

## **TRANSPORT AND SUSTAINABLE RURAL LIVELIHOODS IN ZAMBIA: A CASE STUDY**

**By Annabel Davis, Transport Research Laboratory**

### **Objectives of the case study**

In a recent participatory cross-sectional study of rural communities in the Northern and Copperbelt Provinces of Zambia undertaken in March 2000, 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 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 structural 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% (1,027,000) 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 principle 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**

The livelihoods approach is based on understanding people's strengths (assets or capital endowments) and how these can be used to achieve positive livelihood outcomes. The five capital assets are as follows:

- 1) Natural capital – natural resource stocks available to people
- 2) Social capital – social resources including membership of groups, family and social networks
- 3) Human capital – skills, knowledge, health and ability of labour
- 4) Physical capital – basic infrastructure such as roads and water supplies
- 5) Financial capital – financial resources such as savings and access to credit

A further discussion of these livelihood asset categories is made in more detail in Section 6.

### **3.1 Natural Capital**

Northern Province is divided into five agro-ecological zones, where grassland predominates (50%), savanna (33%) and forest (12%) with a very small proportion used for cultivation. Rainfall is high, ranging from 1100 to 1400mm with the wet season falling between October and March. Rural population density is only 5.8/km<sup>2</sup>. The *chitemene* (slash and burn agriculture) farming system was found to be most widely practised in the study area.

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 extremely 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 transport services are 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 'chitemene' or 'slash and burn' farming system), and absence of an efficient marketing network, intensified by the inferior road condition. Furthermore, the size of landholding for small-scale farmers is constrained by low labour inputs, with cultivation being undertaken by individual households, and periodic problems of rainfall during the winter months despite receiving 1100-1400mm of rain per year.

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 by motor vehicle to travel along the poor access road which is 32km long. 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, Copperbelt, 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.<sup>1</sup>

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 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

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<sup>1</sup> Current exchange rate is approximately £1 = 4300 kwacha.

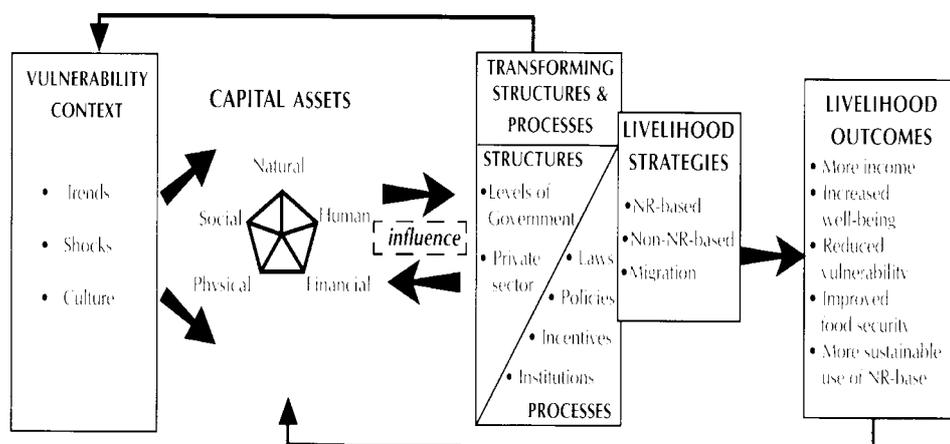
fold. The Food Reserve Agency (FRA) will only provide agricultural inputs to farmer's cooperatives, to ensure post-harvest repayment. Cooperatives enable individual farmers to provide sufficient collateral, as well as a down payment for the fertiliser, by which they can increase agricultural productivity 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, is undertaken in the Copperbelt, and predominantly in Northern Province. It 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. SUSTAINABLE LIVELIHOOD ANALYSIS

This section will attempt to apply results of the survey data in Zambia to the Sustainable Livelihoods Framework, as propounded by DFID (see Figure 1 below). By examining key components of the framework in the context of the Northern and Copperbelt Provinces, it allows us to interpret the main factors that affect people's livelihoods and to compare them between Provinces. Livelihood analysis should not be used to recommend where transport investment should be prioritised in one region of a country over another. Rather, it draws on participatory discussions with the rural poor, and highlights where components that influence livelihoods are weak and require further investigation and perhaps investment.

**Figure 1: The Sustainable Livelihoods Framework**



The framework is a flexible tool and can be used to summarise the components that influence livelihoods from different sectors such as transport, water and sanitation, health, education, marketing etc. It can be used to summarise the livelihood processes

of individual households, villages, districts etc, to reflect the livelihoods status of a given population in an urban or rural setting. Furthermore it can identify particular problem areas which hinder livelihood improvements, and therefore foster recommendations that aim to strengthen the assets of the poor.

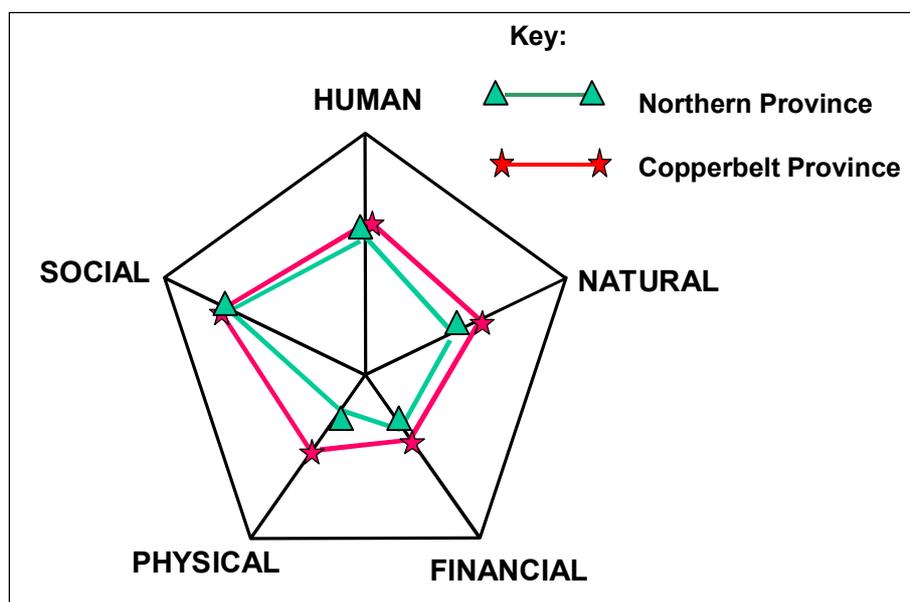
## 6.1 Northern and Copperbelt Provinces compared

The following analysis compares the assets of Northern and Copperbelt Provinces in Zambia and ways in which the rural poor in each region overcome transport constraints which weaken their livelihood potential.

### 6.1.1 Capital Assets

Livelihood assets indicate the capital stocks of particular stakeholders which strengthen their ability to achieve positive livelihood outcomes. Each asset can represent multiple benefits, and by strategically substituting or diversifying the asset stocks can further strengthen asset endowments to improve the sustainability of livelihood outcomes. Through the application of livelihood analysis data onto the asset pentagon (see Figure 2 below), declining capital assets can be identified and possible interventions to reinforce existing assets explored. The further away from the central point of the pentagon an asset plot lies, the greater the influence on livelihood outcomes. Ideally, each plot on the pentagon will show increasing access to all assets.

**Figure 2: Livelihood assets for transport:  
Northern and Copperbelt Provinces Compared**



The asset pentagons in figure 2 have been drawn subjectively and require substantial quantitative evidence to support their assertions. However, they clearly indicate the difference in capital stocks available to the rural poor in Northern and Copperbelt Provinces as discussed in the main body of the report and summarised below:

#### Human Assets:

- Human capital available to the rural poor living along rural feeder roads is equivalent in Northern and Copperbelt Provinces.

- Catchment area of RHC's typically extends beyond 30km and 3,000 people (minimum population required for a health post or clinic). Fees vary between clinics but method of payment duplicated across Provinces. Problems of physical and financial access to basic health care similar in Northern and Copperbelt.
- Access constraints to primary schools also duplicated between provinces. Distance to school being a priority concern. Principle mode of transport to school is on foot or bicycle. Fee payments in cash or kind for both Provinces.
- Copperbelt's asset base is marginally stronger due to proportion of economic activity. Hence, greater scope for formal employment in commercial centres where the copper mining industry predominates and the service sector is growing. There are a greater number of secondary schools available to pupils in each district of Former Ndola Rural. The Copperbelt houses one of only two universities in the country, giving rise to local enterprise.

#### **Natural Assets:**

- Natural assets vary between survey provinces. Northern Province has an area of 147,826 square km and a population of 855,177 (1998 figures courtesy of Care International). Population density is extremely low, therefore land resources abundant. Chitmene (slash and burn) farming widely practised by Bemba ethnic group, hence natural resources for livelihoods gradually diminishing. Scattering of population makes it increasingly hard to justify and prioritise road investment or to relocate services where the greatest number of people will benefit. Livestock available for animal draught has decreased because of disease, yet the Bemba people do not traditionally keep oxen or donkeys.
- Inhabitants of Chilubi and Luwingu districts benefit from the fish stocks found at Lake Bangweulu, as do people in Kaputa and Mpulungu who can utilise resources at Lake Mweru Wantipa and Lake Tanganyika respectively (water and wetlands cover about 5% of the area).
- The Copperbelt has an area of 31,328 square km and a population of 1,427,545 (1998 figures), hence, greater population pressure. Yet it benefits from a more compact road network which penetrates all rural districts giving rise to rural-urban linkages. Farmland in Mpongwe District is especially fertile.
- The use of animals for transport is a culturally accepted practise amongst the Lamba ethnic group (Copperbelt Province), yet corridor disease (a disease of the central nervous system) has severely diminished cattle stocks, as in Northern Province.
- The Copperbelt contains no lakes, and the river networks have no potential for natural transport systems.

#### **Financial Assets:**

- Councils in both provinces prioritise investment where agricultural productivity is high, resulting in further isolation and marginalisation of least productive districts, as is the case in Lufwanyama District, Copperbelt.
- The surveys did not reveal any regular inflows of money into rural areas in the form of pensions or remittances, although there is certainly more scope for both forms of income in the Copperbelt where a greater proportion of family members are formally employed in the towns or where former miners now undertake farming activities in rural areas.
- Access to credit remains unachievable by the absolute poor in Northern and Copperbelt Provinces because they typically have no means of collateral and are

therefore unable to repay loans to invest in transport modes or small-scale enterprise. Emergent farmers in the Copperbelt however, benefit more from the presence of donor funded programmes which include credit schemes such as the Social Recovery Project and IMT project (run by the Technical Development Advisory Unit).

**Physical Assets:**

- The pentagon in figure 2 indicates that the greatest difference in capital asset stocks between the Provinces under survey are physical assets. Due largely to its sheer size and lack of funding by the road fund under the Road Sector Investment Programme (ROADSIP), the Northern Province has a grossly inefficient feeder road network whose impact on the rural poor is manifold. Vehicle stocks diminish because the road condition causes irreparable damage to vehicles, leaving fewer transport services to serve rural feeder roads with extortionate fares.
- A similar pattern emerges in the Copperbelt where transport services become inaccessible to the extreme poor and transport terminals and storage facilities become obsolete. Yet, there has been a recent spate of funding for the rehabilitation of eight feeder roads in the Copperbelt (140km of road funded by the European Union in 1997) which has markedly improved access to basic health and education services and markets for the rural poor, hence increasing the potential to improve their human and financial assets.
- Road investment is more sporadic in the less productive Northern Province, and any significant investment tends to be spread thinly between a number of roads.
- Scotch carts are more commonly used in the Copperbelt for goods transit and farming.

**Social Assets:**

- Social capital assets are replicated in both Provinces where community networks and stakeholder groups are apparent in most communities. Women's groups, farmers co-operatives, and village committees etc act to disseminate information and lobby local government officials and NGO's for funding, materials with which to undertake construction and maintenance of infrastructure and to provide support in a crisis.
- Indeed, evidence of community self-help road maintenance indicates high social capital. The questionnaire surveys indicated that 72% of respondents in the Copperbelt and 74% in Northern Province are willing to provide voluntary labour for road improvements with the help of an engineer.
- Relationships of trust at a local level are strong in both provinces where social interactions are as important to livelihood outcomes and life chances as more tangible assets. Beer parties, funerals and extended family relations in general all contribute to the well-being of the rural poor, and more formal social groups such as the Parent-Teacher Association (PTA) who ensure that village services are run effectively (for example by collecting primary school fees and delivering to the education authority).

The participatory surveys combined with quantitative data revealed that the greatest asset available to the rural poor in Northern Province is social, and the least prominent asset is physical whereby the infrastructure networks and vehicle stocks are dilapidated, inefficient and in some communities non-existent. In the Copperbelt, social assets are also deemed strongest, indicating their importance as an informal

‘safety net’ during periods of intense insecurity. When communities draw on urban based relatives during crises, these tend to be from larger cities in the province (Ndola or Kitwe) or the capital Lusaka. However, if the cause of vulnerability is such that it encompasses a wide localised area such as drought, social assets might become obsolete if relatives are also located in the affected area.

The weakest asset amongst the rural poor in the province is financial although this trend is likely to change with an increasing number of credit institutions. However, the appropriateness of such schemes for the extreme poor has yet to be fully determined, and may in fact foster future generations of indebtedness which will undermine the value of existing assets.

### **6.1.2 Policies, institutions and processes**

Policies, institutions and processes operate at all levels, from the household to national politics and international aid and therefore affect the rural poor in Northern and Copperbelt Provinces equally. The enabling environment of rural producers has disappeared with structural adjustment in the 1980s, the impacts of which are extensive. Livelihood capabilities have been thwarted by the public sector reform programme, which has seen the removal of subsidies on production and consumption, cost sharing in the provision of health and education, and removal of public transport services.

Private sector investment in all sectors is not yet sufficient to fulfil demands of the rural poor in relieving the effects of poverty. Emergent farmers can benefit from private fertiliser and seed manufacturers such as Omnia, yet small-scale farmers have neither the capital or transport means required to access inputs from private producers. Likewise, private transport services are operated on an informal basis and are therefore infrequent, unreliable and costly, and typically do not operate on tertiary feeder roads where the risk of damage to transporter vehicles is high and the economic returns low. Improvements to transport infrastructure have, in recent years been sub-contracted to private contractors such as Akapesi General Contractors and Kafula General Supplies and Contractors (Luwingu) who commonly use labour intensive techniques to undertake rehabilitation and maintenance where the local councils have no capacity to do so.

Clearly, the structures and processes which affect rural livelihoods have transformed considerably over the last two decades. Donor agencies and NGO’s have injected capital investment into sectors where government institutions have failed. Yet, this has fostered dependency by local communities and the Government of the Republic of Zambia alike who continue to live in a culture of indebtedness.

Increasingly however, donor funded programmes are promoting community empowerment so as to remove local power relations and enable communities to take responsibility for their own development. The principle objective of the proposed LEEP (Livelihoods Enhancement Through Empowerment and Participation) project was to help poor people to enhance their livelihoods in Northern Province, yet was withdrawn before it even started because of concerns over capital investment and its potential for success. Donor funded programmes of community empowerment have been beset with problems in the Copperbelt also, the Small-holder Development

Programme (SDP) being a case in point, where alleged corruption and change of project management after seven years of success caused funding to be withdrawn.

Zambia is blighted with weak institutional resources, and although aid programmes support poverty reduction, they too prioritise investment in areas of high productivity and profitability. Hence, rural funding is concentrated in the Copperbelt which has a high population density and is natural resource rich compared with Northern Province, which is sparse, unproductive and has negligible local government influence.

### 6.1.3 Vulnerability and livelihood strategies

The table below summarises measures of vulnerability in both survey provinces and strategies used to counteract risk and adversity:

Province	Vulnerability Indicators	Livelihood Strategies
<b>Northern And Copperbelt</b>	<ul style="list-style-type: none"> <li>*Food insecurity especially in wet season due to withdrawal of subsidised fertiliser inputs.</li> <li>*Malnutrition caused by consumption of monocrops.</li> <li>*Road impassability due to seasonal rains leading to high morbidity &amp; mortality because inaccessible RHC's</li> <li>*Population growth and lack of resources (health, education, food, transport services etc) to cope with demand.</li> <li>*Demographic changes – spread of STD's and AIDS leading to decline of economically active adult population.</li> <li>*Livestock diseases leading to loss of income, loss of potential transport mode (animal draught).</li> </ul>	<ul style="list-style-type: none"> <li>*Bartering for clothes, shoes &amp; household commodities at the village, in the absence of transport means to access markets.</li> <li>*Diversification of production &amp; return to traditional food crops (cassava and millet).</li> <li>*When rural transport services cease during the wet season, villagers walk or cycle to essential amenities (using a 'machila' stretcher for medical emergencies).</li> <li>*Community groups collectively hire vehicles to obtain agricultural inputs/take produce to market thus sharing costs.</li> <li>*Motorised trips used for multiple activities eg. Taking maize/millet to the grinding mill and then mealie meal to market for sale to save time and money.</li> <li>*In the absence of a cash income, health clinic and school fees are paid in kind (food crops).</li> <li>*When harvests are poor, households diversify their source of income with eg. Beer brewing and knitting for sale/exchange.</li> <li>*Contraception – for smaller families and disease prevention.</li> </ul>
<b>Northern</b>	<ul style="list-style-type: none"> <li>*Land use conflict between national parks and farmland hence limiting production potential (average land holding 0.5 to 2 hectares).</li> </ul>	<ul style="list-style-type: none"> <li>*Small-scale farmers migrate into the bush &amp; practise 'chitemene' to propagate fertile soils.</li> </ul>
<b>Copperbelt</b>	<ul style="list-style-type: none"> <li>*Infrequent delivery of drugs to RHC's because of road condition leads to the misuse of anti-biotics at RHC's affecting immunity of vulnerable groups including young, elderly &amp; infirm.</li> </ul>	<ul style="list-style-type: none"> <li>*Remittances received from urban relatives.</li> <li>*Rural households able to utilise larger, more competitive markets in Kitwe, Ndola, Lusaka because of shorter distances and travel costs.</li> </ul>

## 7. RECOMMENDATIONS FOR IMPROVED LIVELIHOOD OUTCOMES

### 7.1.1 Improved Accessibility

Recommended transport interventions for improving sustainable livelihoods in rural Zambia should include research and development into, and 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, and would promote local enterprise in areas where small scale farming is obsolete. IMT's would be of particular service to extension and outreach workers in the delivery of health care and agricultural inputs.

The TDAU's IMT project is currently in its inception stage, drawing on pilot studies to establish the appropriateness of different IMT modes and capability of the rural poor to manage credit for their purchase. It is hoped that the project will create awareness as to the benefits of IMT's for intra and inter-village travel, and foster greater demand for IMT innovations, in particular animal draft technology which is culturally obsolete in much of the country. It is critical however, that alongside IMT promotion, on-farm training programmes are initiated to incorporate animal husbandry, animal health, harnessing and ox/donkey training. The demise of animal draft power through cattle disease in Zambia was principally a result of poor care. Effective training and veterinary care will help prolong the working life of the animals and improve their efficiency both as a means of long distance transport and in improving agricultural productivity.

The government funded Palabana animal draft power development programme has proved effective in promoting ox-powered transport and more recently donkey power, and issues a bi-annual newsletter for agrarians and extension workers providing advice and information on prices indicators for equipment, spares and veterinary drugs. Yet, the Palabana Farm Power and Mechanisation Centre is grossly under-funded and requires substantial capital investment.

The participatory surveys undertaken in Northern and Copperbelt Provinces highlighted the need to supplement rural transport services with IMT's. Bicycles are virtually the only mode of IMT that are consistently used throughout rural Zambia, predominantly to travel between the village and main road from where motorised travel is undertaken to the market. Informal transport services are unlikely to fulfil all the travel requirements of the rural poor because of the nature of the feeder road infrastructure, remoteness of rural inhabitation and cost of supply. Yet, the PRA respondents indicated the impact of bicycle use on time, quality of merchandise in transit and health. Hence, IMT provision would fill an important gap in the market. The relaxation of legislation on informal transport services would also help in increasing the number of private transporters on the road thus creating a competitive market which would reduce the cost of motorised fares for rural households.

In addition, the field surveys undertaken in Zambia indicated the problems associated with feeder road investment where the road network is vast. In 'Roads are not Enough', Dawson and Barwell (1993) investigate the option of non-transport interventions to increase accessibility by reducing the need for travel by rural people. They suggest that trip time can be reduced and accessibility increased, by reducing the distance that people have to travel to reach facilities. The location of facilities including agricultural input supply centres, crop marketing facilities, water and firewood sources, grinding mills, schools and health clinics would impact positively on rural livelihood outcomes because of savings in time, capital expenditure and energy. A non-transport approach requires further investigation to explore fully the investment and method of prioritisation required for a given population.

### **7.1.2 Improved institutional capacity**

It is recommended that the Sustainable Livelihoods Framework be used as a tool to establish problem sectors and focus interventions and investment where it will reap the most economic and social benefits. It is critical however, that rural communities are thoroughly consulted to identify their priority concerns and requirements before expending capital where it is least effective. A non-transport approach for example would require an examination of local services, and to establish the priority concerns of the community to account for need. A combination of stakeholder consultation, local empowerment and community participation would be required to justify any investment in services, as it is required for any significant road investment.

The Integrated Roads Project (IRP) currently being undertaken in Tanzania exemplifies the potential successes of transport interventions combined with non-transport interventions whilst reducing the risk of dependency through community participation and empowerment.

The Village Travel and Transport Programme (VTTP) as part of the IRP, being carried out in the Morogoro region of Tanzania, has applied direct transport interventions including rural transport infrastructure improvements and provision of appropriate IMT's, and non-transport interventions onto rural communities. The key objective is to empower both the community and supporting institutions through empowerment education and action research. Although presently a pilot study, the VTTP in Morogoro signifies what can be achieved using a grass roots approach and ensuring that the poorest and most vulnerable in society are consulted effectively.

### **7.1.3 Social Recovery Project**

The Social Recovery Project (SRP) is a community based programme funded by the World Bank. The road component within SRP is the Community Transport Infrastructure (CTI) and is a sub-component of the Community Accessibility Component of the Road Sector Investment Programme (ROADSIP) in Zambia. The project became effective in 1991 and will be replaced by ZAMSIF (Zambian Social Investment Fund) in 2000, which will complement other poverty reduction programmes.

The aim of the CTI is to improve rural accessibility by bringing more of the road network under regular maintenance. Community roads are by broad definition, those roads which do not fall under the jurisdiction of any road authority. These roads do not receive any budgetary allocations from the government. As more community roads are brought under regular maintenance, transport possibilities will increase therefore relieving vulnerable groups, including women, the problem of being 'transporters' of goods on their heads and backs.

The SRP is implemented with communities themselves identifying their needs and applying projects on a cost sharing basis with the community contributing at least 25% of the total project cost and SRP providing the remainder. Selection considerations for SRP funding include:

- The road should lead somewhere  
(another village, existing passable feeder roads, basic services – health

- clinics, schools, an area of economic activity
- The road should reduce travel time
- The road should improve public transport possibilities
- Technical requirements should be simple, in design and supervision
- Mode of execution of works will be labour based
- There should be evidence of sustainability by way of maintenance committee or existing maintained structure

Communities are required to apply for funding with the help of local councillors, and a field appraisal to establish the priorities of all community members before work commences.

The SRP has been one of the most successful donor funded projects in Zambia, and promotes ownership of community roads, as well as improving the physical assets of the rural poor and improving their livelihood chances, whilst contributing to poverty reduction. Whilst the roads themselves cannot solve the travel and transport constraints of the rural poor, by empowering the community to help themselves and actively rehabilitating existing infrastructure, it is hoped that these programmes will proliferate other interventions including transport services and IMT innovations.

Clearly, rural transport planning should be implemented using a package of measures that incorporate the condition of road and track networks, and efficient means of transport for the very remote poor including low cost services and IMTs, without undermining their existing assets. There is a 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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