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**Zambia Feeder Roads Research Project
Rural Transport Policy Toolkit: Livelihoods
Profile for North and Luapula Provinces**

Report of a visit under sub-contract
to the Transport Research Laboratory
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EXECUTIVE SUMMARY

External factors influencing the rural poor in the two provinces are outlined, and analysis of access to different types of livelihood capital are described particularly in relation to transport issues.

This information has been collected through discussions with villagers and distilled from secondary literature to provide some baseline information for the World Bank impact study (funded by DFID). Currently, the impact study will be based on a questionnaire approach focusing on quantitative information. This report provides some information to contextualise this information, which will be complemented by the PRAs to be carried out under the parallel Rural Transport Policy Toolkit.

Specific issues are also discussed in relation to transport and livelihoods. Attempting to study the impact of feeder road improvements is very difficult in these Provinces given the relatively low levels of economic activity, large distances, distribution and low densities of populations (many are located near to rivers and lakes and thus far from roads, particularly in the Bangweulu swamps). The nature of long-term impact is discussed and the extent to which feeder road improvements can have developmental impact in such socio-economic conditions is questioned. Detecting what are likely to be marginal changes will be difficult as will proving clear attribution.

INTRODUCTION

This report has been produced as part of the World Bank feeder road impact study (funded by DFID). It was felt that in-depth analysis of livelihoods in both provinces chosen for the study was needed to provide a kind of rapid baseline and to contextualise the information which will be gathered through a questionnaire based survey. Simultaneously, the report contributes contextual information and guidance to rapid rural appraisals being carried out in the development of a Rural Travel Policy Toolkit by TRL (again funded by DFID). The report explores some of the issues relevant to the impact study, in particular the limitations of a snapshot analysis of an infrastructural intervention.

Livelihoods in Northern and Luapula Provinces are covered¹. External factors affecting the rural poor in these Provinces are examined, (e.g. economic context and policies and other donor activity). Livelihoods depend upon capital assets (natural, social, human, physical, financial and political). Improvements to livelihoods may involve improving the availability of these types of capital assets to different social groups. However, attributing impact to road and infrastructure interventions is notoriously difficult. Using the livelihoods framework for analysis encourages a holistic approach and provides indications of where likely impacts will or will not occur. Reducing vulnerability also improves the sustainability of livelihoods and where vulnerability issues arise they are noted in relation to transport access.

A preliminary visit was made to Northern and Luapula Provinces to collect secondary information, to hold informal discussions with villagers about travel and transport issues along roads planned for improvements by the Ministry of Local Government and Housing and the World Bank (Rural Travel and Transport Programme). This information will assist the team to select roads in a variety of agro-ecological locations and to develop an appropriate impact study methodology. Further, the background information obtained is also useful for the Rural Travel Policy Toolkit (DFID funded)². The toolkit will provide guidance on transport interventions for development agencies (not only roads, but all transport related issues).

The discussions held in villages were of an extractive nature and the rapid pace meant that cross-checking of information was limited. However, the discussions combined with the secondary information obtained provide insights into constraints on rural travel and transport in the two study provinces. Due to unavoidable delays, the visit was carried out in the wet and non-fishing season, when there is less economic activity and consequently less travel. The before and after surveys will be carried out also in the wet season.

¹ D Carney, "Sustainable Livelihoods: What contribution can we make?" DFID 1998.

² See report, Rural Transport Policy Toolkit, V Nelson, NRI/TRL, 2000.

ROADS, LIVELIHOODS AND IMPACT ASSESSMENT

“Roads are not enough” (Dawson and Barwell 1993). It is now widely argued that travel and transport constraints for rural people cannot be solved by roads alone. However, the structure of governments in many countries mean that responsibilities for roads tends to be separated from other areas of rural development. This study has been set up to assess the impact of feeder roads. Travel and transport constraints on livelihoods do not consist purely of poor road condition. Accessibility is a key issue for poor people in remote areas (and this is reflected by recent thinking on spot improvements), but does not of itself necessarily impact on people livelihoods, if distances are still great and transport services and marketing infrastructure are poor. Feeder road rehabilitation and improvements may make only marginal differences for rural people in remote areas, such as Northern and Luapula Provinces, and impact is therefore difficult to ascertain. Although roads may be improved in these regions it is not clear whether credit and input access will improve. Where is the private sector to take the place of previous government subsidy? Without transport services, (e.g. buses) people cannot cover such large distances with intermediate means of transport alone (for crop marketing, emergency health care access).

Poor roads and no transport services provide potential physical access to clinics and hospitals, but do not deliver access to medical assistance (since people cannot often afford the charges, a lack of drugs available). Villagers say that an improved road may mean that more traders will come to buy their crops because they will risk the damage to their vehicles and that in turn villagers will produce more for them to buy. It is unclear whether these traders exist and whether there will be sufficient reason for them to travel such distances to remote areas. In the past the government provided some bus services and supported maize production/trading. Currently bartering is increasing and, farmers have little cash to invest in next year’s cropping or other basic needs.

Many different studies of road interventions have been carried over recent decades (Barwell *et al* 1985, Howe and Richards 1984). Difficulties are widely recognised in relation to attribution of impact to a specific road intervention separate from changes resulting from wider social and economic trends. The livelihoods framework has been used here as a ‘systematic’ analytical tool to describe the current context. A questionnaire survey will try to measure statistically significant changes in transport costs and socio-economic conditions. Roads form part of the basic physical capital that remote communities depend upon for their access to other types of capital assets (e.g. human, social, financial, and political) but the roads alone do not alone determine such access or changes in access for different social groups. This is why attribution of impact (in the fullest sense as described below in terms of significant and lasting change) is difficult to show for road interventions. Attribution difficulties are reflected by “chicken and egg” discourse surrounding road improvements and economic development.

A distinction can be drawn between ‘significant’ and ‘lasting’ change (Roche 1999). Impact assessment can be defined as “the systematic analysis of the lasting or significant changes – positive or negative, intended or not – in people’s lives brought about by a given action or series of actions” (*ibid.*). Lasting change is sought from sustainable development interventions, but provision of clean water, for example, can save a life and thus represents a significant intervention, although not necessarily a lasting one. Do feeder road improvements and rehabilitation cause significant or lasting change?

Natural capital forms a key part of people’s livelihoods in rural areas. However, marketing of natural capital produce is necessary if rural households are to be able to meet their cash expenditure needs (e.g. school fees, health clinic costs). Marketing produce is difficult when roads are poor, but access to market information and transport services are also important.³ Feeder roads form part of needs prioritised by villagers (see annex 1), but for significant and lasting change rural people’s livelihoods it is likely that they have roads are improved in combination with support for improved access to financial, social, political and human capital.

Distinctions can also be drawn in impact assessment between outcomes and effects as different from lasting impact. In the case of roads, the outcome of a rehabilitated road intervention apart from the physical differences in infrastructure, may be changes in transport costs. These changes would indicate impact. However, long-term change in people’s well-being (positive or negative) would need to be indicated by improved health for example. Further, local perceptions or judgements of these changes are important. Judgements about whether change is lasting or significant will vary. Impact assessment should be systematic but should also consider who is judging the significance of change (judgements may vary according to class, gender, age etc). Any ‘after’ study should therefore ask people’s views of the impact of the road and analyse this according to the social group of the respondents.

Problems ranked in PRA exercises often include bad roads (see “Consultations with the Poor” 1999). However, for long feeder roads in Northern and Luapula Provinces, people said that in some areas there were no vehicles using the road **at all** in some cases, and in other cases, only 3 or 4 per year. Although, full rehabilitation or partial accessibility improvements may increase traffic or wet season access, it is important to note that changes may be marginal. Where villagers may decide about the use of assistance funds, facilitation is needed to explore further what a road will provide but also what it will not provide (i.e. through more of a participatory learning methodology) and therefore what is their priority.

EXTERNAL FACTORS AFFECTING LIVELIHOODS

External trends influencing the livelihoods of poor rural people are outlined below. These include national policies, climate, donor and NGO intervention and historical factors.

³ Ulli Kleih, Marketing Study, NRI 1999

Zambia has become poorer since the early 1970s. From being a relatively prosperous country incomes and social indicators have declined. This is a result partly of inappropriate policies which worked against food security, agriculture and rural development, such as policies which encouraged maize monocropping. The rigorously pursued recent structural adjustment programme is generally recognised to have negatively affected the rural poor. Parastatals have withdrawn from rural areas, meaning that access to inputs and markets is now more difficult in rural areas. The private sector is not taking up opportunities as quickly as had been expected.

Agricultural production is the main contributor to total income and so plays a key role in vulnerability levels (VAE or VAM⁴). Risks associated with rainfall contribute to the vulnerability of people. Rainfall is above normal in most of northern Zambia, sometimes causing floods and negatively impacting crop production. Fishing, central to many livelihoods was lower in 1997 due to the heavy rains. Non-farm rural livelihoods are important in Northern and Luapula provinces because of the fishing opportunities provided by the Chambeshi river, and the Bangweulu, Mweru and Tanganyika lakes and swamps. Some districts are identified (by VAM) as being inaccessible in the wet season (Chilubi and Nchelenge districts, in Luapula Province and Kaputa districts in Northern Province).

There are a number of external donors and NGO's working in these provinces. FINIDA, DANIDA, SNV and FAO all have programmes in Luapula Province. In Northern Province the Economic Expansion in Outlying Areas Programme is in operation. Some international NGOs (e.g. World Vision) and local NGO's (e.g. North Luangwa Conservation) are active although on a limited scale.

Morbidity rate information (VAM 1998) shows that the highest wasting rates of children were in Northern Province (22%) for the whole of Zambia, followed by Luapula (18%) Lusaka rural (17%) to North-Western (14%). Reductions in disposable income over the base period of the study (1985-95) are identified as resulting from general trends of inflation, economic reform leading to job losses and market liberalisation – a rapid change for which poor smallholders in remote areas were not prepared. Also crop losses due to the floods in 1997 affected access to cash particularly in that year. An increase in cassava production in Northern Province was also noted in the study and income from cassava in Luapula and some districts of Northern Province was important. A significant reduction in total incomes from cereal production (from 1997-8) was identified for Zambia. Livestock production income is much less important in Luapula and Northern provinces (neither of these are traditionally cattle keeping areas).

Marketing constraints facing poor rural communities in Northern and Luapula Provinces include the distant location of major markets. Traffic volumes are very low in Northern and Luapula Provinces, (which are both large in geographical area, and are sparsely populated). The climate also creates passability problems during the wet season. Feeder roads are long (e.g. one of the potential study roads in Mpika district is over 100km long, whilst for much of the road there are few inhabitants). The secondary road to which this

⁴ Vulnerability Assessment Exercise (VAE) or Vulnerability Assessment Monitoring (VAM) (1998)

feeder road is linked appeared to have very low traffic volumes. This means that not only do people have to overcome tremendous feeder road distances but also then may find no transport on the main road to take them to market.

Bemba is the main vernacular language in Northern and Luapula Provinces. The Bemba originally migrated from the Luba-Lunda empire (from what is now south-east Democratic Republic of Congo, DRC) to Zambia in the late 17th and early 18th centuries. A scattered population practiced '*citemene*' (shifting cultivation) agriculture. Fighting with other groups (particularly against the incursions of the Ngoni) led to a warlike reputation. In the early 1800s large scale population movements convulsed Southern Africa, partially driven by conflict and disruptions resulting from slave trading (Reader 1998). Centralised authority amongst the Bemba became seated with the paramount chief ('*Chitimukulu*'). Succession wars occurred throughout the 18th century as kingship circulated between lineages. In the 19th century one of the royal lineages gained a monopoly which still exists today. The colonial authorities supported the Bemba chiefs, and the imposition of the British administration led other groups to develop similar power structures. Changes in national politics have influenced the relative power of customary authorities (e.g. independence, MMD government taking control). However, the chiefs retain important political and customary authority (Long 1998, Reader 1998).

NATURAL CAPITAL

The natural resource endowment varies across the provinces. Large areas are covered by open water and wetlands including Lakes Mweru-Wantipa, Bangweulu lake and swamps and the Chambeshi and Luapula rivers. Plateau areas also exist. The road network pattern shows many secondary and main roads located in these upper areas. Feeder roads link settlements located near to water bodies to the secondary/main roads, with much of the population located at either end of the roads, especially near the lakes. There is little commercial farming. The majority of households depend upon subsistence agriculture and or fishing.

In Northern Province there is plenty of land, water, wildlife and forests. Dry winters and wet summers occur in this region, which covers a large area of 143,164 km². The Province comprises 12 districts, (Kasama is the provincial headquarters). The east is slightly more developed than the west. Northern Province, with elevations upto 1,850m can be divided five agroecological zones. Grassland covers approx. half of the area, and savanna a third. Forest cover is roughly 12% and only 0.36% is used for agriculture. Open water and wetlands cover about 5% of the area. Rainfall is high, ranging from 1100 to 1400 mm, with between 80-120 rainy days per year (late October to late March). High rainfall means soils are leached and acidic. Mainly sandy loams except where alluvial soils are found in flood plains of lake areas and in the Luangwa Valley.

The population of Luapula Province (provincial capital - Mansa), is concentrated along Lake Mweru, Lake Bangweulu and in the Luapula River Valley, where fishing is the main source of livelihood. Arable farming is rain-fed generally. Livestock keeping is very limited, whereas fishing is central to many livelihoods. Most farmers are

smallholders (0.5 to 2.0 ha) and the land is cultivated mainly by hand. Few small scale commercial farmers own oxen (in Samfya, Kawambwa East and Mansa Southwest).

Customary land tenure predominates and there is little evidence of land markets developing. Open access resources (fish and gathered foods) are important livelihood sources, especially the latter in seasonal and drought periods. Poorer households depend more than others on these resources. Fuelwood, water, herbs and roots for traditional medicine, game meat, and other gathered products (thatching grass, building materials, mushrooms) are collected to sustain the household.

Resource rights can be affected when access through road interventions is increased (indirect impact). Extraction of timber and minerals by outsiders along newly opened access roads and conflicts may increase when increased revenues can be got from what were previously marginal resources⁵. In the longer term – changing patterns of land use and agricultural development may occur from road developments and an impact study should therefore consider potential social and environmental indirect impacts.

Five agro-ecological zones were identified in Northern Province by the Ministry of Agriculture (ARPT 1986). The roads identified by the research team fall principally into the two agroecological zones (Central Plateau and Chambeshi floodplains) (see annex 2). The Chambeshi floodplains are likely to exhibit similar ecological characteristics to the Luapula river floodplain which drains the Bangweulu lakes and swamps (into which the Chambeshi river flows). The lakes depression area – an isolated cassava/fish system covering Kaputa and part of Mbala Districts is described for Northern Province, but similar characteristics seem likely for Lake Mweru in Luapula province (Luapula agroecological zoning needs to be obtained by the impact study team from the Ministry of Agriculture).

Farming systems in Northern and Luapula Provinces have also been researched and are outlined in the Zambia VAM. These include *citemene* farming systems on the plateau, semi-permanent farming systems and permanent farming systems (see annex 2). Farming systems in Luapula Province include plateau *citemene* farming, the Lake Mweru Farming System, the Lake Bangweulu farming system and the Luapula Valley North Farming System (see annex 2).

Cassava is the main staple food in Luapula Province. Maize production has decreased over the last decade due to the high costs of certified seed and fertilisers. Crop production has shifted from maize to traditional food crops that require fewer external inputs (as in Northern Province). A livestock census shows that there has been an increase in the numbers of sheep and goats kept, as well as cattle, but livestock production plays a secondary role in the local economy. Shortage of labour is a key constraint to increasing agricultural production in both provinces. There is no private sector market in Luapula Province which has the capacity to carry out sales of agricultural inputs or purchasing of agricultural produce in the wake of the rollback of

⁵ Relatively large areas of natural forest including hardwoods exist in Northern Province.

government involvement. A new variety of cassava, Bangweulu, has been introduced (by FINIDA) which has proved popular.

Food insecurity is a problem during some months of the year and many rural poor suffer from relish and protein shortages. Poorer households, often including women, aged, ill and/or disabled, tend to have farms of less than one hectare. These are estimated to include 30% of the farmer households in Luapula Province (LLFSP FINIDA). Dambo areas are used for collecting grass, fishing, collecting wild crops, grazing for livestock.

Sources of Livelihoods

Crops, such as cassava, are grown and fish are caught for household consumption, but they are also sold, providing income. Their value in terms of cash income is low, however, because of the large distances to markets. Farming income is less dependable since it is earned once a year and is sensitive to climate. Fishing provides a more stable income in comparison, providing a more continual and reliable source of income. Gardening and seasonal crop farming (paprika, cabbage, tomatoes, onions, rape, white robe, soya beans) provides some limited income (small because lack of markets, processing), unless located near towns where potential is higher. The Lake Mweru-Luapula fishery is an important resource in the local economy and further details are provided in annex 3.

Some of the roads chosen for this impact study fall in Samfya District where fishing is also a primary activity (see annex 4). An estimated 10,000 people are involved in fishing (as fisher or worker). The huge majority of the population has incorporated fishing into their livelihood system, as trader, moneylender, fish-processor, or as subsistence fisher. The number of fishers has increased rapidly and there is evidence of increasing pressure on the fishery (J Till, SNV, Pers.Comm). Most fishing is from the swamps and the rivers, and only minor quantities come from the lake. Women tend to be more involved in fish trading and processing than in fishing *per se*. The fishing industry is estimated to be worth K30billion annually for the Samfya District, although only 4 billion is estimated to remain in the district (waste from poor storage and profits to traders and transporters).

As in the Lake Mweru fishery, declining fish catches are reported for the Bangweulu water bodies, and smaller fish than previously are being exploited. The most rapid reduction in fish catch per unit effort occurred in the early 1960's with the introduction of commercial gill nets. This rate dropped from 9.1 kg (1961) to 1.9kg (1966) and the open water fishery has never recovered, although catches from the swamps remain stable.

Wage labour opportunities are extremely rare. Some household members have worked in the mines on the Copper Belt, although many jobs there have disappeared in recent times. Food and materials are obtained by carrying out piece work (members of poorer families, often women, do work for better-off families) as a coping strategy in the hunger period. Some collective action occurs (e.g in school construction, road repairs). Activities vary according to agro-ecological conditions and socio-economic group (e.g. the poor may

tend to engage in charcoal burning, sale of grass, mushrooms, caterpillars, honey), whereas the richer engage in pit sawing, hunting, employment.

Non-farm rural livelihoods include beer brewing, fish processing, carpentry, bricklaying, pottery, bakery, basketry, hammer mills, oil extraction (Long 1998). These activities may indicate a difference between poorer and better-off households in a village. They also have different transport needs. Produce is often sold in the villages because external markets cannot be reached and villagers have no access to capital. Cash obtained from such activities is therefore limited.

Cash from paid work is often spent on production inputs (e.g. fishing nets, bicycles, oxen, ploughs, seeds, fertilisers). Expenditure varies according to socio-economic group. The poor and very poor may have to spend any cash obtained on food and children's education. Cash expenditure is highest in the farming season and when schools open and at harvest time children often have to work and cannot attend school. Labour demand is highest in many areas where people are involved primarily in crop cultivation in the period from November to March, and lowest from May to October and this is the time when villagers are more able to engage in collective activity.

Market liberalisation has had a major effect on rural areas. In the focus group discussions (see annex 1) a consistent observation by villagers was "*tule bwe kela kukale*" – "we are going back to our past". Before liberalisation the inputs required for maize cultivation were state subsidized and distributed on credit. Post liberalisation the state has withdrawn from this role in supporting agricultural production (financing, purchasing and transportation). Private sector distribution channels have not filled the void. Bartering has increased and farmers have to cope with variable prices. Income levels are related to access to inputs – an investment in the next cropping cycle. The rapid change caused by the market economy has affected many smallholders who feel that the government has abandoned them (see annex 1). A key shift identified in many focus group discussions is the return to traditional crops (cassava, sorghum, and finger millet) and less production of hybrid maize. The traditional food crops are lower yielding, which reduces the household food supply/stock, and leads to a greater need to barter or buy food. Female headed households disadvantaged by declining food base and longer hunger period because they tend to be the most labour deficient. These conditions imply that access to assets for rural households is gradually being eroded. Instead of household access to capital assets being increased through a ratchet effect (Carney 1998), the opposite appears to be occurring with declining access to resources and evidence of increased rural poverty.

PHYSICAL CAPITAL

Transport infrastructure appears to be a significant concern for villagers (See annex 1). The lack of access to social services, markets and inputs are also often mentioned by villagers. Impassability in the rainy season affects incomes as traders cease to come and buy produce. The majority of travel is by foot. Some bicycle use was observed particularly in southern Luapula District near to the DRC border, but in most areas

ownership is limited. Few scotch carts and other IMT's were observed (e.g. compared to Southern Province) due to the fact that traditionally the Bemba and other ethnic groups in these areas are not cattle keeping. Emergency health care access was highlighted in many of the focus group discussions and consistently was a concern for villagers (usually if someone is very sick they have to be transported on a bicycle or they cannot be moved at all and no care is therefore available) (See annex 1).

Small increases in vehicle frequency, shorter travel times, and improved access to markets and social services, may result from feeder road rehabilitation and improvements but use of feeder roads will still be 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. This is especially the case since improving feeder roads alone (i.e. without complementary development activities) will not necessarily bring new traders to such remote areas or increase greatly economic activity levels. Evidence of movement for social reasons was scant. It appears that road travel is sensitive to climate/agriculture and in certain areas to fishing.

Dry season vegetable farming and fishing are significant activities, but the value of these highly perishable products depends largely on the conditions of the roads (and accompanying transport services). Vegetable farming forms part of women's access to cash in some areas. Although, road rehabilitation may not automatically bring passenger services at affordable prices and visits from market traders, the improved roads may make a difference in terms of emergency health care access. In many rural parts of Africa, and including the Northern and Luapula Provinces of Zambia, women's mobility is more constrained than that of men (Dawson and Barwell 1993). Women involved in cultivation tend to travel internally within the village partly to carry out chores such as fuelwood and water collection. Men also walk to the fields to carry out their cultivation tasks. However, these mobility differences will vary according to livelihood system. In some areas the traders are women for example, and therefore travel long distances. In the Bangweulu swamps the majority of fish traders travelling by canoe around the different fishing camps are women. Mapping of mobility patterns will be carried out in the Rural Transport Policy Toolkit.

SOCIAL CAPITAL

Social capital refers to the social resources – networks, membership of groups, relationships of trust, access to wider institutions of society – upon which people draw in pursuit of livelihoods. In this context, social capital, together with other forms of capital (see above) are deemed to be the capital assets or livelihood resources (both material and process related) with which people resist hardships and bring influence to bear⁶. The

⁶ Scoones I. (1998) "Sustainable Rural Livelihoods: A Framework for Analysis" Working Paper No 72, Falmer, Institute of Development Studies.

social capital of individuals, households, specific organisations or communities can be analysed.

Ethnic groups

Variation between Bemba and Mambwe ethnic groups is identified by Long (1998). The Bemba and their subgroups form the majority of inhabitants and are the most politically powerful in Northern Province (58%). However, other ethnic groups also live in these areas including the Tabwa, Mambwe, Iwa, Inamwanga and Western Lungu (north), Bisa and Lala to the south, in Northern Province and Lunda, Chisinga, Ushi, and Unga to the South West (Luapula Province). Whilst there is diversity in languages and traditional practices, many people speak Bemba and most of the population follow Bemba social organisation and authority (including gender relations and access to land/labour).

Village level Social Capital

Recent studies have indicated that the impact of social capital⁷ (which can raise income) is due to village-level effects and not necessarily to the existence of individual wealthier households having higher social capital. There has been a focus on the relative proportions of households in different wealth groups in a village in many PRA studies. Similarly wealth differentials at the intra-household level have been studied particularly in gender relations. At the same time, however, the importance of village-level social capital and its impact on incomes has perhaps been under-analysed (such as the ability to manage common property resources, dissemination of information and the sharing of seeds). Evidence of community self-help road maintenance may for example indicate higher social capital, and the impact study and policy toolkits will identify where collective activity occurs already.

Relationships based on trust between farmers and traders may encourage better economic performance. However, it appears from villagers' comments (See annex 1) that bartering is increasing and that it is not based on trust with low prices offered and exploitative arrangements for the exchange of produce for second-hand clothes predominating.

The degree to which information is shared amongst individuals and households in a village sometimes relates to the likelihood of people using fertilisers and in a timely manner and inputs and seeds.

Where parents join in school related activities the quality of the school and the government service may be of a higher level (Tanzanian Participatory Poverty Assessment) although this is less the case with health where drug supply is a national constraint.

Fisherfolk from the Lake Mweru fishery in one community decided to control theft of equipment by instigating a new practice of regular removal of all nets from the water and public reclaiming of equipment. All the non-collected equipment was stolen and redistributed amongst the village. The study on co-management of the Lake Mweru

⁷ Tanzania PPA

fishery (Aarnink. 1998) identifies this kind of activity as being based on consensus and social cohesion (rather than indicating in this case centralised power of the village leaders).

Kinship, inheritance, descent and social position

Various anthropological studies (dating back to Audrey Richards in the 1930's) provide rich ethnographic information for Northern Province. These studies have illustrated how kin relations are matrilineal (descent, inheritance and matrifocal residence). Bride-service is carried out by newly weds at the home of the woman's mother. Prohibitions and taboos maintain respect for the wife's mother (Moore and Vaughan 1994). Respect and obligation are important matrilineal principles and age, gender, status determine a person's position in the hierarchy (e.g. women are junior to men, but webs of relationships change according to age). Kinship organisational principles are rarely questioned but contests against others in similar status in specific practical contexts occur (e.g. in succession between headmen and chiefs). Cutting trees is a masculine activity, and is often carried out as brideservice in the '*citemene*' farming system where tasks are divided along gender lines (Moore and Vaughan 1994). Age and position in a lineage/descent group are important social markers, but other factors such as occupational role, education, wealth (children and assets) play an increasingly important role nowadays.

Market oriented production consolidates nuclear family ties and children's education, but wider kin relations have been found to be strained (previous inheritance by maternal nephews in conflict with increased father to son inheritance). This is the case more in inheritance rather than bride service which has continued due to the flexible nature of Bemba matriliney (Long 1998). Residence tends to be organised around a core of maternally related women. Settlements are increasingly individual production units (e.g. a single household or extended family farm household) but these are often tied through maternal links and coalesce around a specific headman⁸ (Long *ibid*). The headman tends to be a brother or maternal uncle or nephew to female residents. Some headwomen are also found. Understanding this 'notion of community' may have relevance to social movement and travel patterns, especially inter-village travel.

Traditional tension between male obligations to his sisters and his wife are exacerbated by accumulation of assets in the market economy and sometimes result in village fission. It is only after several years and children that a young couple are allocated their own land and may move away (marked by specific rituals and ceremonies). Prior to this they are fed from his mother-in-law's granary. Despite the monetisation of marriage payments respect and bride service still continue (Long 1998).

Customary land tenure exists amongst most of Northern and Luapula Provinces. Amongst the Bemba land is acquired through maternal kin links, and usufruct rights are granted. Usufruct land rights are maintained by clearance. Land which returns to bush can be taken over by any individual with appropriate lineage links. Land is relatively abundant (although there are pockets of land scarcity) – on average 5.8 km². Fertile and

⁸ descended from a single founding ancestor.

cleared land is sought after and provides a rare opportunity for investment (given the decline of migrant labour) (Long *pers comm*).

Access to resources tends to be greater for women in a matrilineal system, although they may still be subordinate in decision-making. Whilst men tend to control cash and women control food supplies, this is often hotly contested. Labour is a constraint for Bemba women, although matrilocal marriage patterns, brideservice and mutual labour sharing arrangements alleviate this problem. Food for work (*'ukupula'*) is a common means of mobilising labour. Exploring these arrangements may shed light on levels of social capital and ways of encouraging self-help road maintenance.

Both men and women engage in farming activities, although women spend more time overall than men in farming. The introduction of cash cropping (especially hybrid maize) affected gender relations. Previously roles were fairly strictly divided in *'citemene'* cultivation and control of grain stocks was in the hands of the woman, whilst the husband generated cash (often through migrant labour). However, in recent years involvement of men and women in different tasks has become more flexible (men involved in weeding etc). More decisions are made jointly, although men retain final say over cash income (Long *pers comm*). Recent return to traditional food crops and the selling of them also means that men who are involved in selling can retain more control of these crops. This tends to disadvantage women. In some areas vegetable gardening is increasing in importance. Traditionally produced by women, again men are increasingly involved in sale of these traditional food crops (e.g. sweet potatoes – market value has increased) (Long *pers comm*.) Similarly, many products collected have increasing market value and although traditionally collected by women (e.g. fruits and invertebrates), men are becoming increasingly involved in this trade, such as in caterpillar selling (Long *pers comm*). Men accompany women in the collection and have greater say in the use of the cash. These products are becoming of increased important in household incomes and this may alter seasonal transport needs.

Conflict occurs at bottlenecks in the agricultural cycle. However, they also occur as a result of different aspirations of generations and genders. For example, young men may prefer to pay cash than to provide years of bride-service, working their in-laws fields. However, a series of payments is made, not a one-off, which maintains the importance of that relationship. Bemba social relations are mediated through the redistribution of goods and services. Maintaining good relationships is necessary in the agricultural context and failure to do so can bring divorce or even witchcraft accusations (Long *pers comm*).

Power therefore comes not only from lineage, gender, age and status (wealth in goods and people) but also from ability to redistribute amongst ones' kin group and from degree of generosity. As previously mentioned other factors influence this power (e.g. local council position) but unless lineage, gender, age, status and generosity are not met then this external authority is quickly undermined. Conflict over land acquisition occurs in Northern Province as a result of local elites manipulating customary tenure arrangements. Control is sealed when land is registered by title deed and removed from potential lineage

circulation. Poorer residents tend to be unaware of this process of inequitable land acquisition (Long pers comm).

Differences in the groups formed by men and women are identified. Women tend to be more marginalised than men in both provinces although women in Bemba society tend to be in a relatively strong position. Women do participate in political spheres of influence and sometimes access to resources is simply different. (Long 1998). In Luapula province trade for villages visited was mainly driven by cross-border Congolese women traders. “Women’s solidarity and networks are central to women’s (and consequently men’s) livelihoods . The organisation of cross-border trade, for example, depends upon the maintenance of trade networks” (Long pers comm).

Characteristics and Indicators of wealth

Focus group discussions found that the *abalanda* (very poor) are supported by their extended families.

In a study carried out by the Participatory Assessment Group for the World Bank, (1999) “Consultations with the Poor”, research sites were chosen in 12 of the poorest districts in the whole of Zambia. Chinsali, Northern Province was included. In the rural villages included in the study there were variations in the number of groups identified as different wealth/well-being categories. However a summary was made of the criteria and ranges of households falling into each group given (rather than the mean) (see annex 5).

Locally defined indicators of wealth/well-being therefore include number of meals per day, the type of food consumed, food stocks and amounts. Assets owned refer to cattle, oxen, types of houses, shops, vehicle and IMT ownership, employing others, access to schooling and health care, clothing. Well-being/wealth groups could be summarised as including the *abakankala* (rich), *abapina* (poor), and *abalanda* (very poor) (Long pers comm).

Causes of ‘ill-being’ in Mundu village, Chinsali district were identified in the World Bank study as “expensive fertiliser leading to no farming, MPs craftiness, retrenchments, barter system, delaying in paying retirees, craftiness of councillors, prostitution causing AIDS, theft, malnutrition causing death”. Unscrupulous private traders exchange food crops, mainly maize for goods, to the great disadvantage of the farmers (as mentioned above). Many people who have been retired or retrenched in urban Zambia have returned to their homes of origin. Often their retirement packages come very late. In the meantime they suffer and are poor. The study also notes people’s views (re-iterated consistently in every village discussion of this visit) that politicians, particularly members of parliament and councillors, do not do their jobs. Villagers say that they rarely visit their constituencies and thus do not promote development. The analysis suggest that poverty and suffering lead to more theft, inability to work, malnutrition leading to health problems, prostitution leading to HIV/AIDS infections and premature death, begging for food from neighbours and unstable marriages.

Problem priorities

The Consultations with the Poor study also found that water problems top the list of priorities for the majority of rural people in Zambia. Women have to travel fairly long distances to water sources which are not very clean. Lack of fertiliser was ranked second (because poor harvest results, meaning less food and less cash incomes to access education and health services. Hunger was ranked third. Inadequate crop marketing was mentioned by 11 of the 30 rural groups. Bad roads were mentioned by 12 rural groups, and so was unavailable transport (also 12 groups). As bartering increases, access to cash incomes is reduced and in consequence so is access to education and health. This in turn increases poverty. Bad roads and unavailability of transport exacerbate problems of hunger and poverty. Men living in the Luano/Luangwa Valley have to travel several days across the Muchinga Escarpment to take mats and baskets to Serenje town for sale. Women do not take part in this rare source of cash income. Men and women voiced concern equally in rural areas about poor roads and transport.

At Mundu village, Chinsali, both men's and women's groups ranked fertiliser as the most important problem. Water was second and negligence by the health worker third. Lack of ambulances, domestic animals came next. Transport, was ranked 4th or 5th by all groups, bridges and roads were ranked 5th or 6th. Youth groups said lack of fishing nets gas fees, domestic animals, markets and transport were problems.

Redistribution of wealth and networks

Bemba and related groups carry out co-operative resource distribution and labour patterns based on consumption rather than production (Long 1998). Livelihood activities are carried out with kin at different levels of degrees of interaction. Redistribution of agricultural inputs, seed and fertilisers are organised through kin and trusted individuals. Arrangements for transfer of inputs organised in expectation of receiving back some of the grain produced. Although partial breakdown of matrifocal family as unit of residence among the Bemba the networks of kin and especially women's networks are still central to livelihood strategies. The nature of relationships between traders and how far mediated by kin links is not known for different areas of the two study provinces. Bartering between villages near to the Chambeshi river with those on the upland were noted on the recent visit.

HUMAN CAPITAL

Population densities are low across both provinces. The estimated population of Northern Province is 1,057,324 (i.e. 85% rural). Rural population density is only 5.8/km². Communities are small but tend to be well-nucleated along roads, lake edges and rivers. The estimated population of Luapula Province in 1990 was 526,000 (1990 census), with a 3.5% annual rate of population increase. Three-quarters live in rural areas.

Strategies for coping with crises (funerals, hunger, diseases, being widowed and orphaned) were investigated in the World Bank study. For dealing with hunger, food theft in all rural sites was mentioned. Doing piece work, depending on food relief, bartering fish for cassava, growing cassava instead of maize, were all mentioned. Further,

in Chinsali people return to traditional shifting cultivation. Young men of Luangwa abandon their families (matrilocal residence patterns) when hunger strikes. Some diversify their livestock. Widowhood and being orphaned means that individuals affected have to fend for themselves especially after relatives of the deceased have grabbed all the latter's property. Orphans suffer from isolation. They may go to stay with relatives and occasionally get basic needs support from churches. After loss of a job people use their retirement package to invest in a small business, but a problem is that retirement pay comes very late and not all succeed. These small businesses may include include transport services.

The "Consultations with the Poor" study showed that health costs were too high and distance to health centres a key constraint. Health staff attitudes and lack of maternity wards in many health centres also concern poor people. People are often forced to pay consultation fees on arrival at the health centre. After a long wait, they are told there is no medicine. People turn to traditional healers, even though they can be more expensive than conventional medicine. It may also be because traditional healers are willing to defer payment. This picture of access to health care was borne out through focus group discussions. Alternatively, people buy drugs from grocery shops (where available) although these are often expired and/or correct dosages are not adhered to. The quality of dry season water sources affects the level of water borne disease problems (e.g. dysentery), although malaria is a common problem especially during the late rains (march) and at the time of harvest.

Education was a priority particularly for young people. Distance to schools is felt to be more acute in the rural areas and lack of secondary schools. Lack of employment (caused by job losses and privatisation) was mentioned mainly in urban areas, but in some rural areas also. Witchcraft was a key concern in rural areas. It is often used as a deterrent against theft. Those that do well are often the subject of other people's envy and this sometimes turns into practice of witchcraft. Sometimes the aim is to cut short someone's life to inherit their crops. Lack of police posts, social amenities, poor housing, lack of hammer mills, electricity and illiteracy were also mentioned.

Institutional analysis identified churches (mentioned in all study sites). Institutions with influence in both rural and urban areas (although not all research sites) also included health centres/hospitals, ward councillors, agricultural extension and MPs, schools and Zambia Police. A sense of dependency on external assistance is high, mainly due to the high levels of involvement by the government in the past. Some informal 'institutions' were mentioned such as *Bachimbusa* (female instructress at puberty and marriage rites), *filolo* (chief's advisors).

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. Potential marketable products include coffee, rice, soya

beans, paprika and sugar cane (*Long pers comm*). Coffee has been promoted by the World Bank. There are large river valleys suitable for rice growing (one of the chosen research roads crosses the Chambeshi river floodplain), but no systematic support has been given to improve it. Soya beans are grown in Northern Province and represent a food and cash crop. Paprika is promoted on an outgrower schemes basis. Sugar cane is grown in Lukulu river valley. Traditional crops such as cassava and other root tuber crops are being increasingly grown.

Marketing constraints exist in the distant location of all major markets (for both Provinces although particularly for Northern Province. The Copper belt is slightly nearer but although Luapula Province produce could be transported through DRC on a shorter route to Lusaka this presents difficulties (cross-border travel, poor condition of the road, insecurity in DRC). Long distances to major markets negatively affects crop and fish prices. Market information in remote rural areas in both provinces is limited. Radio communication is also limited by a lack of programming, low ownership of radios, cost and inaccessibility of batteries etc. However, a community radio is planned to be set up in Northern Province in the near future (*Long pers comm*). Few cooperatives, farmer organisations or fishing associations exist to facilitate rapid information dissemination (e.g. on pricing). Poor marketing infrastructure (warehousing, storage sheds) has resulted from a lack of maintenance and no local ownership. A government programme (Economic Expansion in Outlying Areas) and the Rural Investment Fund is tackling these problems but the problems are large scale.

Marketing in both provinces is constrained by a poor road network. Waterways are not developed and the railway is run down. Fewer vehicles than are needed exist because there are few transport operators who operate in the region due to poor roads and inaccessibility of outlying areas. Potential national markets for marketable surpluses from Northern and Luapula Provinces are limited. Both provinces are strategically placed for export markets in DRC, Tanzania, Burundi and Rwanda, with nearness to Lake Tanganyika (which has good water transport) (*Long pers comm* and LEEP preparatory documents). Larger populations in neighbouring countries affected by civil wars create the potential for export for which there is currently little local capacity. Dependency amongst remote rural villages on the government was created by its previous policies and the role assumed by the government in managing the economy. It also suppressed private sector initiatives and few additional private traders have emerged after liberalisation with capacity to collect local production for export market. Communal marketing organisations appear to be rare.

The list of types of capital mentioned earlier is not exhaustive. Political, cultural, and symbolic capital, are intertwined with social capital and can be key in determining the quality and sustainability of livelihoods. Dealing with fairly intangible assets is difficult in a snapshot road impact study, but nevertheless it is important. Some aspects of cultural and symbolic capital have been alluded to earlier, but political capital has not yet been mentioned. Transport and political capital are linked. Representation by local communities is limited by physical access constraints. The accountability of politicians is limited. Transport constraints make it difficult for rural people to have any kind of

meaningful iterative dialogue with authorities, private companies or other relevant bodies.

KEY ISSUES

Key issues, in rural travel and transport which need to be explored by the two parallel studies (impact study and rural transport policy toolkit) have been outlined in the livelihood profile of Luapula and Northern Provinces. Much of this information has been gleaned from secondary information sources combined with rapid focus group discussions held in the team visit (Jan-Feb. 2000). Some of the central questions and are also summarised in annex 6: rural transport policy toolkit survey approach.

In-depth information on social, political and cultural capital and transport can probably can only be obtained through the more open, probing approaches of participatory research or rapid rural appraisals. The impact study questionnaires will provide more statistical evidence on the medium term impact of feeder road improvements (e.g. on indicators such as reduced travel costs and time, numbers of vehicles using the roads, new livelihood opportunities).

In Northern and Luapula provinces, transport is clearly a major constraint to economic and livelihood development. However, a livelihoods analysis indicates that road improvement alone will not achieve the “ratchet” effect, required to increase access to key capital assets and thus to increase sustainability of livelihoods. Whilst, improved road accessibility may provide significant change in physical access allowing emergency access to health clinics, for example, lasting change in people’s livelihoods will require improved transport *services* as well as infrastructure.

Social capital (whether village, household or individual level) can increase incomes. Social relations influence transport needs directly in terms of inter-village travel for example for maintaining friendship and kin networks and indirectly in terms of access to resources and assets. Political representation is a fairly unexplored area in relation to transport and livelihoods.

Unfortunately, the general trends in Northern and Luapula Provinces indicate increased isolation and poverty in the last decade, mainly as a result of liberalisation. Countering such overall trends will be difficult for development agencies and the government. Although, road improvements may make some contribution, the identifiable impact is likely to marginal unless complementary support to increase access to other capital assets is provided.

ANNEX 1: FOCUS GROUP DISCUSSIONS

Men's focus group discussion: Luwingu District..

There are no shops around here. We normally go to Luwingu to buy necessities. This is about 20 km away. We normally walk there, starting at 04:00 hours and come back after 18:00 hours. We have no problems with the rains. Our yields are normally high. The crops we grow are groundnuts, cassava, beans, finger millet, maize, tomatoes, onions, rape, cabbage, sunflower, pumpkins, sweet potatoes. We normally exchange our produce with traders in return for second hand clothes and chitenge material. Once in a while traders come and buy our crops for cash. They don't normally come with big trucks because of the poor roads. If the road was improved our produce would really sell and people would build small shops for villagers. Deaths would be less because a clinic would be built and a faster means of transport would be available. A school may also be considered here for our children's education. We do not travel much because we can't afford to. We cannot manage to take our loads of produce on our heads to Luwingu. Our children fear vehicles because they are not common. Only one vehicle passes by per week. We have never been able to access to loans – there are no clubs and no co-operatives. The road here was partially improved by the ILO in 1994. Otherwise the local community try and maintain it. The primary school is at Chitoshi.

Kalende Village, Luwingu

There are 200 families in the village. There are about 7 bicycles. We grow groundnuts, cassava, beans, millet, maize, and some of us keep cattle, pigs and goats. The nearest school and clinic are 5 kms away. The feeder road was made in 1965 but it has never been graded. In 1994 they only cut some bushes alongside the road. In march the road becomes impassable. In the last 5 years we have grown less maize because there is no fertiliser. We have gone back to beans, cassava, millet, and groundnuts which do not need fertilisers. We exchange our crops for second hand clothes. We practice 'citemene'. It was more common in the past but there is less land now. In April/May we dig the ground and bury the grass ('fundikila') so that it rots to provide manure to the crops. In October we go back and spread or uncover the ground. In November we sow millet and maize in these fields. This 'fundikila' farming is doing well in this area. Each family produces about 8 x 90kg bags of beans each season. A 25kg bag of beans sells for K30,000 and 50kg sells for K60,000⁹. Rainfall in the area came late this year. More people have come back from the town where they had gone for employment. 50 people used to work elsewhere and are now back in the village. The poorest people in the village include old men and women without support, orphans and widows. At present these poorest people get support from the extended family, church and clubs. There are about 200 children in the village, of which 60 attend primary school and 10 attend secondary school. The main expenditures are on school fees, transport and the clinic. We mainly use the road for transport to the clinic or school, and to sell crops. If the road is improved the traders would come to the area and we would produce more for the market. We feel neglected by the government. There is no development in the area. There is no access to credit and no NGOs work here. Common diseases include diarrhoea and malaria. We are Bemba speaking, the chief is called Chipalo. Main needs in the village include boreholes and help for orphans. The MP has not done anything for this area. To get to the clinic or hospital we go by bike, especially the men and walking (especially women). This takes a lot of time from their work. There are no visiting medical services in the area. There are no cars that use the feeder road in the wet and non-harvest season. We go to Luwingu to go to the clinic/hospital, to get supplies, to have meetings and to sell our produce. We rarely buy food from the market because we grow our own.

⁹ Current exchange rate is approx. \$1 = 2800 kwacha

Focus group discussion: Mutapa Village Mixed group discussion (3 men and 6 women). Near to the lake.

This Kapili-Chibuye Road was constructed in 1968. There is a Mweshi/Lungu school 3 to 4 km away. The nearest clinic is 22 km from here. The road is used for transport of maize, cassava, groundnuts, sorghum and finger millet to Samfya. We use the chitemene system of cultivation and do not use fertilisers. We don't grow many beans because the soils are acidic. 10 years ago this road was used by LCU Co-operative and about 8 vehicles per day passed by. These days very few people use the road and sometimes only one vehicle passes a fortnight.

We are the Mgumbo and Ushi people. There are about 40 households in this village. We normally walk to Samfya because of the lack of transport. There are only 3 bicycles in this village – once in a while traders on bicycles come to buy things. Maize is no longer grown here because it is difficult to get fertilisers. However this year 8 packs of 16 x 90 kg bags of fertiliser were loaned to us by the Food Reserve Agency – we normally grow bangweulu variety of cassava here. There is an outbreak of pests affecting the cassava [aphids] and so it is not growing well. We would be glad to grow maize so that we have greater food security, but the difficulty is getting fertilisers.

Our road is not very good for vehicle accessibility. The bridge is not in a good condition and it would help if it was improved because it would be easier to get to social service and there would be public transport. We sell cassava at 1000 kwacha per gallon.

Travel from here to Samfya by bicycle takes about 2.5 hours and to walk is about 5 hours [return?]. If you are lucky from the junction to Samfya costs 6,000 K. Transport costs are high – during the fish season we have a lot of fish for food. Fishing is done by men and both women and men are involved in fish smoking. People travel to town for various reasons. In the past before the fish ban, the local community fished all year around. From August to September (*ububa*) a poison cannot be used to catch fish. The chief also forbids people living near fish breeding areas. The rains have not been very good this year.

Someone who is better-off than others has animals, such as goats, cattle, boats, nets, fields. Poorer people don't have any of these and depend upon their extended families for help. The Ministry of Agriculture promised that it would bring us goats from the Gwembe Valley but we have built kraals and are still waiting.

There are two widows and three orphans in the village. We are a matrilineal family. We go anywhere on the lake to fish. If you go beyond our fishing area then you have to get a document from the chief. There are about 5 chiefs in total around the lake. You do not pay anything unless word comes through the village head to contribute to the chief. We only pay a levy on fish if you are taking it out of this district. We have FINIDA (seed multiplication programme) working here and IFAD, Food Reserve Agency (provides loans of fertilizers).

Motoka Village (Samfya district). Mixed group discussion with 7 men and 8 women. Kasaba main road to Lubwe Mission. (i.e. a secondary road)

This road is used for transporting fish and cassava. Transport is in abundance – we wait for about 1 hour before transportation arrives. For those that have no money they walk. Those that go by vehicle pay 7,000 Kwacha. When it is the fishing season there are more vehicles. We can't be sure, but there are about 15 passing by every day in the fishing season and 5 in the off-season. There is trading normally in fish and cassava. In the past people caught less fish because of the methods they used – now people catch more fish because they use nets.

Mansa: Chitala's Village (U4: Chembe-Chipete Road). 30th Jan. Mixed group of men (10) and women (4). Near to the border with DRC/Luapula River.

There are about 29 households in this village. The main crop here is groundnuts. Second in importance is cassava and then maize. We do not grow a lot of maize because we do not have fertilisers. We use the *citemene* system to grow our maize because in this system few make the soil fertile and fertilisers are not needed. We also fish. This road is impassable so we don't value it much. The bridges are spoilt and vehicles do not get to us. We would value the road if it was improved because our produce would be taken for sale. Vehicles in the past used to come but now there are no more vehicles. In fact the only vehicle that comes here is an ambulance. This vehicle that you came with is the first one using the road this year. We didn't know that this road was to be improved. In fact the medical personnel earlier this month said that the local community should repair the road or they would stop coming here to help us because the road is almost impassable. Medicines at the clinic are limited (aspirin, panadol).

Better-off people have bicycles, big fields, and they look clean with good clothes. This village has about 20 bicycles. We are Ushi people. During the harvest season we have about 3 vehicles per week though. If this road was done we would have access to Chembe to take our maize and cassava to the hammer mill. This road was cleared in the first republic about 1968. From here to Mansa the cost is K8,500. Our produce such as groundnuts is K8,000 per 1x90kg bag. We walk to the road to get transport to Mansa or the Copperbelt. There are people here who also trade with Zaireans. Mostly the Zaireans come here to trade – using the barter system or cash. We have a health post. The nearest clinic is in Chembe (15 km from here). We have a lot of mangos – our fruit is the first of the season normally throughout northern province. People come along this stretch of road to Fikombo primary school. There is a basic school in Chembe where children at secondary level go and stay there during the week. We do have visits from agricultural extension workers who give us advice on new early maturing crops. However, we don't have NGO's – development in this area is almost static.

Most people spend their money on agriculture, they also spend cash on clothes and housing, school fees (K2000 per year per child). Locally medical treatment is free but if you go to Chembe clinic then it costs 500K per visit. We lag behind on roads and many other things, such as schooling. Before the school went up to grade 4. Later on the local community built extra classrooms using local materials such as grass for thatching the roof. The government does not care about us, especially the MP. In total we have only 3 teachers for 228 pupils. The teachers go to collect their salaries from Mansa. Common diseases include diarrhoea, malaria and sore eyes. If there is no medicine at the clinic or at Chembe we go to the Congo. For buying basic goods we go to Chembe. When people have harvested their crops and have some money the young men set up small shops to sell some basic goods (salt, paraffin, soap, sugar). We are returning to how things used to be here, growing cassava and finger millet. We catch fish to eat, but do not sell much. Maize is used in beer brewing, for *nshima* we use cassava. If we ate all the maize we could not make beer and obtain cash. Some people work outside in the Copper Belt. The Dept. of Water Affairs brought a windmill in 1969 but it is broken. There was no maintenance and they didn't teach people how to run and mend it. So we have a water problem – we get our water from unprotected wells. We do collective work, such as collecting sand for building the school. Some dig fields for others and are paid for this [piece work].

Poorer families have bad dress, no house and little to eat. The council have neglected us for so long. Don't let them improve the road. We can do it ourselves if we have technical advice. The government should help us. The food we produce is feeding others in town who can't cultivate their own. The roads need to be done to feed the nation, but at the moment crops are wasted here.

There are some goats, pigs and cattle in the area but few in this village. When animals are slaughtered it is for trading, we barter it for other goods. For us to buy soap we use the barter system. There is not much poverty here because we have a lot of produce (groundnuts and cassava). The lack of food is temporal, because we plant in the rainy season. We start harvesting by february and selling beans. The rains start in

October and end in April. People can fish all year round in the river, but there is a ban on fishing at the lake.

Deputy headmaster: the school is a poor state, the roof of the building was ripped off and we did ask micro-projects unit [World Bank] to assist us. We still await their reply. (is this where we looked at the school and they had done quite a lot themselves).?

Focus group discussion: Chimbe. Mixed group discussion with men (35) and women (20). (Stephen Lumpa's village). Road number RD27 (Full rehabilitation planned).

This road was done in 1967/68 and graded in 1989. This road is used to transport firstly cassava, then groundnuts, then maize (and a few oranges). Omnia, a fertiliser company, refused to sell us fertilisers. They opted for loans which we do not want. Nearly every household has a bicycle (we have about 200) and there are two scotch carts in the village.

There are about 40 orphans and 59 widows. These are the most vulnerable in the village. They mainly do piece work and are helped by others in the village. The language spoken here is Ushi/Lamba. Transporters come here because of inputs – the roads were better than they are now. We don't have transporters. In the past maize was collected and there were private traders, but agricultural output has doubled. Traders occasionally come but they cannot get here a lot of the time because of the lack of vehicles. We spend our money on buying all the household necessities and bicycle spare parts. The population has increased. We go to the clinic in Chembe which is about 10 km from here. We cycle for 2 hours and walking it takes 4 hours.

Two people in the village own cattle. There are also some goats, pigs and sheep. We have four ploughs in the village. The charge for hiring per lima [70 metres by 70] is K20,000. The better off are those that have plenty of food and farm implements. When there was grading of roads vehicles used to come to ferry our produce – that was in the 1980's. Then about 6 vehicles passed every day. If the road is rehabilitated we shall have a good number of cars coming to do business. To ferry groundnuts from here to the turn-off we would pay 1x90kg bag 2,500 cassava, but now the scotch cart is K4000 per bag and for a person it is 1000K. Some people work in the copper belt.

The primary school in Chembe. There is a weekly boarding school. Most children do not go to school and those that do are leaving grade 7 and still can't read and write because there are not enough teachers. The trend has changed and these days we are going back to our old roots from about 2 or 3 generations ago. The school fees are now too high for us to manage. Teachers are a problem here – we do not have enough because they refuse to stay in the village and the bad conditions of service.

We tried to make a co-operative last year but people who formed it paid a lot of money and the fertilisers did not come. We borrow fertilisers from the companies. No NGOs are operating here. We don't know who are member of parliament is because he has never visited us. Even the ward councillor does not come here. The government does not look after us – we have to look after ourselves. Since 1991 we have no had any co-operation from the government. Maize production has gone down and we have gone back to the old system of cultivating cassava.

People do fish in the river but more for eating than selling. The traders who come from Congo are mainly women. People that bought produce last year came from the Congo. They really helped us by buying our product. They bought groundnuts and cassava. The reasons women are the traders is that they want to feed their families and know how to manage the household. It is difficult for us to go to Congo to sell produce – it is easier for them to enter this country. They get passes at the border from the guards. If we had cattle we could cultivate bigger farms. We can buy trained animals through Finida and the Ministry of Agriculture (300,000 K per animal). We have heard that donkeys are on sale from the Ministry of Agriculture, although not here in this district, for 300,000 k each.

ANNEX 2: AGROECOLOGICAL ZONES AND FARMING SYSTEMS

Agro-ecological zones

Chambeshi floodplains: cassava/fish system located on perennially waterlogged areas surrounding the Chambeshi flood plains and Lake Bangweulu. Millet and maize are less important in this zone, since they cannot survive the high water table. Variety of other food crops grown including groundnuts, beans, sweet potatoes, and fruits. Fish is the most important source of protein. Main sources of cash for residents include fish sales and sale of agricultural produce. High population density and land pressure almost totally precludes *citemene* cultivation. Response to land pressure have included the intensification of land use. Probably the most static of all systems in Northern Province, population growth has been relatively small over the last 20 years and agriculture remains predominantly subsistence oriented. Population profile: Bemba/Bisa.

Central Plateau: Heterogeneous compared to other zones. Gradual change in features between the north west (Mporokoso district) and south east (Mpika). Traditionally, a *citemene* based finger millet/bean cropping system. Cassava increasingly under cultivation. Was an important maize producing area. Beans and groundnuts are the most important relish crops and protein sources. According to area maize and beans are most significant sources of income (this may have changed since 1986).. *Citemene* still important part of farming system, but more widely practised than in the western part of the zone. Central and south eastern parts of zone better served by official markets than western part. Uncleared land for permanent fields is easily obtainable. Trends and changes include the decline in migrant labour opportunities and increasing land pressure. Population profile: Bemba/Bisa and in the southern area Lala.

The Lakes Depression: Cassava is the main staple. Most households grow sufficient for household needs. Maize is also grown for food by approx. 30% of households. Most farmers also grow ground nuts, and a small amount of millet is grown for beer. Fish is the main protein source. Fish accounts for 75% of cash incomes. Traditional land use – *citemene* – disappeared due to high population density and poor regeneration capacity of woodland. Replaced by more permanent cassava/mound cultivation methods – indicates increasing land pressure. Main changes result from isolation of zone and predominance of fishing as main income source. Little agricultural development beyond subsistence. (Main groups are Lungu, Bemba, Tabwa).

Farming Systems in Northern Province

Diversity of agro-ecological and socio-economic conditions and complex farming systems. *Citemene* has been dominant in the past, but more semi-permanent systems are being adopted. Intra-village farming system variation and among villages of the same region and between regions. However, three main farming systems can be identified:

- *Citemene* farming system using the products of burnt trees to improve soil fertility and raise pH. The most extensive *citemene* is carried out on the plateau (woodland fallow cultivation system). Crops grown include finger millet and cassava mounds.
- Two semi-permanent farming systems are practiced. A) Bush/grass fallow cultivation (zone 3) and B) inter-cropping farming system practiced in home gardens. Both home gardens and *dambo* gardens are of increasing importance with the reported decrease in *citemene*.
- Permanent farming systems – there is little cash cropping. Maize production emerged in response to the governments maize monocropping policy but this is a high input farming system based on agro-chemical fertilisation. Liberalisation has led to a shift away from maize to traditional food crops which are now being sold. Crop production includes maize, sorghum, finger millet. In Lake Mweru-Wantipa fishing and rice cultivation are the most sources of cash combined with cassava, sorghum and local green maize for domestic consumption. Coffee and rice are other major cash crops grown (albeit on a small scale) in Kasama district (recent increase in outgrower schemes for these crops, plus paprika etc).

Farming Systems in Luapula Province.

- Plateau North Farming System: *citemene* shifting cultivation, mainly millet, cassava cultivation. Finger millet used for *nshima*.
- Lake Mweru Farming System: A fishing and farming system which runs from Chienge/Lupiya through Mukunta to Kashikishi. Inhabitants on the eastern shore of the lake depend solely on farming. Fishermen occupy the narrow strip on either side of the lake shore road and sell some of their catch to the farmers.
- Lake Bangweulu Farming System: Covers the northern, southern, and south-eastern parts of Samfya Boma, including the main islands on the lake. Fishing and limited crop production. Current livestock development activities.
- Luapula Valley North Farming System: Concentrated along the Luapula River. Population has increased due to proximity to DRC trading areas and so some areas are vulnerable to food insecurity. Fertile land shortage. Cassava production is increasing with the shift from maize production.
- Groundnut production is increasing due to the local and external (Mansa and DRC) markets. Finger millet is decreasing because of the past dominance of maize but this trend is now reversing. Poor performance of finger millet though when grown on permanent fields. Sweet potato production increasing due to demand from local and external markets. Forest resources are declining and fisheries are reported to be almost depleted. Wildlife is almost non-existent.

ANNEX 3: LAKE MWERU FISHERY

Lake Mweru fishing

The Mweru-Luapula fishery comprises Lake Mweru (465,000 ha) and the adjacent swamps and flood plains. Located in the far north east of Zambia, in Luapula Province, it forms one of Zambia's major fisheries. It is a common open access resource in practice, and the fishery is shared between DRC and Zambia. Fishing developed into an industrial activity in colonial times. Approximately 200,000 people live in a ribbon of villages belonging to three major chiefdoms (the Lunda in the south, the Shila in the middle and the Bwile in the north). Fishing provides rural people with protein, income and employment. 25,000 people (mainly men), are involved in fishing as fishers (i.e. owning boats and equipment) or as workers. Many more men and women are involved in processing and trade of fish. Fishers use dugout canoes and own one or two nets/traps. A new pelagic fishery developed in the early 1980s – a capital intensive night fishery based on *chisense* (*Microthrissa moeruensis*) produces 4 to 6 times that of the traditional species (there are two commercial companies operating on the Lake at the moment). The total catch accounts for 30-40% of total fish production. Liberalisation has increased fish trading with increased travel (buses) between Kashikishi and the Copperbelt/Lusaka. The trade by road generates revenues for the District Council through fish levies. Individual fishes point to the decline of individual catches and it appears that fish stocks are under pressure. Fishers have migrated from the southern to the northern part of the fishery, due to the problem of economic over-fishing (not necessarily biological overfishing, but declines in catch per effort undermining the sustainability of local livelihoods).

Fishing embodies social and political security, as well as providing the main source of protein and cash. It plays a key role in building social relationships and networks. Within and between households fish, food, cash and labour are interchangeable resources. Fish is shared, bought and bartered. The best part of the catch is consumed by the family, part is given to the relatives and the rest is sold or bartered for other food items or services. Cassava is also a key part of the daily diet. Long-term planning is required with cassava, but once planned it can be harvested in intervals and acts as a buffer against uncertainties in fishing, at times of insecurity (low catches, sickness, death, net thefts) it buys fish and other items. Most businesses started in the area have begun from the cash obtained through fishing and related employment. Fish is a component of tribute payments to chiefs since pre-colonial days but resistance to these tributes is also in evidence.

Attempts at conservation are extremely contested since so many depend upon fishing for their livelihoods and there are many vested interests. The political nature of fish conservation and the social nature of resistance/support for conservation have changed through pre-colonial, colonial, post-independence stages. Power and social relations have varied, current co-management approaches are attempting to develop realistic and politically acceptable management arrangements incorporating multi-stakeholder involvement and negotiation.

“Co-management: who sets whom to work?” Socio-political and economic dynamics of Mweru-Luapula fishery, Zambia. B.H.M. Aarnink. Oct 1998.

ANNEX 4: THE BANGWEULU FISHERY

The Bangweulu fishery

A huge recent change has been the increase in *chisense* fishing in all the parts of the Bangweulu fishery. In 1994 research suggested that *chisense* fishing was carried out predominantly by women using chitenge material and mosquito nets (no tilleys) along the shorelines and there were probably only about 100 active fishers. Introduced in the 1960's *chisense* fishing has change over time and in the last decade has become a male-dominated activity. A counting exercise on the lake found 1,500 lights in 1999. The lights are used by men in fishing. Few can afford to rent their own boats (the type required for this type of fishing) but have to rent them. Fish are sun-dried or smoked by women. Lack of access to firewood is a key problem in terms of fish processing and the quality of the fish produced. In pre-colonial times, as in Lake Mweru, rituals, customs and taboos protected the fishing resource from over-exploitation. The Ba kapepas (traditional priests) maintained these taboos and rituals. Fishing in many breeding grounds was taboo and annual rituals were performed to safeguard good catches. Women could not enter fishing grounds during their menstrual cycle because this was thought to affect fish reproduction (still a belief in the swamp areas). Crop cultivation from January to September also used to constrain the level of fishing activity. Few people trekked from the mainland to the swamps after the rainy season (April/May) as occurs now. Land on the mainland was readily available and agricultural production was good. Fishing in more local waters was also more possible then and so migration was less imperative.

British colonial authorities established Native Authorities in the area, one per ethnic group and took control of the fishery. After independence centralised control continued and a Fisheries Act was enacted in 1974 for the whole of Zambia, denying involvement from local stakeholders. However, in recent years the fisheries department did not enforce the law and an estimated 90% of the fish caught was estimated in 1992 to be caught illegally. The fishing ban between December and February is more enforced. Recent efforts at co-management have begun by the Fisheries Dept. with support from SNV although this is still in the early stages and the planned Fisheries Act is awaited for legalisation of the new approach

Livelihoods on the mainland are different to that in the Bangweulu swamps. Staple food on the mainland is cassava, supplemented by maize, sweet potatoes and groundnuts. Maize production has reduced in recent years with liberalisation. In the swamps rice is grown particularly in the northern part of the swamps. Barter trade has become predominant in the Samfya district economy. Mobile traders, mainly women, travel around the fishery using hired GRP (banana) boats, costing approx. K30,000 per month, and propelled by hired paddlers (K30,000 per month). Some traders pay cash for produce but also exchange second hand clothes, groceries and fishing nets to exchange for fish. Particularly in more isolated parts of the swamps barter trade is more profitable for the trader and the local people have little alternative but to exchange their fish in a barter system. This trade collapses during the annual fishing ban leading to seasonal hunger particularly in barter dependent areas (e.g. in the swamps). Traders suffer from risks (fishers obtain credit but then may move camp and be untraceable, lack of boats for hire at peak times, costs of transportation of fish from Samfya to major markets, high levels of wastage due to poor packaging and processing, district council levies, lack of fish trading associations and thus poor political capital). Inhabitants of the swamps live in small, dispersed and transient fishing camps and also have few community based organisations (also low political capital).

Waterways and channels need to be cleared for larger boats to pass. Canoes can reach communities at all times of the year, but these settlements are often inaccessible by larger boats during parts of the year because the channels are not dredged. FINIDA has repaired a dredging machine lately to assist in clearing channels. Feeder roads are also in poor condition. Public transport is limited (two private companies travel between Lusaka and Kashikishi via Samfya once a week (a fish trading route) and irregular services exist on other routes e.g. between Mansa and Chinsanka and Samfya and Kabwe. Operators pay part of their revenue to the United Transport Taxis Association.

J Till (pers comm 2000).

ANNEX 5: SOCIO-ECONOMIC GROUPS AND CRITERIA

Category (Bemba phrases/words)	Criteria
Abakankala (the rich) Abekala bwino (who live well)	<ul style="list-style-type: none"> • Have big farms, livestock (cattle), eat well • Employ other people on their farms • Can afford to educate their children • Have fertiliser • Have good health • Have good houses • Can travel easily • Have hammer mills
Abankankala panono (who are rich a bit) Abalibwino panono (who are well a bit)	<ul style="list-style-type: none"> • Have a few cattle • Cultivate fairly large fields • Can afford a bit of fertiliser • Some have hammer mills • Send their children to school • Eat two meals per day • Harvest enough to eat
Incushi (who suffer) Bapina (the poor) Balanda (the suffering poor)	<ul style="list-style-type: none"> • Do not have proper meals • Cannot afford to educate children • Do not have good clothes • Cannot afford health costs • Cannot afford to buy soap • Can hardly cultivate fields
Balanda sana (the very poor and suffering) Bapina sana (the very poor)	<ul style="list-style-type: none"> • Lack food, eat once or twice • On a number of days have poor hygiene, flies fall over them • Cannot afford school and health costs • Lead miserable lives • Poor, dirty clothing • Poor sanitation, access to water • Live on vegetables and sweet potatoes
Special group of the blind, widows, orphans, disabled, the dumb, chronically ill, the aged	<ul style="list-style-type: none"> • Cannot cultivate fields • Depend on others (churches and neighbours) for food • Have no children/dependents to work for them.

ANNEX 6: RURAL TRAVEL POLICY TOOLKIT: SURVEY APPROACH

A tentative framework for participatory research on travel and transport is suggested below. The Rural Travel Policy Toolkit (DFID funded) and the Impact Study (WB and Ministry of Local Government and Housing, DFID funded) will employ complementary approaches and the findings from each will provide useful insights for the other. This is particularly the case with the findings from Northern Province where fieldwork for both studies will be carried out.

Survey Approach

Stakeholder analysis

Stakeholders can be defined as those with an interest in, control over or impacted by a particular project or resource. In this case stakeholders or potential stakeholders in local transport services and infrastructure can be identified through discussions with key informants. Their particular perspectives can be gleaned through village level participatory research and through the organisation (where logistically feasible) of a mini-stakeholder workshop on local transport constraints and livelihoods.

Primary and secondary stakeholders are identified. Primary stakeholders are likely to include the marginalised/vulnerable groups in villages poor men, village leaders, cash cropping farmers, artisans, village based transporters and traders, fisherfolk, healers. Villagers living alongside the feeder roads are the priority for this study. However, since travel and economic activity is fairly low in Northern and Luapula Provinces along some of the feeder roads, insights may be gained from taking an area approach and discussing occasionally with some villagers located along secondary/main roads. Secondary stakeholders potentially comprise transport cartels, bus companies, truckers, fishing companies, agricultural export companies with outgrower schemes, market based and cross-border traders, district and provincial authorities, agricultural extension workers, teachers, health personnel. Further detail is given on these groups below.

Marginalised/vulnerable: This group is likely to include poor women, children, young, widows and orphans, disabled. High dependency ratio households are often the poorest sections of society. Female-headed households may suffer from labour constraints. Male outmigration to the Copper Belt means that female-headed households may be relatively common. The impact of AIDs means that in some households only the children and grandparents may be left. Further, job losses and retrenchment in urban areas means that there is a possibility that AIDs sufferers may return to their rural homes to be cared for (a double burden due to loss of remittances and time spent caring for the household). Risk of increased transmission of HIV is also possible in the rural areas.

Age is also a factor in the poorest households according to recent studies in Northern Province. Education has deteriorated in the last 10 years, with less children attending school and dropping out, possibly partly due to the introduction of school fees (?) and

also to decreased access to cash. Women tend to be more marginalised than men in both provinces although women in Bemba society tend to be in a relatively strong position. Women do participate in political spheres of influence and sometimes access to resources is simply different. (Long 1998).

Poor men: although women tend to fall into the more marginalised groups often particularly in terms of political capital, groups of poor men should not be forgotten in the studies. Interests will vary but are likely to reflect the interests of other marginalised groups and other farming and fishing households.

At the village level other groups can be identified which although sometimes overlapping, may as a 'group' have particular priorities.) Recent participatory research in Northern Province found that *village leaders (Chiefs and headmen)* were generally interested in improved infrastructure, living conditions for their village and increased personal status. *Cash crop farmers* were found to be interested in improved access to roads and paths, credit, agricultural inputs, markets, increased transport, market information, favourable producer prices and increased incomes. *Artisans* were particularly interested in improved road access, reduced transport costs, increased incomes, increased use of forest products. Increased access to markets and increased incomes were priorities for *fisherfolk* and increased trading, lower transport charges and increased incomes were highlighted by small village traders. *Village based transporters* were also keen on better access to roads/paths, reduced transport costs and increased incomes. Community based organisations prioritised better roads, nearer major markets, better health facilities, access to agricultural inputs, storage facilities and nearer schools and water facilities. *Local healers:* are more people visiting local healers rather than going to the clinic?

Secondary Stakeholders

Transport cartels, Bus companies, Truckers: The interests of the following groups have not been elicited as yet, although some likely considerations include high cost and logistical difficulties of breakdowns in remote areas, costs of wear and tear to vehicles etc.

Fishing companies: 2 operate on lake Mweru. None operate on Lake Bangweulu.

Agricultural export companies (House of Kasama, Trent Farms etc): a few private export companies exist although they are far short of filling the gap left by the demise of public transport/government maize transporting. Possible that they are involved in the transport of inputs and produce of smallholder outgrowers.

Market stall holders: ?No markets were visited on the preliminary visit and so the structures and practices of the markets were not established.

Cross-border traders from DRC (Democratic Republic of Congo): In Luapula province trade for villages visited was mainly driven by cross-border Congolese women traders. "Women's solidarity and networks are central to women's (and consequently men's) livelihoods . The organisation of cross-border trade, for example, depends upon the maintenance of trade networks" (Long 1998).

District and Provincial Government Authorities:

Agricultural extension workers, teachers, health staff: likely to use the feeder roads for access to villages where they work. Few motorcycles were observed. Further information could be obtained. FINIDA is piloting a scheme where extension workers gradually pay off the cost of the motorbike. Since they are the owners of the vehicles they are more likely to look after it.

National/International NGOs working in the area: (KDDC, North Luangwa Conservation Project, SNV). Their staff need to travel to villages. Some of have motorbikes and a few have vehicles.

Donors: (e.g. FINIDA, EU Economic Expansion in Outlying Areas, DANIDA, FAO). DFID and other organisations are providing refugee support and food aid is transported along the main roads.

Key transport and livelihood issues to cover

- Degree to which travel and transport is perceived to be a ‘problem’ locally (and who by?) How far are “roads” mentioned as a “solution”? Discussion of wet season/dry season access and level of road improvement is relevant here. Further, are “roads as a solution for village problems” being equated with provision of services (health, education, inputs, buying of crops?)
- Natural resource endowment (e.g. quality of soils, lakes, rivers, woodland) varies (particularly in Northern Region where there is diverse micro-ecological environments) for different villages. Resource rights for particular groups also vary. Mapping can provide an insight into this.
- Livelihood changes: Various trends have already been identified by villagers and in recent literature (e.g. return to traditional food crops instead of maize. Sale of such crops may be leading to problems for women who used to have more control over the consumption or sale of these crops and the income derived). However, there are intra and inter village differences also which can be explored.
- Historical analysis of transport patterns – these appear to be changing as a result of the livelihoods and economic change mentioned above, and also due to withdrawal of subsidised transport services (e.g. buses). How do villagers perceive changes in transport patterns and what impact has it had for them?
- Local social differentiation (ethnic, wealth, gender, age,) varies. (See livelihood profile for more information). This differentiation may alter access to key transport resources (e.g. bicycles, canoes, scotchcarts etc). Wealth ranking and some individual household discussions will provide some insight into main social divisions, the characteristics of these groups, their relative access to cash/expenditure and activities, transport assets and constraints. Do these different social groups have different aspirations for the future?
- Marketing patterns (relationships with traders – increase in bartering has been observed in many locations in recent studies, location of rural markets, distance to nearest major markets (who goes to and comes from there? I.e. who are the traders? Are the traders men or women? Social relations of marketing – who from the village goes to sell produce? Is there any co-operation between villagers in transporting

produce to the road or market? If there is no rural market, do people take produce to the secondary or nearest main road?

- Access to credit, inputs (who provides, who has access in the village, changes over time, credit successes and failures), social services (health, education), agricultural extension. Is there a change in the extent to which households are depending on traditional medicine versus western medicine? Who comes to the village specifically (e.g. community nurses? NGO workers? How are teachers paid?)
- Seasonality (in livelihood activities, cash, expenditure, disease, travel). Co-occurrence in vulnerability and food insecurity may occur when incidence of malaria is highest in the wet season and emergency access to health care becomes important. Annual differences are also important (e.g. the effects of the el Nino phenomenon in 1997)¹⁰.
- Vulnerability and Coping Strategies: when, how and who are the most vulnerable and how do people cope? (What happens in emergency health situations?)
- Travel: journey times and distances, passenger and goods fares, reasons (social, emergency health, etc and degree to which these are combined). Discussion of rites of passage and social occasions might provide insights into more local and occasional but important travel? Ownership of IMTs. Where are bicycles purchased? Cost? etc
- Vehicles: How many vehicles pass by? What frequency? Do they provide a service? How has this changed over time?
- Differences between men and women's mobility (furthest distance travelled ever /on a regular basis. Time spent away from the village).
- Social capital: apart from the more obvious extent to which mutual labour and collective action occurs (particularly in relation to community road maintenance), also issues relating to 'remoteness'. Social networks could be mapped How far does isolation prevent entrepreneurship, access to prices etc. Communication with the outside world and obtaining/disseminating information¹¹ can be increased through mobility. Political representation – how far is this a constraint on village development. Who represents the village to the outside world and how is this achieved? How do people overcome their isolation if at all. Ownership of radios, quality (content) of programming and its reach. Whilst internal and external village movement is recognised in travel studies, inter-village travel may have been overlooked. If social capital is seen as an asset¹², then the means for maintaining and creating it could be researched – understanding social organisation becomes relevant (patrilocal or matrilocal marriage and residence differences for example). Sharing of food is key in Bemba society. How far would help from extended families and other kin be important in travel particularly say in emergency health situations.

¹⁰ Due to delays the research is now being carried out in the wet and non-fishing season. A snapshot survey will only provide a static view of activities, and wet season activities are reduced compared to the dry season. Seasonal calendars will therefore be essential.

¹¹ A recent audience study (ZAMBCOM and the BBC study) has been carried out on communication in Zambia. Radios are fairly rare, cost of batteries are high and obtaining either is difficult. Few radio programmes but in Northern Province one is scheduled to start soon.

¹² See livelihood profile report: Bemba society is characterised by sharing and exchange. Reciprocity and obligations relate in part to kinship.

- Cash – sources of cash and their relative importance to different groups (to understand level of remittances (often invisible). Sources of expenditure (times during the year etc).
- Gendered access to transport and mobility (comparing women and men’s spatial maps to show differences in travel/communication boundaries, ownership of assets e.g. bicycles. More broadly changes are occurring in gender relations with matrilineal/patrilineal or mixed marriage/inheritance and following changes in agricultural patterns).
- External involvement: e.g. missionaries, NGOs.

Possible steps

1. Identifying villages¹³ will require some thought for selection criteria (although logistics will play a large part) and an understanding of notions of “community”. An overview of differences between villages may be obtainable from key informants at the district level (district officials and NGO informants).
2. Secondary information: Collecting of relevant secondary information. Contact WB Social Recovery Fund/local NGOs to establish areas of operation for potential follow-up.
3. Visit District Level Authorities: Including mini-workshop, logistics, collecting background information, (e.g. on service provision), overview of villages and site selection.
4. Village Introductions: Transparency of objectives and clarity of introduction to avoid raising expectations.
5. Building trust through participant observation.

¹³ Notions of community and village vary. In Northern Province settlements are lineage based and may include only a small number of households for example.

6. Sequencing of exercises is useful to make the use of techniques more of a joint learning process rather than a purely extractive, mechanistic exercise. Flexibility can be maintained by developing and reviewing sequences in evening analysis sessions. Checklists can also be devised for focus group discussions. Sometimes PRA techniques can actually hinder understanding between villagers and researchers, particularly when done badly. Sometimes it is better to plan for simple discussions and just a few exercises (also given that time is fairly limited in this exercise). Further, rather than focusing on the product (e.g. the map/matrix etc) it is important to focus on the process and the discussions which arise (note down disagreement, looking for diversity).
7. Mapping: Village level and household access to natural resources can be established through observation and mapping. Firewood collection areas, NTFPs, water sources – the location of these are important to understand internal village travel. If the map is created on the ground then this provides an opportunity for villagers for all to see it. Further, several people can be involved in creating it. After making the map, it is useful to ask one person to walk around it explaining to everyone to ensure all are clear about what symbolises what. Where possible a men's and a women's map can be created separately.
8. A discussion can then be held with everyone standing around it and referring to the map. Mapping also provides an opportunity to establish the size of the village (population) and to discuss wealth characteristics (e.g. ask "what characterizes better off households?" "what term is used to describe this group?" "What activities do they do?" "What assets do they have" etc and then ask the same of the poorest group, and any others. All households can be mapped out (time allowing). If individual household interviews are to be carried out this exercise will provide information as to where the households are located. Discussions with a smaller group (less public) could then be held to find two named households or individuals for focus group discussions from the different wealth categories (however since the impact study will carry out household surveys perhaps this is less important especially in Northern Province). Alternatively a full wealth ranking exercise could be carried out or discussions held with focus groups of men and women, older and youth to discuss their perceptions of wealth differences and household socio-economic characteristics.
9. If time allows the village maps could be used for initial discussions regarding internal, external and inter-village travel.
10. Livelihood discussions with focus groups (Sources of livelihood, income and expenditure of the different groups, constraints).
11. Seasonal calendar : different activities during the year can be discussed with separate men's and women's groups, including cropping and food availability, fishing, non-farm rural livelihood activities (carpentry, beer brewing), if possible income and

expenditure variations (e.g. ask when do you need cash during the year, when do you have cash during the year), disease incidence, travel.

12. Travel and transport focus group discussions: Creating mobility maps (separate men and women's groups).

mobility mapping: possible sequence of questions

- Symbolise where you are sitting (e.g with a stone).
- Symbolise a few other local landmarks (ask people what these are first and then probe further about the location of clinics, rivers, roads, schools, of nearest market etc if these have not been mentioned..
- Ask "where did you go yesterday?" and ask them to mark the journeys on the map (e.g. with ash, chalk). Ask "how did you travel and why"?. How long did you spend?
- Ask "where did you go last week? How did you travel and why. "How much did it cost?"
- Ask "what was the furthest you went last year?" how and why?
- Ask "what is the furthest you have ever travelled?" how and why?
- Ask "do you travel in the rainy season? Why, how" Ask "do you travel in the dry season? Why, how?"
- Ask "how is travel different now to how it was in the past"
- Ask "how many vehicles use a certain road....etc what are these vehicles (people often know that the only vehicles passing by belong to missionaries for example)
- Ask "do any outside organisations send staff...e.g. extension workers, NGOs, food relief" .
- "What happens when someone is sick?"

i.e. continue to ask questions referring to the map to build up a picture of travel patterns.

13. Marketing: using the mobility map further questions could be asked regarding:

- Where do people sell their produce (including beer, fish etc) (in the village or at the roadside, market)
- Do traders come to the village, has this changed? Who are the traders?
- Is it mainly bartering (exchange in kind). What for? (e.g. for second hand clothes). Do people sell for cash?
- What is the relationship between farmer and trader? (long-term, short-term...etc)

14. Trend analysis

- A matrix can be created on the ground going back several decades (time on one axis and resources on the other). Questions regarding types of crops grown now, 10 years ago, 20 years ago, 30 years etc can begin. Following this other changes in resources , activities, incidence of food insecurity can be explored (e.g.health/ education/ transport/ Food availability, inputs, cash, migration),

15. To establish relative importance of problems or reasons for travel for example then preference ranking is a relatively simple exercise. Again create a box on the ground,once problems or reasons for travel have been listed (these form both axes of the box). Comparisons between non-alike are then made.

16. Causal flow diagram: e.g. poor roads (if identified as a problem) can be placed at the centre and consequences mapped out.

17. Visits to secondary stakeholders: Villagers along main roads could be interviewed and market visits made for informal discussions (could devise a checklist) and observation. Any traders met along the road could also be interviewed.

18. Mini-Workshop: Holding a mini-workshop for local stakeholders in transport and travel (see above list) would provide an opportunity for issues to be discussed interactively. This type of event would also provide the opportunity for district level planners to hear local stakeholder perspectives on transport, travel and livelihood issues. Since time is limited, particularly in Northern Province, it may only be possible to organise one such event, but even a one-off is likely to provide some useful insights.

19. Feedback Planning: It may be possible through the District Officials to send back a report of the findings to villages. A summary document could be produced (and translated?) of the village findings or a synthesis of findings from all the Zambian villages studied could be circulated.

20. Analysis & Report Writing: Participatory research requires continual analysis of findings since it aims to be an iterative process of learning. However, following preliminary analysis in the field comparative analysis of findings from the two provinces is required. Report writing responsibilities of consultant facilitators should be outlined at the

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