

THE APPLICATION OF TRANSPORT AND SUSTAINABLE RURAL LIVELIHOODS IN ZAMBIA: A CASE STUDY

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Objectives of the case study

In a recent participatory cross-sectional study of rural communities in the Northern and Copperbelt Provinces of Zambia, some livelihood analysis revealed that transport constraints, and their impact on rural livelihoods and service provision are of a high priority for the rural poor. Indeed transport emerged as a serious concern in all six study Districts, particularly with regard to the impact of poor accessibility and mobility on food security, agricultural marketing and ability to pay for health and education. This case study intends to review the interactions of transport on livelihood assets in the Zambian context, and the way in which transport based livelihood strategies can reduce the vulnerability context and improve livelihood outcomes.

1. INTRODUCTION

It is now widely accepted that travel and transport constraints cannot be solved by roads alone. Transport constraints on rural livelihoods are not simply a result of poor road condition, but are a culmination of inadequate infrastructure, poor public transport provision and exorbitant tariffs imposed by private transporters whose services are infrequent, and further impede the ability of the rural poor to generate a sustainable livelihood.

In addition, the poor state of the roads combined with the inadequate transport services have an adverse impact on access to the already costly rural health centres and basic schools. A poor transport network is shown to compound the subsistence burden in Sub-Saharan Africa. Rural farmers are unable to transport their agricultural outputs for sale at the market without a considerable capital outlay with which to purchase an intermediate mode of transport, such as a bicycle, or animal cart. Subsequently, it becomes necessary for farmers to sell or barter produce at a much reduced price to traders, or pay excessive transport fees in order to generate any surplus capital with which to pay for health care, and education.

This case study is based on research undertaken for the DFID funded 'Policy Toolkit for Increased Rural Mobility', an on-going project drawing on empirical case studies of Sub-Saharan Africa where transport constraints impact heavily on rural livelihoods, and where external factors, in particular institutional interventions, have intensified the livelihood constraints faced by the rural poor. The project aims to produce a 'Toolkit' manual which will identify transport constraints which typically affect remote communities, and will contain an assessment of baseline requirements for improvement of infrastructure, transport services, location of extension services and village level transport. It will also address policy issues for improved rural accessibility, and will recommend appropriate interventions for improved mobility, which will be reflected in the enhancement of livelihood assets and strategies.

2. BACKGROUND

The livelihoods of the rural poor in Zambia have been adversely affected by externalities in recent years. In an attempt to pursue the agricultural sector as the 'main engine of growth', since 1991 the government adjustment programme has succeeded only in marginalising non-commercial agricultural producers (World Bank, 1994). The newly decentralised market structures have led to the elimination of subsidies for agricultural inputs thus increasing the vulnerability of small scale farmers who no longer have access to fertiliser, seed and pesticides which are vital for maize production. Subsequently, the rural poor have resorted to growing more traditional crops which do not require these inputs, including sorghum and finger millet, despite the fact they reach a lower price at market.

This process of liberalisation has affected subsistence and emergent farmers in all nine Provinces, but has proved most damaging in areas which are extremely remote and lack efficient livelihood strategies with which to alleviate vulnerability in the event of shocks and stresses.

Northern Province (the largest Province at 147,826 sq km) is one such region of Zambia where 86% of the Provincial population live in rural areas (Central Statistical Office, 1998). The condition of the Trunk, Main and District roads are far from adequate, and the feeder roads are extremely dilapidated, and frequently impassable throughout the wet season. The principal economic activity in Northern Province is the farming of maize, millet, beans, cassava, and sweet potatoes, as well as fishing in Districts adjacent to the Lakes of Bangweulu, Lake Mweru-Wantipa and Lake Tanganyika.

In contrast, the Copperbelt Province (31,328 sq km), so called because of its copper mining activities, is the focus for Zambia's economy and foreign exchange earnings. Yet, despite having a population nearly double that of Northern Province (of which only 17% live in rural areas), and being located only 321km from Lusaka along key trunk road networks and railway lines, there remain a considerable proportion of rural dwellers stuck in the poverty cycle because of impediments to their mobility brought about by poor infrastructure and transport service provision.

3. LIVELIHOOD ASSETS IN THE STUDY AREA

3.1. Natural Capital

Northern Province is divided into five agro-ecological zones, where grassland predominates (50%), savanna (33%) and forest (12%) with just 0.36% used for agriculture. Rainfall is high, ranging from 1,100 to 1,400mm with the wet season falling between October and March. Rural population density is only 5.8/km². The *chitemene* farming system was found to be most widely practised in the study area, where the method of slash and burn improves the fertility of cultivatable soil and negates the need for chemical fertilisers.

The Copperbelt Province is characterised by its large copper and cobalt reserves, as well as commercial forestry. Small scale farmers produce a combination of traditional

crops such as cassava, finger millet and beans, as well as maize, though *chitemene* is not traditionally practised in the Province. Soil fertility varies, though Mpongwe and Masaiti Districts enjoy greater productivity, which has encouraged the resettlement of ex-miners into the newly transformed 'agro-belt' under the Rural Enterprise and Agri-services Promotion Programme (REAP). Horticulture is also more widely practised in the Copperbelt where demand is strong. Animal husbandry is a dwindling activity in both Provinces, principally due to the prevalence of corridor disease, which has considerably reduced the number of cattle.

3.2. Physical Capital

Transport infrastructure appears to be a significant concern for villagers surveyed in Northern and Copperbelt Provinces. The lack of access to social services, markets and agricultural inputs was shown to affect the sustainability of livelihoods and to reduce the life chances of the rural poor. Impassability in the rainy season affects incomes as traders cease to come and buy produce. The majority of travel is by foot, though bicycles are used widely and are loaned to neighbouring villagers at a small fee. Few scotch carts and other IMT's were observed, especially in Northern Province where corridor disease has killed large numbers of cattle, aside from the fact that traditionally the Bemba, and other ethnic groups in these areas are not cattle keeping.

Small increases in vehicle frequency, shorter travel times, and improved access to markets and social services, may have resulted from feeder road rehabilitation, especially in highly productive agricultural Districts of the Copperbelt, but use of feeder roads still remains low. Attributing and ascertaining feeder road impact in remote areas such as these is difficult given the relatively low levels of economic activity, large distances and low densities of populations. Indeed, feeder road improvements alone (i.e. without complementary development activities) will not necessarily bring new traders to remote areas or greatly increase economic activity.

The lack of communication networks in general was cited as a barrier to livelihood enhancement, particularly with regard to the network of agricultural extension, designed to facilitate the transfer of information on market price, provision of credit and inputs, technology and training. In all six Districts under survey, positions of agricultural extension remained unfilled, and where 'camp officers' were posted, few had access to anything more than a bicycle to disseminate information from the Ministry of Agriculture, Foods and Fisheries to upwards of 100 households. The capacity of Zambia's field services has diminished in recent years, a situation which has intensified due to the poor road condition and insufficient government funding.

3.3. Human Capital

The participatory surveys revealed that both Copperbelt and Northern Provinces were subject to grossly inadequate rural health care and education services. The Director of Health in Masaiti District, Copperbelt, made specific reference to insufficient funds, shortage of drugs, shortage and maldistribution of staff relative to population and physical barriers. Indeed, personnel at the rural health centres (RHC's) visited, replicated their concerns over their inability to reach patients at the village level and for medicine kits and vaccines to reach the RHC's.

Emergency health care access was also highlighted in many of the focus group discussions and consistently emerged as a priority concern for villagers. In emergency situations, villagers would often transport the patient on an improvised stretcher ('machila') laid across a bicycle, to the nearest RHC. Inevitably, a culmination of poor physical access to medical staff and drugs, leads to the propagation of high mortality rates in rural areas.

Education also emerged as a priority concern, especially for young families. Distance to schools and an absence of secondary schools is felt to be more acute in rural areas. Teachers identified absenteeism as a priority concern, both by children who are unable to reach school because of the walking distance, and by teachers who lack the incentive to relocate deep in the bush where communications are virtually non-existent.

3.4. Financial Capital

Access to agricultural credit is extremely limited now that government has withdrawn support. Late delivery of fertilisers where they are available is widely recognised as a problem causing farmers to default on their loans because poor yields result from less than optimum use of input. Where farmers co-operatives do exist, they are still required to provide their own means of transport on collection of farm inputs from the Food Reserve Agency, the high transport fees consequently consume much of the surplus capital generated from the high agricultural yields.

Zambia is currently subject to a number of credit schemes such as the social recovery project, designed to support infrastructural improvements at the community level; and the IMT project run by the Technical Development Advisory Unit (University of Zambia), which aims to provide credit to emergent farmers for the purchase of IMT's, with a particular focus on animal draught. In Zambia at least, credit schemes are characterised by failure because of problems with repayment, although with rigorous assessment processes and the implementation of group collateral it is hoped that future credit schemes will prove fruitful. Unfortunately, the nature of these schemes has led to the further marginalisation of the absolute poor, including peasant farmers, who are unable to provide any collateral, as well as those who are not located in areas of high agricultural productivity.

3.5. Social Capital

Social networks, community groups, and relationships of trust were identified in all of the study areas. Village groups or assemblies were particularly active, as were village health neighbourhoods and other social groups (those of particular maturity were found in Mapanda Village in Luwingu District, Northern Province, and Chalabesa in Mpika District, Northern Province). These groups would meet to discuss development issues within the community, and serve to promote the frequency of health outreach programmes and extension visits. Religious activities were also shown to reinforce community relationships and help to build up a resistance against shocks and stresses.

4. LIVELIHOOD CONSTRAINTS

The Participatory Rural Appraisal (PRA) techniques employed in the three Districts under survey in Northern Province (Mpika, Mungwi and Luwingu), indicated that the key livelihood constraint faced by rural communities is food insecurity. This is exacerbated by a number of factors, such as financial and physical access to fertilisers, (thus proliferating use of the destructive ‘chitemene’ or ‘slash and burn’ farming system), and absence of an efficient marketing network, intensified by the inferior road condition. During a PRA activity, undertaken to establish the prioritisation of major concerns, it was revealed that villages amongst the Chalabesa community (located 103km from the District Capital Mpika), were suffering from extreme vulnerability, principally because the appointed fertiliser agents were unable to operate in the area, as it takes an average of two hours to travel along the 32km long dilapidated access road (with motorised transport). Likewise, the infrequency of private transporters is shown to contribute to the lack of local marketing initiatives, because farmers are unable to transport their produce to the market in distant Mpika. Consequently, traders who travel to Chalabesa impose unfair trading terms, leading to an increase in bartering, which inhibits the generation of surplus capital required for payment of consumer goods, school fees, and health centre admission fees.

Basic access to markets emerged as the principal livelihood constraint cited by rural communities in the Copperbelt. The surveys revealed that Mpongwe and Masaiti Districts were better able to obtain farm inputs required for surplus production of maize by forming farmers co-operatives with which to secure collateral for the acquisition of fertiliser. These Districts have also benefited from donor funded rural development programmes which have boosted the financial and institutional capacity of the District Councils enabling them to initiate localised feeder road improvements with graders borrowed from the Provincial Roads Engineer. The Small-holder Development Programme (SDP) funded by the European Union (EU) is one such project which funded the rehabilitation of six roads in Mpongwe District and two roads in Masaiti District.

The less fertile District of Lufwanyama received no EU funding from the SDP and has since remained the poorest and most inaccessible District in the entire Province. Deemed a politically insignificant and less agriculturally productive area, the Lufwanyama District Council has virtually no capabilities to undertake even the most essential maintenance, even to the Kitwe-Kasempa main road. The only market towns of any consequence are Kalilushi and Kitwe, the latter being a distance of 60km from the study area of Mukutuma. This journey, undertaken by local teachers and farmers usually involves a three hour walk to the nearest junction, followed by a K4,000 single fare to Kitwe.¹

Transport problems in Lufwanyama District were shown to be more characteristic of those experienced in Northern Province, especially the problem of food security. This is particularly so during times of shock, as in 1999 when heavy rains led to a poor harvest, causing children to be taken out of school in order to carry out piecework in exchange for the staple ‘millie meal’. In addition, the soils in Lufwanyama are especially poor, and in the absence of farmers co-operatives for the acquisition of

¹ Current exchange rate is approximately £1 = 4300 kwacha.

fertiliser, villagers have a tendency to move further into the bush, with the effect of diminishing the availability and quality of natural resources, and removing children from their schooling because of the journey distance.

5. LIVELIHOOD STRATEGIES

The field study revealed that the rural poor in both Northern and Copperbelt Provinces have very little scope to adopt transport based strategies with which to markedly improve their livelihood potential. There is clearly a strong demand for transport interventions with which to undertake marketing activities and access basic services, be they efficiently managed, and moderately priced transport services, or non-motorised intermediate modes.

Currently, the only transport providers who directly impact on rural livelihoods are informal transporters and rural householders who own ox-carts and (more commonly) bicycles. More opportunities for 'catching lifts' to the market were observed in the Copperbelt, particularly in Ibenga, a town bordering Masaiti and Mpongwe districts where a combination of pickup trucks, tractor-trailers and scotch carts provide frequent services to outlying areas. A typical small scale farmer was found to own an ox-cart and seven cattle which is hired out for K500 per kilometre or K500 per 50kg box of vegetables. He was able to generate additional income by hiring out his oxen for ploughing, at K100,000 per hectare of land.

In the remote villages themselves, it is not uncommon to find people leasing out their bicycles for a moderate fee, enabling people to make considerable time savings by transporting their goods to the market themselves, rather than waiting for a lift, which may take up to two days. This was particularly true of rural community teachers who were required to make frequent trips to collect their salaries, and to sell produce which they had received in payment for school fees.

Another strategy identified to overcome the absence of an effective transport mechanism, is the formation of farmers co-operatives, for which the benefits are three fold. The Food Reserve Agency (FRA) will only provide agricultural inputs to farmer's co-operatives, to ensure post-harvest repayment. Co-operatives enable individual farmers to provide sufficient collateral, as well as a down payment for the fertiliser, by which they can increase agricultural productivity and further sustain their livelihood income. The collective hire of a vehicle (motorised or non-motorised) acts to reduce transport costs for the collection of fertiliser, without which it would be virtually impossible to obtain sufficient quantities, because the FRA do not have the capacity to deliver inputs direct to the farms.

Additional livelihood strategies observed at the village level focused principally on marketing and income generation. Bartering, for example, though observed predominantly in the Copperbelt, was shown to be an important trading mechanism, which was usually undertaken with equity, although some villagers complained of being undercut by traders. Other strategies included charcoal production for sale at the road side and market, and beer brewing by women, for sale within the village. The more affluent households in possession of a hammer mill (of which there were

relatively few), charged neighbouring households for its use in grinding maize into millie meal, thus alleviating the time burden of women.

6. CONCLUSION

The livelihood constraints experienced by the rural poor in both Copperbelt and Northern Provinces proved to be far reaching. Although the levels of severity, in terms of isolation and reduced life chances differ between the Districts reviewed in the case study, the outcome of all the livelihood analysis pointed towards inadequate transport infrastructure and transport service provision as the principal constraint.

Recommended transport interventions for improving sustainable livelihoods in rural Zambia might include an increased supply of IMT's, for which the demand is clearly evident. The propagation of a 'critical mass' would serve to reduce transporter and hire costs, and would foster the provision of spare parts manufacturers and maintenance necessary for sustained utilisation. IMT's would be of particular service to extension and outreach workers who support human capital generation amongst rural communities. The provision of effective credit schemes, available to emergent and peasant farmers, as well as the relaxation of legislation on informal transport services would also prove fruitful in sustaining the livelihoods of the rural poor in Zambia.

What is certainly clear, is the need to communicate the priority requirements of rural communities to transport decision and policy makers, thus avoiding the wastage of donor funding and ensuring that appropriate interventions meet the needs of the poor rather than serve to exacerbate their isolation.

KEY REFERENCES

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