
Bukavu–Nyangezi	118

Note. The road count in Bunyakiri does not list the number of transports by motorbikes and is therefore not included here. **Source:** Based on traffic counts at the end of 2012.

The data from the drivers and owners association ALOVETRECO on the number of trips made on six main trajectories in the province provide some understanding of changes in transport volume after road rehabilitation. They suggest an initial modest-to- large increase in transport after rehabilitation is observed on the rehabilitated roads (especially on the roads between Bukavu and Ngalula and Bukavu and Salamabila). That transport flows are sensitive to bad maintenance shows in data on the road between Bukavu and Kamitugam where transport flows significantly decreased after a rehabilitated road deteriorated again in 2009–10.

Figure 1: Trips per year made by ALOVETRACO members from 2006–12



4.7 Conclusion

This chapter focused on the first research question concerning the political economy of rural-urban transportation organised in South Kivu and its sub-questions. With regard to the state-related governance of the transport sector, our main findings are the following:

1 What are the institutional arrangements governing the transport sector in South Kivu (formal as well as informal regulations and norms)?

- Private entities provide all transport. The state does not provide public transport and apart from reconstructing roads and very limited maintenance activities, the state does not facilitate or stimulate the development of the transport sector (e.g., support the import of spare parts, construct'proper parkings' etc., enhance the organisation of the sector, such as transport timetables, etc.).
- The provincial government's transport policy nearly exclusively concerns road safety aspects. Actors in the transport sector experience it as a nuisance. Technical inspections and mandatory insurance are expensive and hardly or not at all effective, and they do not provide adequate services.
- The formal taxation of road use does not contribute much to road maintenance funds. This is partly due to the limited number of transports over the roads.

- State policies and performance, the high levels of taxation and insecurity inhibit growth in the transport sector. Few owners have a fleet beyond a few trucks or buses, and they tend to invest profits in other sectors, especially construction.

With regard to the self-organisation of transport our main findings are as follows:

1 What are the institutional arrangements governing the transport sector in South Kivu (formal as well as informal regulations and norms)?

- Transport is highly organised through owners and drivers associations. While this is a well-known phenomenon in sub-Saharan Africa, it was not well-known and recognised in studies on DRC.
- The associations are a valuable source of data and information but not all associations were willing to share data with the researchers. Although the data they provided on road use, taxation and other aspects of transportation could not be robustly validated, they were generally confirmed – or did not contradict – other sources of information.
- In the absence of state regulation of the transport sector, the associations are the main mechanisms of governance. The main activities of the associations are related to organising transportation at the 'parkings', negotiating transport prices, negotiating the release of arrested drivers and (sometimes successfully) lobbying with the government to reduce formal and informal roadblocks for taxation.
- The associations are formally democratic organisations with administrators elected by the members, but a special position is reserved for the association founders. An entrance fee and a daily or weekly contribution to the association must be paid.
- Associations enforce membership of individual transporters and there are strong indications that associations have a negative influence on price flexibility and indirectly on transport sector efficiency. An important indication is that the prices, contrary to experience elsewhere, show no flexibility in response to road improvement.

2 Which are the main characteristics of transportation on the pre-selected roads (main connections, frequencies, use and users, tariffs)?

- The road network in South Kivu has a length of 2784 km, of which only 236 is asphalted. With only 0.5 km per 1,000 habitants, the road network density in the province is very low and far below the national average. Road quality is extremely low; the majority of the roads are still inaccessible for motorised transport (other than motorbikes); and even the quality of reconstructed roads is low. Some territories in the province are only accessible through air transport.
- The mountainous and river-filled landscape – requiring many bridges – leads to many road erosion risks resulting from hazards such as heavy rainfall and landslides. Many rehabilitated roads under humanitarian programmes have already deteriorated again.
- Data from a major association indicate an increase in transport flows after rehabilitation on some but not on all roads, as well as a decrease of transport flows after a rehabilitated road deteriorates.
- Transport frequencies continue to be very low, due to direct and indirect effects of insecurity, lack of purchasing power (leading to low demand), and a lack of dynamism in development.
- Freight prices fluctuate with the seasons and are especially high in the rainy season, reflecting the road conditions.
- The roads are mainly used by pedestrians. Motorised transport consists mainly of motorbikes, followed by trucks, minibuses and taxis. Bicycles are extremely rare and animals are not used at all for transport.
- During the wars, the transport fleet was significantly reduced, as warring parties confiscated many trucks, pick-ups and minibuses.
- Available insurance figures indicate a fast growth of transport capacity, with an increase of over 60 percent for motorbikes, 90 percent for minibuses, and 50 percent for cars over the past five years when important roads were rehabilitated. The number of pick-ups increased only by 23 percent and the number of trucks by 15 percent.

- The fleet consists largely of second-hand imported trucks, cars and minibuses. Most vehicles are in poor condition, fuel inefficient and require intensive maintenance.
- Maintenance is mainly done by the owners and drivers themselves or by local technicians under primitive conditions at the roadside.
- While the transport of goods by foot is nearly exclusively a task of women, men dominate motorised transport as owners, drivers, technicians, and truck (un)loaders.
- Minibus passengers have mainly social motives to travel while teachers, nurses and administrators travelling by minibus have commercial and professional motives. Truck passengers have overwhelmingly commercial motives.
- Petty trade is a very important motive for travel. Nearly 50 percent of all traders in minibuses and over 70 percent of traders in trucks are small or mini traders. Many petty traders using motorised transport are women who buy in very small quantities to sell at the local market or, after returning to Bukavu, at the Bukavu market and who often make several trips per week.

3 What are the patterns of access to and exclusion from enhanced opportunities of mobility?

- Membership in transport associations is open and there are no indications that membership of newcomers is refused. However, the association enforces membership for all transporters and only powerful groups can operate independently.
- No evidence was found of discrimination against female passengers or other groups with regard to transport. There was positive discrimination towards the police and military who are often provided transport free of charge.

5 Rehabilitated roads: three case studies

This chapter presents three case studies: Nyangezi, Zibera and Bunyakiri. For each area, we present the context, describe the economic and security situation and report what the rehabilitation of the road has meant for the community. In subsequent chapters, we will provide detail on mobility at the household level.

5.1 Nyangezi

5.1.1 General context and selected villages

The research area is located approximately 30 km from Bukavu. The area is mainly known for its brick-making, and is in the chefferie[23] Nyangezi in the Walungu territory. Munya, the main village in the chefferie, has some restaurants, shops, a health centre and primary and secondary schools. The town is especially busy when the main market of the area is operating on Thursdays and Sundays.

Munya sits at the junction of the main roads to Uvira and to Kazinba/Luwindja. This (national) road is an important provincial connection and the passage for imported goods from Tanzania (including food aid) to Bukavu and other parts in South Kivu. The secondary road this research focuses on starts in Munya and connects the Munya junction with the market place Mugogo, over 30 km from Munya. The three selected villages are situated along this secondary road, which was recently rehabilitated with the support of the Belgian government by the organisation Vredeseilanden. The first research village, Kale Negra, is situated about 5 km from Munya along the road. It has approximately 500 households, a very small marketplace, a health centre and a school. The second village, Cishashu, is connected to Kale Negra by a 4 km footpath that is, among other functions, used by children going to school. The path crosses a stream and cannot be used after heavy rains, causing children to regularly miss classes. The youth of Cishashu have recently constructed a 3 km road that connects the village with the Belgian road to Munya. This road is used sporadically; once or twice a week a motorbike and sometimes a car use the road for a private visit. Kale Negra and Cishashu have turned to brick production. Kale Negra maintains a small side road that connects with the busy collection place of bricks produced in the marais.[24] There are numerous kilns in the marais, temporarily taking parts of the land out of agricultural production, and the hill slopes have been planted with trees to produce fuel for the kilns as well as construction wood. Larger landowners and brick

23 Chiefdom.
24 Marshland or wet valleys.

producers often move to Munya, and the villages have a certain level of development as can be seen by the many new metal-sheeted roofs.

The road undoubtedly plays an important role in the local economy of the two brick-producing villages. In December 2012, 49 7-tonne trucks, each transporting 5,000 bricks, one larger truck transporting 10,000 bricks and one pick-up used this road. This was during the low, rainy season. Production, and consequently transport, is normally higher in the dry season.

The third selected village, Mushego, has only a small brick production facility and depends largely on agriculture, wood and, to some extent, livestock. Mushego is situated 16 km from Munya and is far more isolated than the other two villages. There is no school, market or health centre. A collapsed bridge near the village, temporarily repaired by the community, makes the village inaccessible for cars, except with great difficulty by four-wheel-drive vehicles.

5.1.2 Economy, agriculture and production

The area of Nyangezi is hilly, with dry-land agriculture and trees growing on the hill slopes and intensive agriculture in the marais. Diseases of the cassava and banana, both staple foods in the area, negatively affect agricultural production. This combined with flooding of fields in the valley, caused by lack of maintenance of water management systems, seriously affects food security in the area.

Large parts of the marais are owned by the church, local chiefs and landowners in Munya and Bukavu. Nyangezi has a history of small-scale burned brick production, but this started booming only in the last five-to-ten years, to supply the rapidly growing construction market in Bukavu. Work in the brick industry is arduous, especially for women, who carry loads of between 80 and 100 kg on their backs from the kilns to the transportation area (see Box 5-1.).

Box 2: Interview with women in Cishashu

Two women work in a cassava field of that is clearly affected by mosaic. They call the disease 'sina huruma', which means 'without pity', and they compare its effects to AIDS in a human body. Speaking about how they fight against mosaic, they say that they do not have improved seeds. Food for the Hungry International (FHI) distributes seeds and cassava sticks (*bouture*) but they did not have access. They tried to obtain the improved seeds from their relatives, but people do not want to share them. The problem is the number of fields, they explain: When you have four fields, you want to plant them all before you give seeds to your family.
– *Interview with two women in Mushego*

A 40-year-old woman transports bricks four days per week, then works in agriculture for two days and takes one day to go to the market. Each week, she can make 12 trips with 40–50 bricks on her back. We have weighed a brick and found that it was 1.8 kg, meaning she is carrying up to 90 kg loads. She cannot get up or down with the load herself and needs somebody to help her. For 100 bricks, she earns CDF 300–500. She earns around CDF 4000 each day, although it varies. Women are free to decide how much they transport per day, but they all go for the maximum load.

The load is so heavy that she has pain in her head, chest and back. Her knees are so bad that even without a load it is painful to walk downhill. A woman of 50 is too old for carrying bricks and works instead in people's fields for CDF 1000 per day.

Women who are desperately poor start carrying as early as 12 years old. In the afternoon, we even met a girl of 8 carrying bricks. Even pregnant women, although they are not supposed to do this, sometimes also carry bricks.

The women were asked whether they have a cooperative. They responded that they all work for themselves.

5.1.3 Security

Security in the area is considered to be good. The selected villages were never attacked during or after the wars. Criminality has, however, been increasing recently with strange cult-like murders by strangulation. This cult-like killing is referred to as kabanga. People are strangled with a rope, by which these ropes are believed to gain extraordinary powers and can be sold for a high price. In the village of Mushego there had been several recent cases, and it was spreading to the other villages.

5.1.4 Transport

In the Nyangezi area, walking is the most frequent mode of transport, and used for a variety reasons, including going to the health centre and to school, and travel for social purposes. Walking is also the most common means of transporting goods to the market in Munya or even in Bukavu, a task done nearly exclusively by women. Similarly, bricks are transported from the kilns to the collection points along the road mainly by foot (Box 5-1.).

Although motorised transport is limited mostly due to the transport costs and the collapsed bridge in Mushego, the roads are appreciated by the population. The wide and open roads provide more security, attract or are expected to attract 'movement' that can be a base for further development and allow for walking side-by-side, which is important as the long walk to the market is a social event.

The effect of the broken bridge is clearly visible. The inhabitants of Mushego rarely use motorised transport compared to the inhabitants of the other two villages. Of all their trips, 98 percent are by foot, compared to 92 percent for the other two villages (Box 5-2.).

Box 3: Mushego roadside interview

They use the road mainly to go to the market on Thursday and Sunday, to go to the hospital or clinic and to go to church. All the women try to go to the market twice a week. They sell and buy but they also stress they like going there to meet, chat and laugh with the other women. They talk about the market with broad smiles on their faces. Walking time to the market from where we stand is 1.5 hours, or more than 2 hours when carrying a load. In addition, there is the time needed to walk from their houses to the road, which may amount to an additional half an hour.

When we asked if any one of them had ever used a car or motorcycle on the road, it turned out that no one had.

The reason was primarily money. It costs USD 5 to go to the centre of Munya. Also, there is no stopping place near the village.

– Mushego roadside interview with mainly women, two men and two male teachers (Interview 26.1)

5.2 Zibera

5.2.1 General context and selected villages

The area of Zibera is located 75 km from Bukavu in the chefferie Ngwese in the Walungu territory along the road to Bukavu, Burhale, Zibera, Evera and Shabunda. The road from Bukavu to Burhale was rehabilitated in 2006–07. The road from Burhale to Zibera was provisionally repaired by Malteser with humanitarian funding in 2009 and was rehabilitated with DFID funding in 2011. The road continues to Shabunda, and rehabilitation is in progress with the first 90 km completed and approximately another 200 km left.

Zibera Centre, the main village, is situated along the road in a valley with hills at both sides. The second village, Muyeye, is situated in the hills, walking distance from Zibera.[25] The third village, Cishhuzi-Munzini, is part of the chefferie Mulamba, and is situated approximately 4 km from the main Bukavu–Burhale–Zibera road. It is connected with this road, and with the Bukavu–Burhale–Mwenga road by a little-used feeder road constructed by MONUSCO.

25 For security reasons, this village could not be visited for interviews after the survey was completed.

5.2.2 Economy, agriculture and production

The Zibera area is very poor, and many years of war and insecurity have diminished household reserves to a minimum. The local economy of all three villages is mainly based on subsistence farming and mining. Agricultural potential is limited, as the more distant fields cannot be used because of the high level of insecurity, and the fields close to the villages are often over-exploited and exhausted as no inputs are available. Available land for agriculture has been reduced in recent years as outsiders have purchased large areas. These areas can now only be rented for rearing livestock. Although 80 percent of the population have small livestock, cattle are rare because of the lack of grazing land due to the privatisation of land close to the village and insecurity in the hills.[26] Population growth, land scarcity, plant diseases and low productivity have made the area dependent on food aid and basic food items from Bukavu, such as cassava, maize flour and rice. Small quantities of bananas, sweet potatoes and cassava as well as charcoal and construction wood are sold to meet financial needs.

Although there are no mines in the research area, mining is an important source of income, and most boys and men work in the mines, mainly deep in Shabunda and to a smaller extent closer by. Mining activity provides income but comes at a high social price. Men stay away for long periods, and many start new families elsewhere. Consequently, many households are in reality female headed, although women often do not acknowledge it. People also mentioned increased prostitution, unwanted pregnancies and early marriages as ill effects of mining activities.

Zibera Centre has an active commercial sector with shops, restaurants and hotels that has benefitted from the rehabilitation of the road. For example, the number of restaurants has increased in recent years from 2 to 20.[27] Local businessmen and women run most restaurants and hotels, but one-third of the shops are said to be owned by outsiders who have come due to the economic opportunities of the centre. Demand comes from miners, soldiers and truck drivers that spend the night in Zibera on their way to the market in Evera, 57 km towards Shabunda, or to the market in Kakinda, 7 km from Zibera. All three villages have good access to educational and health (including minor surgery) facilities. The area is 30 km away from a fully equipped hospital.

5.2.3 Security

The area of Zibera borders the territories of Mwenga and Shabunda. Shabunda territory is highly unsafe, and 26 percent of the population of the research area is composed of IDPs, mainly from Shabunda. These IDPs are mainly concentrated in Zibera Centre, where they form 47 percent of the population. During the survey, more than 45 percent of respondents assessed the situation as quite dangerous or not safe at all. During the period of research, the security situation deteriorated further with attacks launched by the Armed Forces of the Democratic Republic of Congo (FARDC) and MONUSCO against the Democratic Forces for the Liberation of Rwanda (FDLR) and local groups. After the survey, the military closed the road beyond Zibera Centre, and miners started returning in large numbers to their residences in the research area because of the fighting in the mining areas.

5.2.4 Transport

Motorbikes and taxis for local transport are available in the centre of Zibera but are very limited in the surrounding villages, even when a road connection is available as in Cishhuzi-Munzini. Demand is very high on Mondays and Tuesdays, but very low the rest of the week. Taxis, trucks and minibuses are available in Zibera Centre for long-distance transport to Walungu and Bukavu. There are no stopping places along the road to pick up travellers. Buses and taxis wait in Zibera Centre until they are full and do not stop on the way. Hence, passengers from villages, even if they are located near the road, still need to walk or take a motorbike to the centre. A motorbike ride, however, is expensive, costing as much as a bus ticket from Zibera to Bukavu.

A group interview with female leaders brought out that, despite an increase in social problems, the road rehabilitation is highly appreciated mainly because it shortens the trip to Bukavu and because it stabilises and increases the flow of goods and customers (Box 5-3.). However, interviewees did not observe any improvement of government services in the area and mentioned that neither police nor the army interfered in cases of criminality (e.g., in the case of recent armed robberies of local shops). The tax officers continue to collect CDF 2600 from each household.[28] A school principal also mentioned that WFP's school feeding programme regularly supplies food for daily meals for his students and

26 Interviews 16 and 23. The numbers in this paper refer to the number of the interview as in Annex II.
27 Reporting survey team Zibera, interview 12.
28 Interview 23.

that building materials for school repairs are available. Better access and transportation help schools attract high-quality teachers (observed in several studies: see Farhat and Hayes 2013), but interviewees all maintained that this was not the case in their area. Attracting qualified teachers continues to be very difficult[29] (see Box 5-4).

The road has also affected land prices. Inhabitants in Cishhuzi-Munzini observed steep increases in the value of land close to the roads, especially near the shopping area.[30]

Transport movements are strongly influenced by the regional market in Kakinda, situated along the main road, 7 km from Zibera Centre. Transport clearly peaks on market day (Tuesday). Many come by foot to the market, and buses, taxis, trucks and even motorbikes come from Bukavu to bring people to and from the market and to transport people and goods locally. Transport is easily available along the main road, especially on market days when the local transport prices drop because of ample supply.

Transport in the area of Zibera is highly constrained by a lack of security. Nearly 60 percent of the survey respondents in Zibera felt that the roads in the area were quite dangerous or not safe at all. However, during interviews, respondents assessed the road from Burhale to Zibera as safe during the day, although less so after the market when people return with money or gold. Security is certainly a serious problem for local transporters in the direction of Shabunda; drivers are regularly kidnapped by the FDLR, losing everything including their clothes.

Box 4: Interview with Headmaster in Zibera (Focus Group 15).

It is not easy to get good teachers; no one who goes to Bukavu for training ever returns. All teachers are local. Teachers and headmasters are looking for an opportunity to leave Zibera as well, as the pay is very low even though all are recognised teachers and receive a basic salary from the state. The perception is that 'school is a prison' (this time not for the students but for the staff).

Box 5: Interview with female leaders Female leaders in Zibera (Focus Group 14)

The road is very important as it reduces the time required to travel to Bukavu to two hours; there are less accidents now that the road is improved and there are more clients for boutiques, bars and restaurants in Zibera. There is also more NGO activity, such as WarChild's provision of school fees for the most vulnerable and IDPs and assistance to agriculture; Norwegian Refugee Council providing food aid and training of parent committees and Search for Common Ground and OxfamNovib also providing assistance.

Products now arrive regularly, but prices were not reduced, partly because of high demand of IDPs for basic food articles like cassava flour. The price of this flour increased from CDF 700 to 900 is higher than in Bukavu (CDF 600).

There is better access to health care (for women outside Zibera to the Health Centre and first-level hospital, Centre Hospitalaire) in Zibera and to reference hospitals in Walungo and Kanjola. The current price for transport by car to Walungo hospital is USD 30. Before the road was upgraded, transport was hardly possible, leading to some deaths.

However, according to the villagers we spoke to, there is also more prostitution. Prostitutes come from Bukavu and other places, and there are more HIV/AIDS infections as a consequence. More men of neighbouring villages come to drink and use their money for prostitution. There is more infidelity and men abandoning their families, affecting the moral standards of women of Zibera. Contraceptive are found in the streets and sex workers dress indecently.

Hospitality has changed. While formerly travellers would be offered a free sleeping place, now there is a charge for a mattress and mosquito net.

29 Interview 15.
30 Interview 23.

5.3 Bunyakiri

5.3.1 General context and selected villages

The villages in the research area of Bunyakiri are situated approximately 75 km from Bukavu, mainly in the chefferie Bunyakiri and the territory of Kalehe. All three selected villages are along the Bukavu–Miti–Bulambiki road. The road crosses the Kahuzi Biega National Park and has been rehabilitated since 2007 with Dutch and Swedish funding. Rehabilitation is continuing under UNOPS with DFID funding and will connect Bukavu and the research area with Hombo and beyond. The road is an all-weather road, but the condition is mediocre. As in most other places in South Kivu, the feeder roads to this main road are in extremely bad condition and mostly not passable.

Bulambiki is by far the largest village of Bunyakiri. The road passes through this active commercial and service sector with shops, restaurants and hotels. The majority of the shopkeepers and traders come from outside the area. There is a daily morning market and Friday, Saturday and Sunday market days, especially for palm oil and cassava, with buyers being mainly small merchants from Bukavu.

5.3.2 Economy, agriculture and production

Bunyakiri is hilly, with the road in the valley and hills and plateaus on both sides. The area is an important supplier to Bukavu of agricultural and forest products, especially palm oil, but also cassava, construction wood and planks and charcoal. Most of the palm oil is produced in areas beyond the research site, in the direction of Kambegeti and Hombo. The main economic activity in the area is agriculture. Agricultural production is constrained by insecurity in the hills and on the plateaus. The original population owns the arable land in and around the villages but due to inheritance the plots are of insufficient size. Because of low levels of technology, lack of inputs, over-exploitation and soil erosion, productivity is low. Landslides are common, with significant numbers of casualties and destruction of arable land. Some villagers take risks and travel daily, or for a few days at a time, to the more distant and more fertile fields for farming. Livestock is extremely limited due to theft, with few cattle and small numbers of young sheep and goats. Construction wood, planks and charcoal are sold along the road to Bukavu. Mining plays a minor role and is only practised by newcomers in the area, as the Batembo do not mine.

5.3.3 Security

Bunyakiri is close to North Kivu and borders the national park, which leads to high insecurity. Areas close to the roads are fairly secure, but this is certainly not so in the hills and plateaus beside the road. The FDLR are strongly present in the park and hills, and villages have organised their own protection by forming defence groups, or raia mutomboki, that fight the FDLR as well as the army. Because of the insecurity, nearly a third of inhabitants of the research area are IDPs, mainly living in Bulambiki and Bututu/Bututa. Although the inhabitants of Bututu/Bututa and Miowe had largely returned to their villages, the survey still found many houses empty. During the time of the research, the security situation seriously deteriorated. We completed the survey (albeit along the road only), the road counts and participatory trips, but no complementary fieldwork could be done.

5.3.4 Transport

As in all research areas, walking is the main mode of transport. Motor bikes, trucks, minibuses and taxis provide local transport with peaks on the market days, Friday and Wednesday. Due to the impossibility of fieldwork in this area, we are unfortunately unable to include a nuanced discussion on the social, economic and political implication of road (re)construction here.

5.4 Mobility

5.4.1 Introduction

The SLRC Livelihood, Basic Services, Social Protection and Governance Survey included several questions that specifically addressed mobility issues, such as about the time the respondent left the village, distance of the trip, mode of transport used, reason for and cost of the trip. These questions were asked at the individual level, not household level, as the assumption was that respondents often would not know all movements of other household members and answers would lose validity and reliability. This implies, however, that the mobility of children is not included in the figures, as all respondents were over 16.

Mobility is measured by the number of trips made during the seven days before the survey. A trip, the basic unit of measurement in the research, is defined as a purposeful displacement outside one's own village by any mode of transport for a social or economic purpose.

In this chapter, the mobility figures are analysed for the whole sample as well as by research area as these areas differ in terms of distance to Bukavu, socio-economic structure, and other characteristics. Further, mobility is specifically analysed by gender, age, wealth and social group membership as well as by livelihood in order to assess differential access to transportation and to determine the effect of mobility on livelihoods. Finally, mobility of residents of the two more commercial centres in the sample (having regional markets, restaurants, health clinics, secondary schools, etc.), Zibera Centre and Bulambiki, are compared with the other villages that have a much smaller or no market place and fewer or no shops, health and education facilities. This comparison is made to understand whether differences in a settlement's socio-economic function and size might impact mobility patterns.

5.4.2 Frequency, mode of transport, distance and cause of mobility

Frequency of travel

In 2008, a team from Columbia University conducted the Tuungane project baseline survey, (Humphreys 2008) observing that, of the community members in South Kivu, Maniema and Katanga 'the bulk of respondents had no interactions with people from other communities, while only modest numbers reported having had such interactions. Across the different types of interactions, about an equal number reported having interacted only once or 2 times over the past 30 days; sometimes; and regularly'.[31]

The findings of the SLRC survey in 2012 give a very different picture, but its indings cannot be directly compared with the findings in the three survey areas in this study, as the baseline study also covered the more isolated villages high in the mountains or far out in the forests and two other provinces that are less populated and consequently have communities that often cover very large areas. Consequently, mobility in terms of trips outside the village in these areas will be lower as compared with our survey areas.

In the SLRC survey, the large majority of respondents report intensive interactions with people of other communities. Men as well as women, young people and adults, make on average 4.9 trips per week[32] for a number of different reasons including selling and buying products at the market, going to health centres and meeting family.

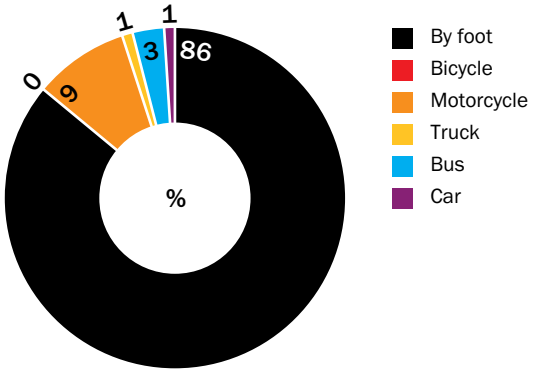
These mobility figures also compare positively with the findings of Bryceson, Bradbury and Bradbury (2008) in their study on rural mobility in Zambia and Ethiopia. This comparison is also only indicative as Bryceson et al. report include mobility of children, which is not included in our survey, and also include trips within the village. However, our results indicate that mobility in the research areas in the DRC is higher than in neighbouring Zambia. We find an average of 4.9 trips per week or approximately 21 trips per month, whereas the previous research in Zambia reports 14 trips per month, and previous work in Ethiopia reports only 8 trips per month.

Whether the higher mobility is related to insecurity as suggested by Raeymaekers couldn't be confirmed. Raemaekers (2012) observed: 'More concretely, the massive displacements armed violence continues to generate in the eastern parts of DRC increasingly stimulates the emergence of a 'hyper-mobile' form of livelihood, which cyclically migrates between economic activities in the mines, farmland and 'spontaneous' urban settlements close to major cities and on the major axes.'

31 See Table III-1 in Annex III for detailed figures on mobility from the Tuungane baseline study.
32 Data from November 2012. Seasonal fluctuations are not taken into account.

Modes of transport

Figure 2: Modes of transport in the three research areas in South Kivu



Walking. As could be expected, the overwhelming majority of the rural population in the research areas still walks: 86 percent of all trips are made by foot. People go by foot to the fields, to visit health centres and to transport goods to the markets. There is a clear gender-based division of labour: almost exclusively, women carry goods as was evident in the Nyangezi area where girls and women carried bricks from the kilns to the collection points at the roadside.

There is an important exception: men transport the ore from the mines to the collection points.

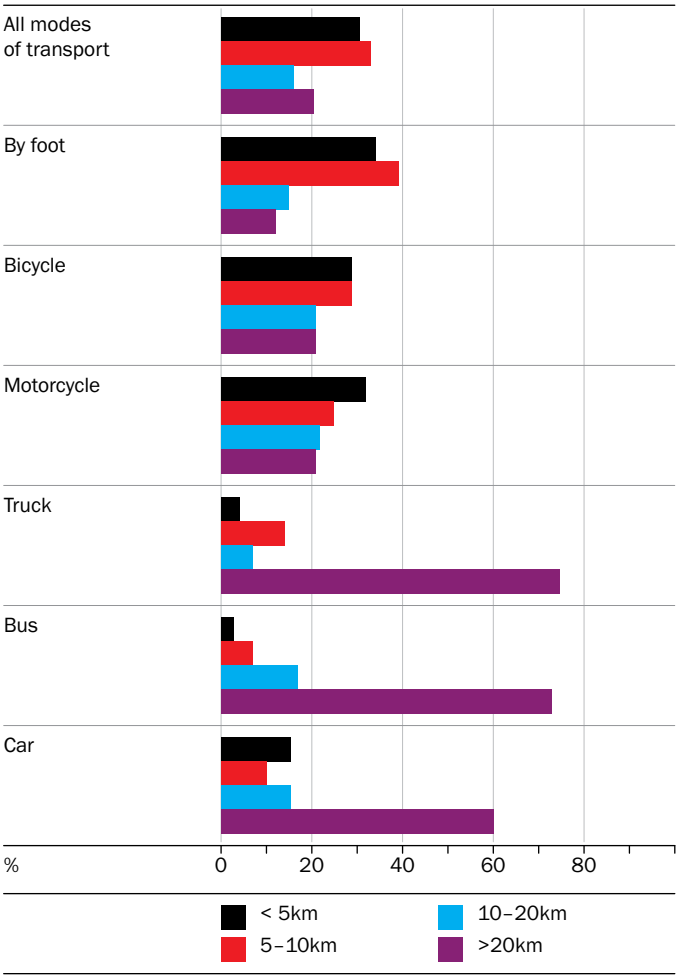
Non-motorised transport. Bicycles as a means of transport hardly play a role in rural transport. In contrast to other provinces, and to many African countries[33] and neighbouring Zambia, bicycles are rarely used for transport, even in the research areas that are relatively flat and where the road conditions would allow for bicycling during the dry period. Animal-aided transport is not used at all in the research areas, in contrast to Ethiopia where this kind of transport is common.

Motorised transport: motorbikes, taxis, buses and trucks. In quantitative terms, the contribution of motorised transport to rural mobility in the research areas is still limited. Only 14 percent of all trips made by the respondents were by motorbike, truck, minibus or taxi/car.

Distances travelled

The large majority (over 65 percent) are relatively short trips of less than 10 km: approximately 17 percent are between 10 and 20 km and 18 percent are above 20 km.

Figure 3: Length of trips made by mode of transport



The length of trip varies logically by mode of transport. Over 75 percent of all trips are made by foot, with the large majority of these trips (75 percent) less than 10 km. Nearly a quarter of the trips by foot are over 10 km and 12 percent are even over 20 km. Approximately three out of four respondents make at least one trip a week over 10 km.

33 Starkey (2007: 102) found 'that bicycles are the most common and most versatile immediate means of transport. In most countries, the ownership and use of bicycles is increasing rapidly.'

Box 6: Interview with survey team Zibera (Interview 12)

Around market day, the area is flooded with taxis and motorbikes, and transport prices are much lower: A taxi costs CDF 1000 and a motorbike CDF 500, whereas on other days, they might be as high as CDF 4000–5000.

Motorbikes are increasingly important in rural areas as could be observed, for example, in transport counts in the Burhale/Zibera area. Motorbikes are mainly used for transport to nearby sites. Over 50 percent of the trips are less than 10 km, and nearly 80 percent are less than 20 km.

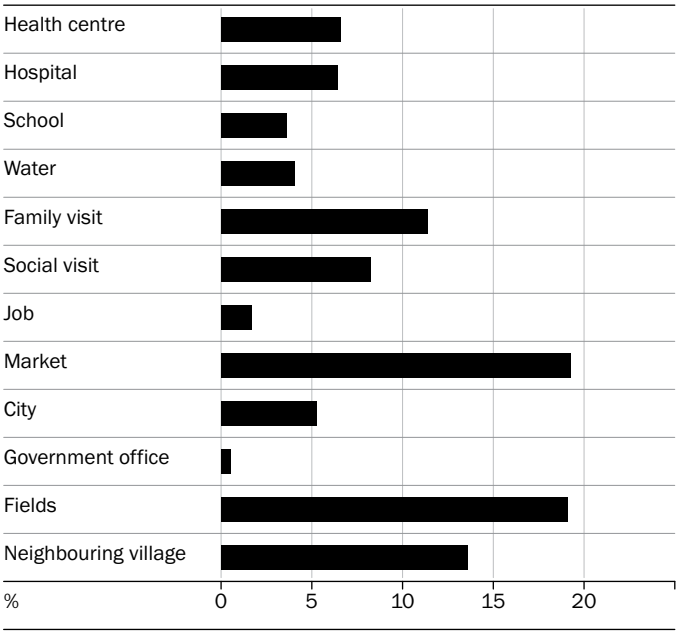
Taxis/cars provide long- as well as short- and medium-distance transport for the households in the research areas. Although mainly used for long distance transport (60 percent), they also transport passengers on trips of less than 5 km (15 percent) and up to 20 km (25 percent). As was noticed during field visits in the Zibera area, taxis transported traders from Bukavu to the weekly market in the early morning and returned in the evening. In between, they made short trips in the neighbourhood and transported people from nearby villages with their goods to and from the market.

Buses and trucks provide the bulk of the long distance transport (over 20 km) in the local communities, with the main destination being Bukavu.

Reasons for travel

Respondents had different reasons for travel. Graph 5-1 shows that transporting agriculture or livestock, buying and selling products, making family and social visits, accessing basic services (health, education and water) and visiting Bukavu are the main reasons for mobility. That neither going to work as an employee nor visiting the authorities are important reasons to leave the village reflects the lack of job opportunities in South Kivu and the limited role played by local government services.

Figure 4: Destinations of all trips



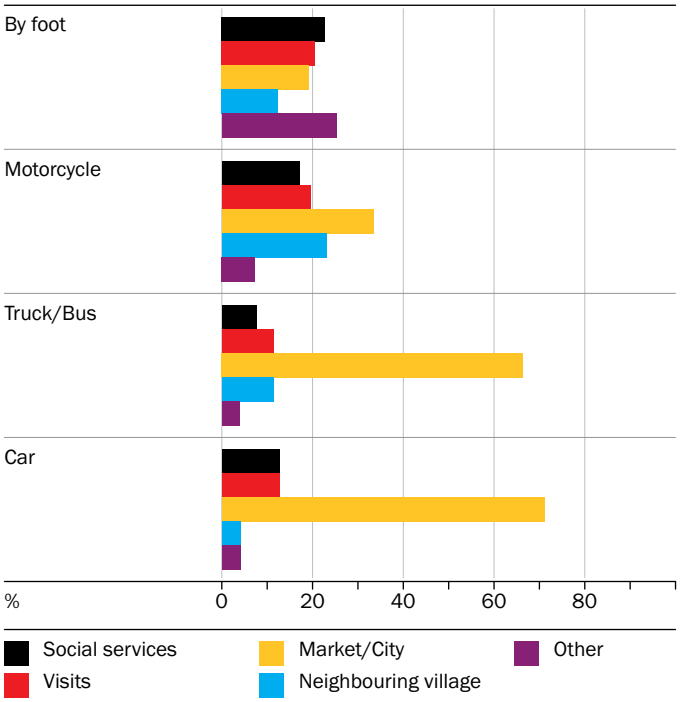
As was mentioned earlier, the sample included only individuals over 16. Consequently, because individuals in the included age groups generally do not go to school anymore, education is heavily under-represented as a reason for travel outside the village. Not all villages have primary schools or schools of the preferred religion or quality, and primary school children visit schools in neighbouring villages, sometimes at rather long distances. This transport behaviour was observed in Mushego in the Nyangezi area. For students in secondary school, this behaviour is even more common, as the schools are often located some distance from the village of residence.

People exclusively walk when going to work in the fields, which can be at some distance from the village (fields are included under 'other'). As indicated before, trucks and buses are mainly for long distance travel. Going to the city and, to a much smaller extent, making family visits (probably also in town) are the overwhelming reasons to use this mode of transport. Buses are preferred to trucks, as they provide relatively more comfort and are less risky. They are consequently more expensive than trucks. From interviews[34] and participant observation trips,[35] we learned that many passengers in buses and trucks go to town to sell or buy goods. For example, shopkeepers and restaurant owners in Zibera go twice or even thrice a week to Bukavu to buy stock.

34 Interviews 10, 15 and 17.
35 Direct observation in travel reports made by national researchers for this study to Bunyakiri and Zibera.

Taxis/cars combine long- and short-distance travel, and reasons for taking a taxi are mainly to go (or transport goods) to or from the market and to transport people to the city.

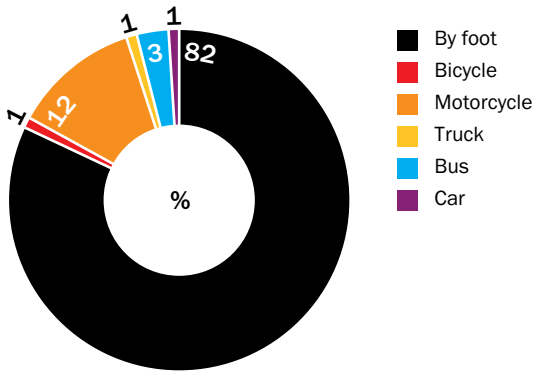
Figure 5: Destinations by mode of transport*



* As bicycles are rarely used, trips by bicycle are not included. Trips by foot under 'other' are made mainly to the fields.

Transport to and from health centres and hospitals is largely by foot, followed by motorbike. Even seriously ill people often have to use motorbikes to reach hospitals, as taxis are not always available or are far too expensive. Only in exceptional cases are taxis used.[36] Although most people still go by foot to the clinics and hospitals – as far as 30 km as in the case of Chishuzi-Munmzinzi in Zibera – the roads were considered a big step forward. Interviewees argued that at least when there are urgent cases or serious conditions they can go to the hospital by motorbike or taxi, and do not have to be carried as in the past.

Figure 6: Mode of transport to health facilities



5.4.3 Mobility differentials by gender and social group

Mobility by gender

Both men and women travel outside the village, but men travel[37] more often. Of all men, 75 percent made a trip outside the village in the week before the survey, compared to 66 percent of women. Men make on average more trips by foot as well as by motorised transport. There is, however, no difference in terms the distances men and women travel.

Men use motorbikes, buses and taxis/cars more than do women. As buses and trucks are mainly used for transport to town, it can be assumed that more men than women travel from the rural areas to town. As we will describe in more detail later, men spend more on travel per week than do women.

There is no difference between the mobility profiles of youth (16–24 years) and adults. These groups are similar in frequency of trips, distances travelled and mode of transport used. However, adults pay more per week for travel than do youth.

Mobility by social group

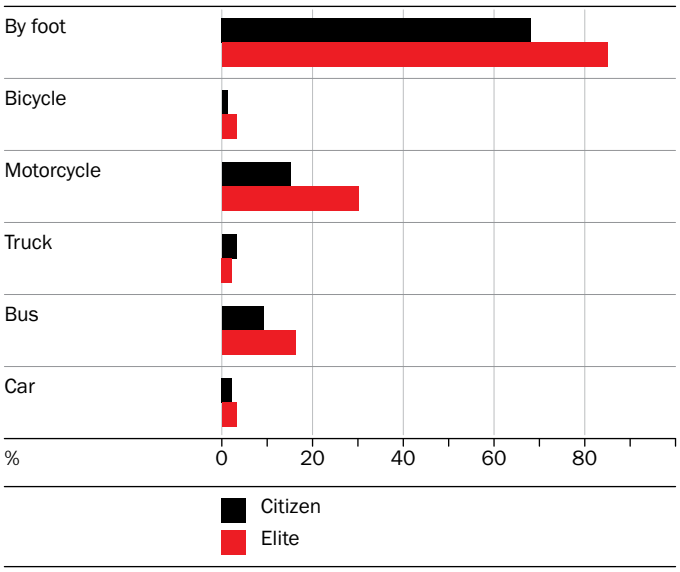
As expected, the so-called elite of the village travel more and use more motorised transport, with the exception of trucks, compared with other inhabitants in the research areas. That the use of trucks is not higher for these elites than for the other inhabitants is to be expected, as trucks are less comfortable and more dangerous, and buses are therefore preferred. Elites are defined by social status and profession, and the category includes chiefs and their

36 This is confirmed by the interviews (14, 16, 20 and 25).
37 To test for significant differences between groups, different tests were used. The mobility and distance data have very skewed distributions, which significantly affect the mean scores. Therefore, one-way analysis of variance (ANOVA) and t-tests were unreliable, and instead Kruskall-Wallis and Mann-Whitney-U tests were performed. These tests are the non-parametric variants and test whether one group tends to have larger values than the other. Differences between groups on the relevance data, which consists of variables with a 5-point scale, were analysed using one-way ANOVA and independent t-tests.

family members, public servants, priests, teachers and health professionals.

Box 7: Interview with Shopkeeper in Zibera
I go twice a week to Bukavu to buy stock for my shop and restaurant. Others go even three times. I have to go so often as I don't have money to buy larger quantities, and I cannot get credit. If I could go only once a week, this would save me about USD 1.00 per week.

Figure 7: Percentage of respondents who had left the village at least once in the seven days preceding the survey, by social group and mode of transport



As the different proxies used to define income groups are only weakly inter-correlated, the analysis of mobility profiles by income group was unfortunately too unreliable to draw any conclusions on these relationships. Similarly, the numbers for different livelihoods and mobility were too small to perform a reliable analysis, and the survey does not reveal whether respondents involved in personal business or public servants have different mobility profiles than the other inhabitants.

The two large villages along the road, Zibera Centre and Bulambiki Centre, have proportionally larger commercial sectors, with shops, restaurants, hotels and other businesses. Comparing the mobility profiles of these two villages with the other villages in the sample, we observe that inhabitants of the villages with larger commercial sectors are more mobile, travelling more often and longer distances by motorbike and bus.

5.5 Ownership of means of transport

Interviews found that the owners of trucks, minibuses and cars/taxis might originate from the area but currently, with few exceptions, live in town – especially Bukavu and to a lesser extent Walungu. None of the households included in the survey owned a truck or a bus, whereas only one household out of the 1250 owned a taxi/car. Motorbikes are sometimes locally owned: 19 surveyed households owned motorbikes (1.5 percent), often renting them out on a daily or weekly basis to a young person with a driving licence to make a living. As bicycling is not a local custom, only 20 households owned bicycles (1.6 percent).

Box 8: Interview with the president and secretary of the Association des Motos – Apromotski in Zibera
The association of owners and drivers of motorbikes in Zibera has 45 members, mainly drivers. Everyone who has the correct documents can become a member of the association. They pay a USD 10 entrance fee (owners pay USD 20), and the driver pays CDF 500 per day to the association. Most motorbike owners live in Zibera and own a maximum of two motorbikes. Most drivers have to hire a motorbike for USD 50 per week as only about 10 percent of drivers were able to save enough to buy their own motorbike.

Table 9: Ownership of means of transport

Research Area	Nyangezi	Zibera	Bunyakiri	Total
Cars	0	1	0	1
Motorbikes	2	66	11	19
Bicycles	7	3	10	20

Although local ownership of means of transport is still very limited, it shows that the recent rise in imports of cheap motorbikes from India and China to Africa has positively affected transportation in eastern DRC.[38]

38 This was also observed by Starkey in Cameroon , Nigeria and Burkina Faso and expected to occur in other countries as well (2007: 2012–103). As recently as 2008, a study in Ethiopia and Zambia did not find a single family owning a motorbike (Bryceson et al. 2008: 474).

5.6 Expenditures on transport

Table 5-2. summarises the findings on the average expenditure for transport per week and per trip using a bicycle or motorised transport, and Table 5-3. indicates the distribution of expenditures per week. Average expenditures were highly affected by a small number of very high expenditures, that we estimate to be over-reported. For this reason, we consider the median figures as more reliable.

Table 10: Costs per trip in US dollars*

	Bicycle	Motorbike	Truck	Bus	Car	**All**
Average costs per trip	1.04	2.44	4.84	3.83	5.00	**3.97**
Median costs per trip	0.35	1.09	3.28	3.28	1.53	**1.64**

* The median is included because extreme answers in the survey influenced the mean scores.

Table 11: Distribution of expenditures per week on transport*

	Bicycle	Motorcycle	Truck	Bus	Car
Less than USD 5	100%	92%	79%	74%	71%
Between USD 5–10	0%	5%	8%	18%	14%
Between USD 10–20	0%	2%	8%	8%	10%
More than USD 20	0%	2%	4%	0%	5%

* The median is included because extreme answers in the survey influenced the mean scores.

Referring to Table 5-2., using a bicycle is clearly the cheapest mode of transport. Motorbikes are second, with a median expenditure per trip of just over USD 1. The median weekly cost for truck or bus transport was between USD 3–4. The cost of traveling by cars is surprisingly low. No explanation could be found for the relatively low costeven though many trips are above 20 km.

Poverty is a large constraint to using motorised transport. Many interviewees explained that transport was simply too expensive, and they either never or rarely are able to afford it. A very large majority spent less than USD 5 every week on transport. That said, a group spends more than USD 5 per week, especially those who make round trips by bus, truck and car and often have to pay twice in a week to go and return

Differences in expenditure exist between research areas in this study, with Bunyakiri having higher weekly transport expenditures than the other two areas. This finding is consistent with those on the use of motorised transport in this area.

5.7 Conclusion

A This chapter provided a detailed analysis of the local use of roads in three areas: Nyangezi, Zibera and Bunyakiri. It contributed to answering the sub-questions concerning the political economy of rural-urban transportation in South Kivu, and provided initial findings on the two sub-questions of the second research question on the effects of road rehabilitation on rural livelihoods, local economic growth and mobility?How is the political economy of rural-urban transportation organised in South Kivu?

2 Which are the main characteristics of transportation on the pre-selected roads (main connections, frequencies, use and users, tariffs)?

- Rural mobility (number of times people leave their village) is high, compared both to South Kivu in 2008 and to patterns found elsewhere in Africa, and stands at 4.9 times a week. Approximately three out of four respondents make at least one trip a week over 10 km.
- Reasons for trips include selling and buying products at the market, going to health centres and meeting family.
- Movements are unevenly distributed throughout the week, with strong peaks on market days. Market days attract motorised transport from outside the areas, which lowers prices.
- Commercial trips are frequent because most traders and shopkeepers lack capital to buy in bulk and therefore need to make multiple trips to buy stock.
- As could be expected, the overwhelming majority of the rural population in the research areas still walks: 86 percent of all trips are made by foot.
- Buses and trucks provide the bulk of long distance transport (over 20 km) in local communities, with the main destination being Bukavu. Buses are the preferred mode of transport, but trucks are more frequently used

for personal transport, as the fees are lower than bus fees.

3 What are the patterns of access to and exclusion from enhanced opportunities of mobility?

- The overwhelming majority of villagers still walk, even over large distances: 12 percent of trips by foot are over 20 km. Poverty is the main factor limiting access to motorised transport. Transportation costs are still too high for the large majority of the rural populationand the poorest small female petty traders still transport their goods by foot over long distances to earn some income.
- Insecurity continues to be a major factor in Zibera and Bunyakiri, where a majority of respondents consider roads unsafe, with kidnapping and robbery restricting their use (certainly during dark). In Nyangezi, insecurity does not seem to affect economic activities and transport movements.

B What are the effects of road rehabilitation on rural livelihoods, local economic growth and mobility?

4 How is the mobility of rural households differentiated by gender and social groups; how frequently do people move, by what means and for what purpose?

- Men travel more frequently, but men and women's trips have equal distances.
- Men use more motorised transport and spend more on travel than women spend.
- Not much difference exists between the mobility profiles of youth (16–24 years) and adults.
- As expected, the so-called elite of the village (defined by social status and profession –the category includes chiefs and their family members, public servants, priests, teachers and health professionals) travel significantly more and use more motorised transport.
- Inhabitants of villages with larger commercial sectors are more mobile, travelling more often and longer distances by motorbike and bus.

5 How do changes in transportation (differentially) affect rural livelihoods and economic growth?

- Owners of motorised transportation typically originate from the research areas but, except for the motorbikes, do not reside there. Inasmuch as rural economies allow for accumulation, they are not attractive places to live for the evolving middle class, which may restrict further take-off of rural economies.
- Roads play a role in the economic growth of central road-side villages (hubs), in particular through the growth in numbers of restaurants and shops.
- Roads stimulate the demand for construction materials from rural areas (brick and wood), mainly driven by the booming construction sector in Bukavu.
- Agriculture is the main occupation in the research areas, but produces little surplus because of crop diseases, soil exhaustion and insecurity. This limits the demand for transport, and transport limitations are at this moment not a decisive factor in the stagnating agricultural economy.

6 Perceived effects of roads on livelihoods

This chapter looks into how local people perceive of the effect of roads on their livelihoods, security and services.

6.1 Relevance and perceived impacts on supply, demand and prices

6.1.1 Overall relevance

Respondents' assessment of the importance of road (re) construction is highly positive. The overwhelming majority rated road rehabilitation between 4 and 5 (5 being the highest possible score) with an average of 4.46, meaning that rehabilitation is very important to them. This is true for men and women, for youth and adults and for elites and the average inhabitant. Roads clearly have different functions for different people, and even interviewees that never or hardly ever used motorised transport highly valued road rehabilitation.

Box 9: Roads and the community

'Roads are very important to the community', stressed the man. When asked if any of them had ever used a car of motorbike on the road, it turned out that no one had.

– Mushego village, road interview, group of mainly women, two teachers, two men (Interview 26.1)

The road is very important but too far away from the village to have a direct impact. Nobody in the family has used motorised transport. Even when my wife went to the clinic for her delivery, she walked over.

Why is the road so important when they don't use motorised transport?

Because the road 'amène mouvement' [it brings movement]. Look at the 'centre' [the town where the road passes through]. When there is a road, you can install a studio and play music.

–Farmer in a family compound (Interview 26.6)

Respondents with their own businesses appreciate road rehabilitation slightly more. This is easily understandable, as their travel time is much reduced. In Zibera, for example, shopkeepers and restaurant owners travel once or more a week to Bukavu for shopping, returning the same day. This trip doesn't take more than 2–3 hours now, compared to 6 hours (or even longer in the rainy season) before rehabilitation.

Another reason for the perceived importance of the road is its ability to attract NGO activity. In all areas,

interviewees stressed the importance of good roads to attract NGOs for development activities. A good road is seen as a precondition for NGOs to come to the area and initiate activities. Recent research (Kyamusugulwa forthcoming) also found that residents of one village decided to reconstruct a local road, because they knew that development agencies only tend to have activities in areas accessible by car.

There are differences between the three research areas in perception of the relevance of road rehabilitation. We found extremely high appreciation for road rehabilitation in Zibera (average score of 4.82) and Nyangezi (average score of 4.66) but, although the appreciation was also rather positive in Bunyakiri, levels were lower (average score of 3.83).

The highly positive perception of the importance and impacts of road rehabilitation in the Zibera area is best explained by its relative isolation from Bukavu before the road was reconstructed. Road improvements strengthened the connection between Zibera and Bukavu, the supply of and demand for products increased and the return travel time to Bukavu is much shorter (4 instead of 12 hours). Consequently, travel, selling and buying time together takes a day instead of two as in the past. Additionally, NGO activities increased in the area. Zibera Centrev benefits from continuing road rehabilitation in the direction of Shabunda. Trucks collect and deliver goods from the villages along this part of the road and from the large market in Evera, 57 km beyond Zibera. Their drivers and crew normally stay one or two nights in Zibera Centre, increasing demand in local pubs, restaurants, hotels and shops, with the number of restaurant increasing from 2 to 20 in recent years.[39]

Unfortunately, the reasons for the relatively lower assessment of the relevance of the road and the specific benefits of road rehabilitation in Bunyakiri could not be investigated, as the security situation deteriorated and did not allow for follow-up by interviews and discussions.

6.1.2 Benefits of road rehabilitation for rural supply, demand and prices

Respondents in this study observed a significant increase in the supply of consumer products and inputs at the markets (3.84, where the maximum score is 5) as a consequence of road improvement, including salt, flower, vegetable oil, dried fish, medicines, clothes, mattresses and construction materials such as nails, locks and metal sheets. To a lesser extent, they also observed increases in the demand for their products, including palm oil, cassava, charcoal, wood and sweet potatoes (3.54, where the maximum score is 5).

Box 10: Roads and markets

Even poor people can now sell goods at the market or along the road. Before upgrading the road, there was no demand for products. In the past, products like salt and soap were not regularly available. These things are now available. They are expensive, but prices are slightly lower than before.
– Widow in Manzini-Malumba chefferie (Interview 20)

Because of the road, we can sell our produce along the road as many buyers pass by there. But the road did not have a positive impact on prices; they even went up as the traders also need to make a profit.
– Wife of local chief in Mulamba (Interview 19)

The assessment of the price effects of road rehabilitation is less positive. Respondents did not see improvements in prices for local products, whereas they felt generally that prices of consumer products and inputs had increased.

There are no difference between men and women, young and old or elite and non-elite in terms of perception of the benefits of the rehabilitated road, except for the supply of goods at the market. Women assessed the impact of road rehabilitation on the supply of goods more positively than did men. This is not unexpected considering the role women have in supplying the household. In interviews, women confirmed this position as the regular and broader supply of goods at the market was nearly always enthusiastically mentioned as 'the' benefit of the rehabilitation of the road.

Merchants and residents of commercial villages systematically rated the increase in supply and demand and better prices of goods higher than did other respondents. Clearly, merchants observe economic opportunities the road offers, such as from rapid increases in number of restaurants, shops and hotels in town centres like Zibera, shorter travel times and lower transport costs. They also tend to value the road more positively than do others, indicating that merchants are in a better position to use the potential benefits for their own interests.

39 Information of survey team, Interview 12.

In addition to differences by research area in terms of overall relevance of roads, there are important differences on the specific benefits for supply, demand and prices that come with road rehabilitation. Of the three areas, Zibera scored highest on most benefits. Residents of Zibera observed an increase in the demand for local products (score of 3.8) as well as a small improvement in prices for their products (score 3.3.) and an improvement in the supply of consumer goods. Only with respect to the prices of consumer goods did residents of Zibera observe a negative trend (score 2.2).

In Bunyakiri, the overall lower assessment is consistent with lower appreciation of the various benefits road rehabilitation can provide. The population of Bunyakiri observed lower benefits in terms of improved demand, supply, prices and access to health facilities, compared to other research areas. Bunyakiri scored lowest on three of the four benefits. Only with respect to prices of consumer goods and inputs was Bunyakiri less negative compared to the two other areas.

6.2 Perceived impacts on health and education

A small but positive overall effect was observed with respect to increases in visits to health centres and hospitals (score 3.26). The low average is highly influenced by the low score for Bunyakiri. Both Nyangezi and Zibera observed more positive increases in visits to health services, reported by individuals regardless of social group, gender or age. The high score for Nyangezi might be related to the distance between the villages included in the survey and health services: None has a health centre and all patients need to travel to a neighbouring village for medical treatment (4–25 km). They also travel the farthest of anyone in the three areas to reach the nearest hospital. These factors heighten the importance of good roads for residents. The population of Bunyakiri observes less impact in terms of increased use of health services (score 2.63). From the survey, we learned that the health services in Zibera are visited more often than those in Nyangezi and Bunyakiri.[40] The health staff in Zibera mentioned the importance of the road rehabilitation with respect to the high attendance.

A possible benefit of better accessibility is the potential to attract better health and education staff, as mentioned in the literature. Interviewees in Zibera Centre and Maluba clearly stated that this was not at all the case; teachers and health staff were highly dissatisfied with conditions in the area, and the road rehabilitation had not changed this. They did not expect that attracting staff to come to work in the area would be easier as a result of improvements to the roads. As one primary school headmaster explained, 'working here at a school is like being in prison'.[41]

Box 11: Roads and health

Since the road rehabilitation extended beyond Zibera Centre, 'The number of patients increased from 2009, 80–100, to 120–150 now. It is especially high on market days.' Urgent cases come by motorbike.
– Doctor at Centre Hospitaliare de Zibera (Interview 18)

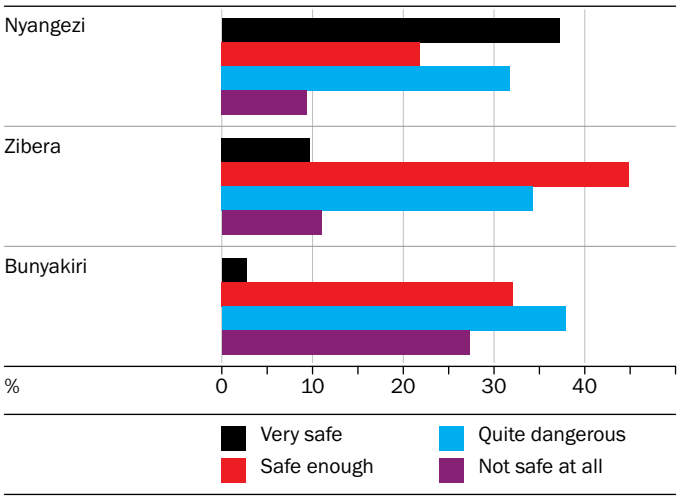
For the Malumba Zibera, the road is especially important to reach the hospital as both hospitals are approximately 30 kilometres away. As a church leader explained, 'The main road is important but many side roads are still missing and therefore sick people cannot be transported to the health centres of hospitals from many other villages in the area. However, in the past patients of this village needed to be carried by men to the hospital in Walungu (30 km) while when they died the body had to be carried back. In case the patient died after 15:00 there was no time to bring the body back, and it had to be buried there. If a taxi must be hired for transport of a sick person, this cost USD 25. Sometimes they get it for USD 15 when the owner is from the village.'
– Church leader Manzini- Chefferie de Malumba (Interview 23)

The roads had no effect on the accessibility of schools for children, as we did not observed a single example of students using motorised transport to go school. Either they walked or they stayed with relatives in cases where the school was far from their homes.

40 As observed in the SLRC livelihoods, basic services social security and governance survey.
41 Group Interview 15 with local elite.

6.3 Perceived security impacts

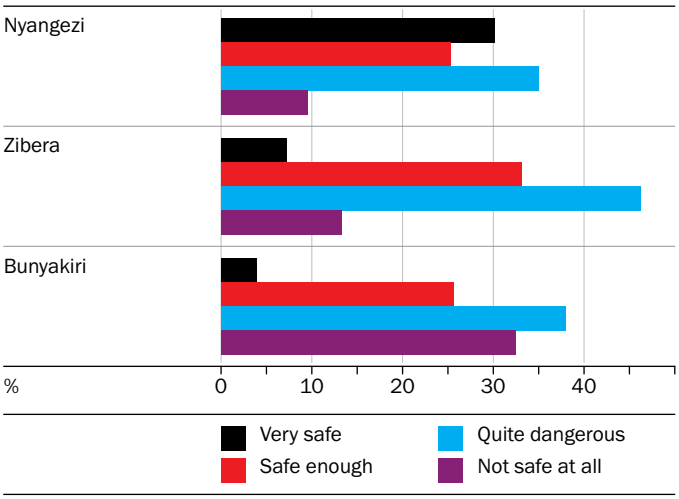
Figure 8: Perceived security in the villages in Nyangezi, Zibera and Bunyakiri



As Graph 6-1 shows, at the time of the research, a large proportion of the population felt it quite dangerous or not safe at all within the villages, particularly with high levels of robbery and muggings and, to a lesser extent, assassination and physical violence. Roads were felt to be even less safe, with a large majority considering roads to be quite dangerous or not safe at all, especially in Bunyakiri and Zibera.

Road improvements were not seen to significantly have an impact the security situation in any of the three study areas. Nyangezi, the most secure area, had the most positive opinion on the security impact of the road improvements (3.29, slightly positive), followed by Zibera (3.01, neutral) and Bunyakiri (slightly negative) (see Graph 6-2).

Figure 9: Perceived security on the roads in Nyangezi, Zibera and Bunyakiri



This view was more or less confirmed by the interviews. Respondents in Nyangezi were rather positive and mentioned that the new road gives a feeling of being more secure, as it is wide and open and people can be seen walking on the road in contrast to the previous narrow path overgrown on both sides.[42]

Box 12: Roads and crime

The road also attracts criminals. Yesterday, an armed criminal was caught, while a month ago there was an attack on the shops in the Centre. The police did not dare to intervene. Neither the army nor the police make an effort to improve security

The road from Burhale to Mwenga is still controlled by the FDLR and the FDLR attacks to stock themselves.
– Church leader and five men in Manzini-Chefferie de Malumba (Interview 23)

There was recently an attack by armed deserters or gangs that plundered the shops in the village centre, and there are a lot of thefts from houses.... There are cases of women being raped outside the village, especially in the nearby mining areas. The road is only safe during daytime.
– Widow in Manzini-Chefferie de Malumba (Interview 2)

The road to the market and Burhale is generally safe.
–Women in Zibera Centre (Focus Group 14)

42 Interview 26.6. This respondent also mentioned that the road feels safe. It is very open, and women feel safer on the big road.

In Zibera, in group discussions and individual interviews, positive (enables the army and police to be present) and negative (the road attract criminals; criminals can reach the village more easily; the army and police make no effort to improve security; the road is only safe in the daytime) impacts of the road rehabilitation were mentioned, and reaching an overall conclusion was difficult. However respondents felt that the security situation was relatively better than in villages not connected to the road.[43] Although effects are mixed, it may thus be concluded that on balance, roads are perceived to have a slightly positive effect on security.

6.4 Conclusion

This chapter contributed to answering sub-questions concerning the second research question.

B What are the effects of road rehabilitation on rural livelihoods, local economic growth and mobility?

4 How is the mobility of rural households differentiated by gender and social groups; how frequently do people move, by what means and for what purpose?

- Men and women, youth and adults have the same levels of appreciation for the rehabilitated roads, with women reporting more often the benefits from a larger supply of consumer goods and inputs.
- Business owners have a slightly higher appreciation of the importance of road rehabilitation.
- Merchants and residents of the central, more commercial villages systematically rated the benefits for supply and demand and better prices of goods higher than did other respondents.

5 How do changes in transportation (differentially) affect rural livelihoods and economic growth?

- Respondents' assessment of the importance of the (re)construction of the road is highly positive.
- Roads have a strong symbolic meaning, as even the high numbers of people who never use motorised transport highly value road rehabilitation.
- Apart from reducing travel time, another reason for the perceived importance of the road is its ability to attract NGO activity.
- There are differences between the three research areas in terms of the perceptions of the overall relevance of road rehabilitation. Zibera and Nyangezi scored very high, Bunyakiri less so. The latter was consistent with Bunyakiri's lower scores on benefits brought by the road, such as higher supplies of good and inputs. Due to security reasons, this finding from Bunyakiri could not be followed up with interviews.
- Respondents noted an increases in the supply of consumer products and inputs at the markets and, to a lesser extent, increases in the demand for their products. Increases in supply and regularity of goods at the market strongly influenced positive appreciation of road construction.
- The assessment of the price effects of road rehabilitation is less positive.
- Transport affects the accessibility of services in modest ways. Travel to and from health centres and hospitals is largely done on foot, with motorbikes the second most frequent mode of transport. In exceptional cases, taxis are used. A small but positive overall effect was observed with respect to increased visits to health centres and hospitals, especially in Nyangezi and Zibera. Roads are however highly appreciated for allowing motorised transportation of people with very serious emergencies and illnesses.
- The use of transport for education was not measured, because the survey was directed at people 16 years and older; but, in interviews and participatory observation trips, no evidence of a positive impact on access to education was observed.
- Literature mentions the potential to attract better health and education staff as a possible benefit of better accessibility, but interviews clearly stated that this was not at all the case.
- A large proportion of the population feels that the villages are still quite dangerous or not safe at all. Respondents felt roads to be even less safe, with a large majority considering roads to be quite dangerous or not safe at all, especially in Bunyakiri and Zibera.
- Road improvement is not seen as an important factor in changing security conditions. In Nyangezi, a slightly positive relation was reported, followed by Zibera with a neutral score and Bunyakiri where this was seen as slightly negative.

43 Group Interviews 16 and 23 with local leaders in Malumba.

7 Conclusions

This exploratory study provides preliminary answers to the research questions presented at the beginning of Chapter 2. Here we wrap up the main findings from the different chapters. The main questions explored involve the organisation of the political economy of rural-urban transportation in South Kivu; the patterns of access and exclusion associated with enhanced mobility opportunities; and the influences of road rehabilitation on livelihoods, local economic growth and mobility.

7.1 Road rehabilitation

The rehabilitation of several main roads connecting rural towns and villages with Bukavu by the provincial authorities supported by the international community has diminished rural isolation in South Kivu. However, large parts of the province are still very difficult or impossible to access, as several main connections still need to be rehabilitated and nearly all secondary roads in the province are still not passable

The recently rehabilitated roads remain very vulnerable to heavy rainfall and overloaded trucks. Rehabilitated roads are only in a moderate state of repair and in some cases are already seriously deteriorating. Low road quality is not only a constraint to transport but also causes enormous wear and tear to the vehicles and consequently increases transport costs.

All road rehabilitation has been achieved through financial support from donors. The government is responsible for the maintenance of roads. Maintenance is a major concern. Transport flows on the newly rehabilitated roads are limited, and, as a result, local contributions to road maintenance funds are very small. The province will most probably receive insufficient funds from the national road maintenance fund[44] to cover the maintenance costs of its road network, and the province also has insufficient organisational and technical capacities for effective maintenance. This is a major threat to the development of rural transport.

7.2 Political economy of rural-urban transportation in South Kivu

The government in South Kivu has no state policy to facilitate transportation and enhance the organisation of the sector. The interference of the government with transportation is restricted to safety measures, as the services provided are limited or non-existent and are

44 Considering the present problems with the transfer of funds from the centre to the provinces it is unlikely that the province will receive sufficient funds from the national maintenance fund.

perceived as devices to charge drivers money.

Formal and informal taxation, by state and non-state actors, is frequent: in one case, there are 13 roadblocks over 75 km. The formal and informal taxation increases transport prices by 13–23 percent. Transport costs for freight are very high in comparison to elsewhere in Africa, among others due to high maintenance costs for dilapidated vehicles, formal and informal taxations.

Transport is mainly self-governed through democratic, fee-based membership associations of owners and drivers. In the absence of state regulation, the associations are the main mechanisms of governance. These associations have been organised to defend their interests vis-à-vis the clients, police and other authorities. The associations organise a 'queuing' system at the 'parkings' (terminals). They also negotiate common prices mediate unlawful arrests, kidnappings, and related issues and lobby (sometimes successfully) the government to limit roadblocks,. In this unstable society without the rule of law, associations have an important social and political role to play, but indications are that associations also cause market imperfections. As is the case in other sub-Saharan African countries this (potentially) leads to overcapacities and artificially high prices, which limits the economic benefits of road rehabilitation,.

The limited demand for transport of merchandise and the low quality of roads make the sector unattractive for large investments. Most investments in the sector are therefore low-capital motorbikes, taxis or minibuses, with limited investments in fleets of (mainly) second-hand, low-quality, fuel-inefficient trucks. The sector is one of small entrepreneurs owning a few buses or trucks, with a single exception (one minibus company that recently entered the market). The road transport sector therefore lacks the efficiency gains of modernisation and economies of scale. Owners do not consider the expansion of transport businesses as viable and they prefer to divert the profits that are generated, to other (less risky) sectors.

Owners of motorised transportation typically originate from the research areas, but do not reside there. Inasmuch as rural economies allow for accumulation, they are not attractive places to live for the evolving middle class, which may restrict the further take-off of rural economies.

7.3 Main characteristics of transport on the selected roads

Road rehabilitation leads in most, but not all, cases to an increase in motorised movements, as well as a decrease in transport flows after a rehabilitated road deteriorates. Transport frequencies continue to be very low, due to direct and indirect effects of insecurity, lack of purchasing power leading to low demand, and a lack of dynamism in development.

The overwhelming use of the roads is by pedestrians; many people have never used motorised transport. Motorised transport consists mainly of motorbikes, followed by trucks, minibuses and taxis. Strikingly, bicycles are extremely rare and animals are not used at all for transport.

The fleet consists largely of second-hand imported trucks, cars and minibuses. Most vehicles are in poor condition, are fuel inefficient and require intensive maintenance. Maintenance is mainly done by owners and drivers themselves or by local technicians under primitive conditions at the roadside.

7.4 Security and transport

During the wars, the transport fleet was significantly reduced, as warring parties confiscated many trucks, pick-ups and minibuses, but available (insurance) figures indicate a fast growth of transport capacity in recent years.

Insecurity remains high in the province. Very few areas qualify as fully safe, and large areas are highly unsafe. Serious criminal activity is fast increasing throughout the province, and the population does not perceive the roads as safe. Although the perception of road security varies, in most areas it is still very low. Rural people do not feel that road rehabilitation improved general security in the area. Their assessment is either neutral or slightly positive. Staying near the road is considered safer than travelling in the interior, away from the road, but travelling by road may also be insecure. However, walking over a widened road is considered safer than walking along the small paths through the fields. Road rehabilitation thus seems to have a neutral to slightly positive effect on security.

7.5 Patterns of access and exclusion for gender and social groups

Transport as a sector is completely male dominated: owners, drivers, technicians, and truck (un) loaders are male. Few women have a driving licence, even for private transport in urban areas.

We found no evidence of discrimination against women in terms of access to transport; this research indicates that both men and women have access. However, transport is certainly gendered. Although women frequently leave the village, they do so less often than men. Men travel significantly more often using motorised transport than do women, and motorised transport is an exclusively male business. There is a strong gender bias with regard to the transport of goods. Women are almost exclusively responsible for carrying (often excessively heavy) loads by foot, whereas men very rarely take on that type of work. Many petty traders using transport are women, who buy in very small quantities to sell at the local market or, after returning to Bukavu, at the Bukavu market. They often make several trips per week.

Although we found that, similar to the results for gender, no evidence exists of discrimination against minority groups in terms of access to transportation, the benefits of motorised transport services are not equally distributed among the population. The so called 'rural elite' (teachers, chiefs, public servants, etc.) use motorised transport and travel relatively more with the safer, faster and more comfortable taxis and minibuses. There is parity between elites and regular rural inhabitants only when considering transportation with the less preferred (less comfortable, more dangerous) trucks. Differences also exist in mobility profiles for residents of more-commercially-developed villages; these individuals travel more often and longer distances by motorbike and bus, compared to residents of less-commercial villages.

7.6 Effects of road rehabilitation on rural livelihoods, local economic growth and mobility

Rural mobility (number of times people leave their village) is high, both compared to South Kivu in 2008 and to patterns found elsewhere in Africa, and stands at 4.9 times a week. Approximately thre out of four respondents make at least one trip a week over 10 km. Reasons for trips include buying and selling, going to health centres and meeting family. As could be expected, the overwhelming majority of the rural population in the research areas still walks: 86 percent of all trips are made by foot, including 12 percent over a distance of more than 20 km. Even when transport is available, it is usually considered too expensive, and even women already in labour may prefer walking to the clinic.

Minibus passengers most often have social motives to travel, followed by commercial motives for selling and buying products at the market, and professional motives of commuting (for teachers, nurses and administrators). Truck passengers have overwhelmingly commercial motives. Petty trade is a very important motive for motorised travel. Nearly 50 percent of all traders in minibuses and over 70 percent of the traders in trucks are small or very small traders. Cheap imported motorbikes have had a large impact on rural mobility. Motorbikes provide most motorised transport in the rural areas, make locations accessible that were previously inaccessible and even provide transport in (health) emergencies.

Poverty could be influencing rural mobility in several ways. Interviews brought out that people often travel for no apparent reason, or to visit relatives. This may be a signal of despair, where people wander to seek support for coping with lack of food security. Also, commercial trips are very frequent because small and very small traders, often women, and shopkeepers lack capital to buy in bulk and need to make multiple trips to buy stock. This may be a reason for concern and further investigation.

Because of the enormous rural poverty and high insecurity that still suppresses rural production, demand for transport of merchandise remains small and the roads are certainly not (yet) the envisaged driver of economic development, except to some extent for the Nyangezi area. Transport flows are small, and petty trade dominates the demand for transport services on roads. In general, rural communities observed only a small increase in demand for their production, and prices did not improve. The main exception is the demand for transport of building materials for the quickly expanding construction market in Bukavu.

Although many benefit rarely or not at all from road transport, road rehabilitation is highly appreciated by all. Men and women of all social strata appreciate the rehabilitated roads very much, with local merchants reporting an even higher appreciation level. Respondents in this study named the main benefit as being the increased supply of products at the market, with the most positive view on this benefit coming from the population in food-insecure areas. This was followed by the benefits

of better access to health services in emergencies, more NGO activities and reduced travel times to urban areas. Road rehabilitation had a small positive effect on use of health facilities but did not result in attracting better-qualified health and education staff, in contrast to observations in other countries.

Further, their appreciation is driven by the symbolic value of roads: roads are important as they give a feeling of being connected and an expectation of development.

7.7 Conclusion

The rehabilitation of roads in DRC is expected to increase mobility and access to markets, connect supply and demand, decrease transportation costs, enhance economic growth and help people move out of poverty (World Bank 2010). The World Bank also links the agricultural recovery witnessed between 2006 and 2010 to the rehabilitation of rural roads, which started between 2001 and 2005 (World Bank 2011).

Our findings should sober these expectations. Indeed, road rehabilitation has a positive effect on mobility and availability of products. Increased access to transport has boosted production of brick and other supplies for the construction industry, and it has brought some economic dynamism, especially on market days, to central villages along the road. Overall, however, the use of roads is limited. Expected effects on prices have not been observed.

The effects of road construction may be visible only on the long term. Even though roads are not being used frequently, and many people never make use of motorised transport, the assessment of the respondents of the importance of the (re)construction of the road is highly positive. Roads appear to have a strong symbolic meaning. They denote state building as well as a sense of development and dynamism.

Rather than becoming a driver of the economy, we observed that prevailing poverty and governance conditions restrict the possibilities for enhancing transport by road. There continues to be little demand for motorised transport, and the number of movements over the roads are low. Transport appears to be mainly a self-governed sector of small entrepreneurs. Conditions seem to be lacking to boost the sector's efficiency gains. On the contrary, as in other economic sectors, profit margins are reduced because of many informal taxes and levies. The low number of movements, coupled with the lack of effective taxation, jeopardise the gains that are being made in the construction of roads. Funds for road maintenance are not accumulating at a high-enough rate to warrant adequate maintenance. Considering the humid climate and mountainous nature of South Kivu, road maintenance is a major issue. Roads rehabilitated in the previous decade under humanitarian schemes are ready observed to be deteriorating.

In post-conflict areas or weak states and recovering economies, more attention thus must be given to creating funds for road maintenance. This must take into account that possibly many years may pass before motorised road use reaches the threshold where motorway taxation can cover the needs for road maintenance.

Little attention has been paid to developing governance for the transport sector, notwithstanding the large sums invested in road rehabilitation in post-conflict societies. Donors investing in roads may become more active in leveraging effective governance for taxation, safety issues and creating an enabling environment for a thriving transport sector where economies of scale can be applied, where positive incentives exist for re-investing profits in the sector, and where cars slowly become less dilapidated. This would eventually bring down the price of freight transport.

Systematic attention must be paid to self-governance in the transport sector. Self-governance does not stop during conflict, and the transport associations are strong and provide a high level of organisation of the sector. Investigation is needed into the precise roles of these associations and their effect on prices for transport.

The effects of roads on security are diversified and require monitoring to establish effects in specific contexts.

Finally, many of the findings in South Kivu on rural mobility, organisation of the transport sector, sustainability, governance and taxation are not very different from the findings by, for example, the African Community Access Programme in other sub-Saharan countries and are not specific to conflict-affected countries. The impacts of continuing insecurity on mobility and transport on road rehabilitation in South Kivu will require additional study, over a longer period of time. The next stage of research planned is a follow-up assessment of the same areas in 2015.

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Annexes

Annex I: Freight transport cost structure

Table I-1.

	Bulambiki 6 tonne	Bulambiki 6 tonne	Nzibera/Kigulube 8 tonne	Nzibera/Kigulube 8 tonne	Nyangezi 5,000 bricks	Nyangezi 10,000 bricks
	Direct Costs (USD)	+ fuel (USD)	Direct Costs (USD)	+ fuel (USD)	Direct Costs (USD)	+ fuel (USD)
2007	150	246	800	1160	60	150
2008	160	264	800	1190	70	180
2009	160	272	800	1220	75	195
2010	180	292	900	1350	80	200
2011	200	320	1000	1450	90	225
2012	250	394	1000	1540	90	250

	Bukavu–Bulambiki 6 tonne	Bukavu–Bulambiki 8 tonne	**Bukavu–Bulambiki total**	Bukavu–Nzibera/Kigulube 8 tonne	Bukavu–Nyangezi 5,000 bricks	Bukavu–Nyangezi 10,000 bricks	**Bukavu–Nyangezi Total**
	Voyages	voyages	**voyages**	voyages	voyages	voyages	**voyages**
2007	156	89	**245**	50	536	128	**664**
2008	118	81	**199**	46	481	207	**668**
2009	132	106	**238**	57	603	158	**761**
2010	126	92	**224**	42	566	132	**698**
2011	12 ?	93	**213**	–	651	135	**786**
2012 Jan–Nov	119	96	**215**	43	583	139	**722**

Table I-2. Bukavu–Nyangezi

Year	Vehicle category	Route	Fuel cost (USD)	Taxes	Other expenses	Vehicle type
2007	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 60 **2** 150	**1** Stationnement CDF 1000 x 2 **2** Stationnement collectivité USD 3 **3** Peage 500 bricks = USD 5 x 2 = 10,000 bricks = USD 10 x 2	**1** Péage USD 5 x 2 **2** USD 10 x 2 **3** Manutention USD 10 x 2 et USD 20 x 2	**1** 526 vans **2** 128 trucks
2008	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 70 **2** 180	**1** Stationnement **2** Stationnement collectivité **3** Péage route 5000 bricks CDF 6000 x 2, 10000 bricks USD 10 x 2	**1** Manutention **2** 5000 bricks USD 10 x 2, 10,000 bricks USD 20 x 2	**1** 481 vans **2** 207 trucks
2009	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 75 **2** 195	"	**1** 5000 bricks USD 15 x 2 **2** 10,000 bricks USD 30 x 2	**1** 603 vans **2** 15 trucks
2010	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 80 **2** 200	"	**1** 5000 bricks USD 15 x 2 **2** 10,000 bricks USD 30 x 2	**1** 66 vans **2** 132 trucks
2011	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 90 **2** 225	"	"	**1** 651 vans **2** 135 trucks
2012	**1** 5000 bricks **2** 10,000 bricks	Bukavu–Nyangezi (27 km)	**1** 90 **2** 250	**1** Barrière militaire CDF 5000 x 2 **2** Stationnement Bukavu CDF 2000 x 2 **3** Taxe collectivité USD 3 **4** Péage route : 1. CDF 6000 2. USD 10 x 2	"	**1** 588 vans **2** 139 trucks

Year	Vehicle category	Route	LOCATION + CARBURANT	Taxes	Other expenses	NOMBRES VEHICULES
2007	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 800 + (USD 1.2 x 300 Liters)	**1** Stationnement USD 10 x 2 **2** CNPR USD 10 x 2 **3** Sur transport des biens USD 10 x 2 **4** Sur transport personnes USD 10 x 2 **5** Péage route USD 10 x 2	**1** ANR USD 5 x 2 **2** B2 USD 5 x 2 **3** Police routière CDF 3000 x 2 **4** Barrières militaires USD 5 x 3 x 2 **5** Ration equipage USD 80 **6** Manutention 10% x 2	50 camions
2008	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 800 + (USD 1.3 x 300 Liters)	"	"	46 camions
2009	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 800 + (USD 1.4 x 300 Liters)	"	"	57 camions
2010	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 900 + (USD 1.5 x 300 Liters)	"	**1** ANR 5 x 2 **2** B2 5 x 2 **3** GR 5 x 2 **4** Police routière CDF 4500 x 5 x 2 **5** Barrière militaire USD 5 x 4 barrières x 2 **6** Ration équipage USD 100 **7** Manutention 10% x 2	42 camions
2011	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 1000 + (USD 1.5 x 300 Liters)	"	**1** ANR 5 x 2 **2** B2 5 x 2 **3** GR 5 x 2 **4** Police routière CDF 4000 x 5 x 2 **5** Barrière militaire USD 5 x 5 x 2 **6** Ration équipage USD 150 **7** Manutention 10% x 2	
2012	8 Tonnes	Bukavu–Nzibira–Kigulube (170 km)	USD 1000 + (USD 1.8 x 300 Liters)	**1** Stationnement USD 10 x 2 **2** CNPR USD 13 x 2 **3** Sur transport des biens USD 10 x 2 **4** Sur transports des personnes USD 10 x 2 **5** Péage USD 10 x 2	**1** ANR 5 x 2 **2** B2 5 x 2 **3** GR 5 x 2 **4** Roulage CDF 4000 x 5 x 2 **5** Barrière militaire USD 5 x 4 x 100 **6** Ration équipage USD 150 **7** Manutention 10% x 2	43 camions

Table I-3. BUKAVU–BULAMBIKi

Annee	Categorie vehicule	Axes	Distance	Location + carburant	Taxes x 2 cout /transport	Autres charges	Nombres vehicules programmes
2007	6 tonnes et 9–10 tonnes	Bukavu–Bulambiki	75 km	**1** USD 150 + (USD 1.2 x 30 Liters) **2** USD 250 + (USD 1.2 x 110 Liters)	**1** Stationnement USD 10 **2** CNPR USD 10 **3** Transports biens USD 10 **4** Transports personnes USD 10 **5** Péage CDF 400 et CDF 9200	**1** ANR = USD 5 **2** B2 = USD 5 **3** Ration équipes 6 tonnes = USD 25, 8 tonnes = USD 30 **4** Police /roulage 11 postes x **5** Barrières militaires CDF 1000 x 3 **6** Manutention 10% du cout de chargement x 2	**1** 6 tonnes = 156 camions **2** 8 –10 tonnes = 89 camions
2008	6 tonnes, 8–10 tonnes	Bukavu–Bulambiki	75 km	**1** 6 tonnes = USD 160 + (USD 1.3 x 80 Liters) **2** 8 tonnes = USD 270 + (USD 1.3 x 110 Liters)	**1** Stationnement USD 10 **2** CNPR USD 10 **3** Transports biens USD 10 **4** Transports personnes USD 10 **5** Péage CDF 6000 (6 tonnes) et CDF 9200 (8–10 tonnes)	**6** ANR = USD 5 **7** B2 = USD 5 **8** Ration équipes 6 tonnes = USD 30, 8 tonnes = USD 35 **9** PNC /roulage 11 postes x CDF 1000 x 2 **10** Barrières militaires CDF 1000 x 3 **11** Manutention 10% du cout de chargement x 2	**1** 6 tonnes = 118 camions **2** 8–10 tonnes = 81 camions
2009	6 tonnes, 8–10 tonnes	Bukavu–Bulambiki	75 km	**1** 6 tonnes = USD 160 + (USD 1.4 x 80 Liters) **2** 8 tonnes = USD 280 + (USD 1.4 x 110 Liters)	**1** Stationnement USD 10 **2** CNPR USD 10 **3** Transports biens USD 10 **4** Transports personnes USD 10 **5** Péage CDF 6000 (6 tonnes) et CDF 9200 (8 tonnes)	**1** ANR = USD 5 **2** B2 = USD 5 **3** Ration équipes 6 tonnes = USD 30, 8 tonnes = USD 35 **4** PNC /roulage 11 postes x CDF 1500 x 2 **5** Barrières militaires CDF 1500 x 3 **6** Manutention 10% du cout de chargement x 2	**1** 6 tonnes = 132 camions **2** 8 tonnes = 106 camions
2010	6 tonnes, 8 tonnes	Bukavu–Bulambiki	75 km	**1** 6 tonnes = 180 + 1.4 x 80 Liters **2** 8 tonnes = USD 300 + USD 1.4 x 110 Liters	“	“	**1** 6 tonnes = 126 camions **2** 8 tonnes = 106 camions

Annee	Categorie vehicule	Axes	Distance	Location + carburant	Taxes x 2 cout /transport	Autres charges	Nombres vehicules programmes
2011	6 tonnes, 8 tonnes	Bukavu–Bulambiki	75 km	**1** 6 tonnes = USD 200 + (USD 1.5 x 80 Liters **2** 8 tonnes = USD 320 + (USD 1.6 x 110 Liters)	**1** Stationnement USD 10 x 2 **2** CNPR USD 10 x 2 **3** Transports biens USD 10 x 2 **4** Transports personnes **5** Péage route 6 tonnes = CDF 6000 x 8 tonnes = CDF 9200 x 2	**1** ANR = USD 5 x 2 **2** B2 = USD 5 x 2 **3** Rasion équipes 6 tonnes = USD 35, 8 tonnes = USD 45 **4** Police /roulage 11 postes x CDF 2000 x 2 **5** Militaires CDF 2000 x 3 x 2 **6** Manutention 10% x 2	**1** 6 tonnes = 121 camionnettes **2** 8 tonnes = 93 camions
2012	6 tonnes, 8 tonnes	Bukavu–Bulambiki	75 km	**1** 6 tonnes = USD 250 + (USD 1.8 x 80 Liters) **2** 8 tonnes = USD 350 + (USD 1.8 x 110 Liters)	“	“	**1** 6 tonnes = 119 camionnettes **2** 8 tonnes = 96 camions

Annex II: Interviews

1 Desiré Mirindi, OCHA Bukavu, 04-10-2012

2 Mr Adama Daou, environmentalist, UNOPS, 04-10-2012

3 Keith Ursel, Chef de bureaux, PAM Bukavu

4 Mr Ismael, truck owner, Bukavu, 09-10-2012

5 Driver, Informal conversation, 04-10-2012

6 Driver, Informal conversation, 09-10-2012

7 Mr Mataso, senior assistant, PAM

8 Visit report Zibera; interview John in Burale, 27-10-2012

9 Interview: enumerators Bunyakiri Arthur/Placid, Papi, Luc and other; interview, 31-10-2012

10 Interview: Luc on Bunyukiri, 02-11-2012

11 Reporting and interview: Team Ngweshe (Alain Bamba)

12 Reporting and interview: by Team Zibera (John Kajunga group)

13 Interview: Association des motos-Apromotski-en Zibera (president and secretary)

14 Focus group, Zibera: 7 women, including restaurant owner, president of Association Centre Commercial, Member of Assistance a Femme Violé program, Staf Governement Department Genre et Famile, an IDP, member of the water committee

15 Focus group, Zibera: men and local elite, including deputy chief of Zibera Centre, local chief from one of the survey villages, bar, and Bralima depot holders for beer and sodas and truck owner, shop owner, head of primary school

16 Focus group, Groupement de Malumba: 7 men, including Chief de Groupement, secretary, development officer, chief of the village, nurse, doctor, headmaster of the secondary school

17 Interview de Zibera: Claude Delphin, secretaire executive d'Association des taxi's et minibuses Axe zibera; a secondary school teacher

18 Interview, Zibera: doctor of Centre Hospitaliare de Zibera, a private clinic started by individual

19 Interview Malumba: wife of local chief

20 Interview, Manzinzi (Malumba chiefdom): widow in

21 Interview, Manzinzi (Malumba chiefdom): boy (about 18)

22 Interview, Manzinzi (Malumba chiefdom): in shop with wife of shopkeeper and two clients

23 Interview, Manzinzi (Malumba chiefdom): in church with leader(simultaneously wood trader) and five men

24 Interview, Burhale: villager

25 Focus group, Cishashu: two women, one man

26.1 Road side interview: mainly women, two teachers, two men

26.2 Road side interview: two high-school teachers

26.3 Interview: two women in the field

26.4 Interview: man going to the market

26.5 Chat: school girls and boys on the road

26.6 Interview: family on a family compound

26.7 Interview, Cibimbi parish: priests

27 Interview: association des Chauffeur ACCo

28 Interview: Transport Agency and Commerce (TAC), Bureau Bukavu

29–30 Interviews: president, staff and drivers of ALOVETRECO truck owners and drivers association, Bukavu

Annex III: Patterns of political access and isolation (Tuungane baseline survey)

From IRC Tuungane baseline survey:

Table III-1. Patterns of political access and isolation

During the last 30 days has the respondent . . .	Never	1–2 times	Sometimes	Regularly
... visited with someone from a village more than a 30-minute walk away?	34%	22%	21%	24%
... engaged in economic transactions with someone from a village more than a 30-minute walk away?	45%	16%	21%	19%
... visited with someone from a different locality?	36%	19%	22%	23%
... done economic transactions with someone from a different locality?	48%	14%	19%	19%

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