



**THE IMPACT OF ROAD CONSTRUCTION ON THE LIVELIHOODS OF
RURAL COMMUNITIES: A CASE OF NYANDENI MUNICIPALITY
IN EASTERN CAPE, SOUTH AFRICA**

ZABAMBO NALE NDESI

201203294

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SUPERVISED BY: PROF. M. SIMATELE

CO-SUPERVISED BY: DR S. MISHI

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DEDICATIONS

To my late mother Vicky;

To my very supportive dearest sister Thokoza, Tata wam who has been my pillar of strength and;

the Ndesi and Ngcai families.

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My God, who has always been there for me, reminding me that He would never leave nor forsake me; thank you Father. Your strength and guidance has brought me thus far; You made it possible for me.

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“To him who is able to keep us from falling and bring us faultless life in his glorious presence, be glory majesty power and authority, from all ages passed now and forever more” (Jude 1:24–25).

ABSTRACT

All over the world many rural households are engaged in different economic activities to sustain their livelihoods. To a large extent, a household's ability to do this depends on access to basic assets such as infrastructure, social, human, finance or physical. Access to these assets can be affected by large projects such as road construction which can either enhance or hinder access to key assets. The main objective of the study is to investigate the impact of the construction of the N2 Wild Coast Highway in the Eastern Cape Province on the livelihoods of rural households in the Nyandeni local municipality. The study also seeks to investigate the dominant household economic activities within the municipality, factors affecting the choice of these activities and the probable impact of the construction of the N2 highway on these economic activities and livelihood strategies. The road construction is translated as a 'shock' in the livelihood context, hence the study further seeks to document how households respond to road construction 'shock' to their livelihoods, based on the findings of the study.

The study applied a mixed methods approach, applying both qualitative and quantitative data. Two sources of data are used; a survey of 40 households in the Nyandeni local municipality which provided the qualitative data and survey data from the PSPPD-II quantitative data from project conducted by the Economics department at the University of Fort Hare, which provided the quantitative data. The multinomial logistic regression was used to determine the livelihood strategies used as well as the related determinants. The results showed that financial, social and physical capitals are key assets that support livelihoods in Nyandeni municipality, which were highly determined by the deprivation score, social grants and community networks.

To get a clearer understanding of the underlying effects of the road construction, focus prompts interviews were also conducted. These were analysed using thematic analysis. The results showed that the road construction had both the negative and positive effects. The positive effects included better links to social facilities such as hospitals and schools as well as neighbouring municipalities. The construction also created employment for construction workers. In addition, the construction company helped households whose houses were destroyed near the road to build better houses. Although the households complained of danger from high speed vehicles because of better roads, they also indicated that the speed bumps in some areas led to an improvement in well-being especially for school children. The negative effects included destruction of burial grounds as well as the weakening of housing

structures due to blasting. Further, some vegetation which was used by households as a source of livelihood was destroyed during road construction. In some cases, social capital assets were also disturbed as a result of the displacement that occurred in the process. Responses by households have been mixed, with some households taking advantage of increased access to markets as well as finances to find alternative sources of livelihoods. Households that responded negatively constantly seek out reimbursement from the government and construction company without much success.

Keywords: *Economic activities, physical capital, rural livelihoods, social capital, vulnerability, livelihood strategies.*

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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
CBNRM	Community Based Natural Resource Management
CPI	Consumer Price Index
DRC	Democratic Republic of the Congo
EAM	Economic Active Men
EAP	Economically Active Population
ECOWAS	Economic Community of West African States
ECSECC	Eastern Cape Socio Economic Consultative Council
EKC	Environmental Kuznets Curve
EMP	Environmental management policy
FPL	Food Poverty line
GDP	Gross Domestic Product
GDPR	Gross Domestic Product Region
GVA	Gross Value Added
GVA-R	Gross Value Added - Region
HDI	Human Development Index
IDAM	Integrative Dam Assessment Modelling tool
ITP	Integrated Transport Plan
IWMP	Integrated Waste Management Plan
KSD	King Sabata Dalindyebo (Local Municipality)
LBPL	Lower-Bound poverty level
MNL	Multinomial logistic (regression)
NDP	National Development Plan
PPI	Producer Price Index
PSPPD	Programme to Support Pro-Poor Policy Development
PUA	Participatory Urban Appraisal

RDP	Reconstruction and Development Programme
RIGA	Rural Income Generating Activities
RLF	Rural Livelihood Framework
SANRAL	South African National Roads Agency Limited
SBE	School of Business and Economics
SIA	Social Impact Assessment
SLF	Sustainable livelihoods framework
SMME	Small, Medium and Micro-Enterprises
STATS SA	Statistics South Africa
UBPL	Upper-Bound Poverty level
VAT	Value Added Tax
WSA	Water Services Authority

CHAPTER ONE

Introduction and background

1.1 Introduction

All over the world many rural households are engaged in different economic activities to sustain their livelihoods (Dorward, Anderson, Clark, Keane, & Moguel, 2001; Gautam & Andersen, 2016). On the other hand, Ephraim and Murugesan, (2015) maintained that these activities may include farming and non-farming actions, which are commonly linked with other activities carried out by rural and non-rural households. Even though there are plenty of activities that can be done by rural households for survival, possibilities are often limited, in most cases by lack of access to basic assets like infrastructure, social, human, finance or physical (Adepoju & Obayelu, 2013; DFID, 2008; Mishi & Mudziwapasi, 2014a). These assets are what each household has to get access to in order to sustain their livelihood. Labour is often the dominant, deemed cheapest source asset for most of the poor; however, it often requires access to other assets to be viable (Mishi & Mudziwapasi, 2014b).

Within a number of research fields, the concept of livelihood remains steadily used; for example in development studies, political ecology and conservation (to mention a few) with greater focus on rural households (King, 2011). Livelihood sustainability and diversification opportunities are more limited in rural areas. Infrastructure such as roads provide households with the opportunity to diversify livelihood activities, which are reported to improve household well-being as a result of marked increased involvement in high-return sectors like trade (Gautam & Andersen, 2016; Tanga, Ramakatsa, Monaheng, Matobo, & Abie, 2014). Moreover, a study made in India established that major construction led to a destruction of some plants as well as disrupting the migration of birds and animals (Katoch, Guleria & Kumar, 2014). These plants and animals have been stated to be playing a significant role in sustaining the livelihoods of the households of the Himachal Pradesh, India (Katoch et al., 2014).

It has been supposed that South Africa has the majority of rural households surviving on agriculture (Alemu, 2012; Perret, Anseeuw, & Mathebula, 2005). However, government projects in rural communities pose opportunities and/or threats to the economic activities conducted by households to the extent of affecting their livelihoods (Ferf, Hilhorst, & Mashanda, 2014). Such projects consist of road construction, dam construction, mining pits

and overpasses. More often, their impact on livelihoods through influencing economic activities of households is not documented as the focus will be on the bigger picture – the wide economic opportunities (Ferf et al., 2014). In most instances, these economy-wide opportunities become a negative externality to local households.

This study focuses on a rural community where road developments had taken place and use that as a case study to understand the effects of such mega projects on households' livelihoods (economic activities). In this regard, the construction is taken as a 'shock' to the livelihoods that are practised by these rural households and the investigation will extend to how the households respond to such shocks. Road and transport are key basics of a country's infrastructure; therefore, an important part of the development budget is spent on their maintenance (Porter, Blaufuss, & Owusu Acheampong, 2007). Tanga et al., (2014) criticised the high negligence involved in road infrastructure, especially given the potential role that roads play as a serious livelihood infrastructure in addressing inequality and poverty.

Transport as a provision to society impacts on the development decisions of many livelihoods' well-being. In most countries all over the world, the transport sector is mainly related to improvements in physical capital and then the access to roads and other services such as markets, clinics contribute to the development of an economy (Ferf et. al., 2014). With regards to shaping the livelihood changes of rural people in sub-Saharan Africa, (Porter, 2014) found that transport services have recently played a significant role. However, the exact speculations for reducing poverty and increasing growth have been prominently different between the various parts of the economy over time. According to Mishi and Mudziwapasi, (2014a) ; Scoones, (2009), a livelihood consists of capabilities, assets which are both material and social resources; and the activities that are necessary as ways of living. In addition, these authors postulate that a livelihood reflects sustainability when it can survive and recover from any stresses and shocks sustained or improve its abilities and assets, both current and future, without the natural resource base being damaged. The link of livelihood resting on the context of road construction suggests that transport is a service structure and as such, the improvement of transport should be seen in a broader outline of individual, household and community development. Therefore, this development through construction has a positive implication in this case. However, the impact of transport needs to be addressed beyond the basic levels of economics, with consideration being given to social and environmental concerns and objectives linked with the livelihoods.

In the Eastern Cape province of South Africa, where Nyandeni Municipality is located, it is reported that there is an absence of a balanced and equitable rural transport network which is an impediment to rural economic development and poverty eradication (ECSECC, 2003). Most areas between Umtata and Port St. Johns are affected by poor transport and road facilities and district municipality had vowed to address the situation.

The prime objectives of on-going construction on roads as an input on the country's economic growth and a way in which the government approaches in poverty reduction, through improving the road infrastructure and maintenance and supporting transport sector management in general are outlined ministry of public works and transport. As road construction processes are implemented, surrounding communities will benefit in terms of employment by the agency involved and also self-employment through selling fruits and vegetables or any goods they have to offer to road users during the 'wait and go' traffic control processes. With regards to the influence of transport services, Porter et al., (2007) mentioned that road construction directly affects livelihoods regarding access to jobs. Furthermore, the author indicated that transport services also indirectly affect livelihoods in terms of gaining access to education, healthcare and solid social networks where some future job opportunities may be emerge. Also, economic activities that put up with the sustaining livelihoods will then be affected at most.

Daigle, (2010) summarised the environmental impacts of roads, management responses and research gaps and came to the conclusion that impacts can either be direct, indirect or cumulative. In that study, road effects were observed on animal and aquatic wildlife, plant groups and physical features found across the landscape in British Columbia. Such effects were viewed to be either local or applied in large areas. This study will also be exploring the effects on livelihoods of the affected communities according to its objectives. The effects of road construction need to be characterised according to how much impact they have on households, so that those actions and processes that are most harmful can avoided. Road construction should be beneficial to the chosen groups. The focus of the most reviewed literature has been on the good returns that construction has, yet there are major negatives externalities associated with it.

In most instances where there are developments or improvements, all aspects should be investigated regardless of the need to improve the socio-economic lives of people. This will go to the extent of having to engage the views of the affected communities. For an example,

deliberating to Control civil services, (2013) with reference to archaeological and cultural heritage compliance as per the requirements of the NHRA 1999, construction was allowed to continue without the contractors having to comply with additional cultural heritage compliance requirements. According to the Control civil services, (2013) , provisions ought to be made with regards to preserving cultural heritage resources in South Africa which can be affected during construction. Such resources are important for education, tourism and preservation of identity.

1.2 Problem statement

Households make a living through combining different capitals like human, financial, physical, natural and social. However some households, especially the poor, are often constrained from accessing such resources (Adepoju & Obayelu, 2013; Gautam & Andersen, 2016). The situation is even more critical for rural communities. In the midst of such limited access, shocks are often experienced leading to either negative or positive effects. The magnitude of these effects depends on the ability of each household to cope and respond (Katoch et al., 2014). Efforts by government (at all levels), such as infrastructure development in the form of road construction, can be regarded as a shock to the livelihoods of the surrounding communities. This is the case with the area under study, Nyandeni municipality. Unfortunately, baseline assessments before road construction do not adequately look at the impact of the project on household livelihoods (Ferf et al., 2014). Not knowing about such impact creates a dilemma for policymakers, communities and the project managers as opportunities for improving livelihoods are missed and so could be the need to prepare for any adverse effects. Feasibility assessments are often done prior to construction, however the effect of road construction is never really investigated, which may show the detrimental effect on flora, fauna and culture (Ferf et al., 2014).

1.3 Objectives of the study

1.3.1 Main objective

The main objective of the study is to investigate the impact of road construction on the livelihoods of rural households in the Nyandeni local municipality.

1.3.2 Specific objectives

- To investigate household economic activities dominant in the Nyandeni local municipality area.

- To econometrically determine the main factors explaining household economic activities in this selected area.
- To document effects of road construction on economic activities and livelihood strategies.
- To document how households respond to road construction ‘shock’ to their livelihoods, based on the findings of the study.

1.4 Research questions

1. What are the main economic activities in the Nyandeni municipality?
2. What factors explain choice of economic activities by households?
3. What do households say was the effect of road construction on their economic activities?
4. How did households respond to road construction shock on their livelihoods?

1.5 Justification of the study

The study adds to literature on effects of mega projects like dam constructions, road development on the sustainability of livelihoods. The literature is limited both in South Africa and globally (Tanga et al., 2014). Key problems in South Africa such as the unemployment, inequality and poverty are addressed through infrastructure development, however the focus seems to be mostly on the bigger picture without understanding how individual households in the local community are impacted by the development of such infrastructure (ECSECC, 2003). This forms as a distinct concern in the study. Feasibility studies are only done upon the instigation of the project, however no one bothers to investigate the post-construction situation which may inform policymakers on the externalities of the construction project such as the shocks that are more evident among the poor, majority of rural households. This specifies a non-prioritisation of the needs of the community with regards to sustainable development. With regards to the value that the project it will add, local communities will benefit as it centres on their survival such as how road construction helps them to access better markets, salaried jobs and easy communication as well as how flora and fauna are damaged/ displaced in the process. The physical environment will never be the same as a result of major projects like road construction. This study will also bring to light the effects of trade-off between the benefits and the losses and how that affects the well-being of households.

1.6 Organisation of the study

The study is organised into seven chapters, where:

- (i) Chapter 1 sets the pace with an introduction to the whole study, objectives and research questions, justification for the study.
- (ii) Chapter 2 is an overview on rural dynamics and livelihood strategies among the rural households in South Africa.
- (iii) Chapter 3 views both empirical and theoretical literature.
- (iv) Chapter 4 deals with the research design and methodology,
- (v) Chapter 5 gives quantitative results presentation and discussion.
- (vi) Chapter 6 gives qualitative results presentation and discussion.
- (vii) Chapter 7 provides a summary of findings and of the entire study, coming to conclusions with recommendations.

CHAPTER TWO

Dynamics and livelihood strategies among rural households in South Africa

2.1 Introduction to the chapter

In understanding the overall impact that road construction has on livelihoods, this chapter provides a broad overview of the economic profile and livelihoods strategies among rural households in South Africa and how they have been changing. This includes the livelihood strategies around the Nyandeni local municipality area in the Eastern Cape, the focus area of the study. The study also gives a background to South African rural dynamics with a linkage of apartheid segregations.

The aim of this chapter is to provide an understanding by showing how rural households sustain a living and how that can be affected by mega projects such as road construction. Alemu, (2012) propose that the rural areas are categorised by the existence of different economic activities, some of which are farm-related and others not. However, most studies have revealed that the non-farming activities are growing in significance. Mukotami, (2014) outlined that when organising and carrying out activities, people use a range of strategies, setting livelihood security and well-being as their ideal results.

2.2 South African rural dynamics

South Africa is distributed into two economies, the rich and the poor. This has been revealed in South Africa's Gini coefficient to have decreased slightly from 0.67 in 2006 to 0.65 in 2009. According to O.R Tambo Municipality, (2017), the Gini coefficient measures the level of inequality amongst the values of a given frequency distribution. This indicator has displayed that there is inequality between the rich and poor in the country (d'Haese & Vink, 2003). From 2009 to 2011, there had been no variations with regards to the coefficient and according to (Statistics South Africa, 2014) these totals replicate the high levels of inequality that endure in South Africa. The income inequality i.e. income per capita Gini coefficient dropped from 0.72% to 0.68% (for 2006 to 2015 respectively). However, with the notable inequalities amongst various population groups, the highest income inequality with a Gini coefficient of 0.65 in 2015, rising from 0.64 in 2006 was amongst blacks. Amongst the whites, the income inequality weakened from 0.56 in 2006 to 0.51 in 2015. Amongst coloureds, the coefficient dropped from 0.60 in 2006 to 0.58 in 2015. Regardless of having experienced such falls in the income inequality in 2009 (0.53) and 2011 (0.50), the

coefficient for Indians/Asians had been 0.56 for both in 2006 and 2015. More importantly, Statistics South African reports point out that children (aged ≥ 17), females, black Africans, people living in rural areas, those residing in Eastern Cape and Limpopo rural areas, and persons with little or no education are the most exposed to poverty in our society (Statistics South Africa, 2017). The following table shows the frequency distribution of income levels in the district Municipality (O.R Tambo) in the Eastern Cape; amongst the exposed provinces between 2011 and 2015, using the Gini coefficient.

Table 2.1: Gini coefficient of OR Tambo district relative to the province and national from 2011–2015

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Ingquza Hill	0.54	0.55	0.55	0.55	0.56
Nyandeni	0.52	0.52	0.53	0.53	0.54
Port St Johns	0.51	0.51	0.51	0.5	0.51
Mhlontlo	0.51	0.52	0.53	0.54	0.54
King Sabata Dalindyebo	0.59	0.6	0.6	0.6	0.6
OR Tambo	0.56	0.57	0.57	0.57	0.57
Eastern Cape	0.61	0.62	0.62	0.61	0.61
South Africa	0.64	0.64	0.64	0.64	0.63

Source: IHS Global Insight, 2015

- **Unemployment and inequality**

Likewise, there is a high rate of unemployment in the rural South African population. Seekings & Nattrass, (2006) argued that the primary basis of inequality moved from race to class under apartheid. This was due to the policy of the white minority government that controlled the black majority by excluding them from white controlled areas for their residence and work. This was during the apartheid era, when people were grouped according to their racial groups, which in a way limited their thinking and way of doing things as they were perceived and made to believe they could never be good enough at anything. As a result, relative to the rest of South Africa, d’Haese and Vink, (2003) mentioned that such areas have an enduring high poverty rate. The manner has remained the same even today in a number of regions around the Eastern Cape like Grahamstown and the area of Nyandeni. They are therefore trapped in such thoughts, so that they do not see any means of living in the rural areas, hence the poor are becoming even poorer in their communities. According to Seekings & Nattrass, (2006), apartheid is largely understood as consisting of a routine of racially intolerant policies and imposed racial discrimination. The authors further stipulated that apartheid covered three main areas; political apartheid, labour-market apartheid and

social apartheid. Even so, South African society was changed during the four decades of apartheid and progressions of class formation reformed town and rural areas. With economic growth, the growth of services grew fast; those in the public sector in particular. A large number of developed urban African working class was formed and an important African middle class began. Most prominently to highlight, large numbers of African family households lost access to land and became completely dependent on wages. During the course of this period, inequality remained at a high level (Seekings & Nattrass, 2006).

As indicated by the Reconstruction and Development Programme (RDP) in 1994 and restated in the National Development Plan (NDP) in 2012, a report by (Statistics South Africa, 2014) pointed out that , “no democracy can survive and flourish if the mass of our people remain in poverty without land, without tangible prospects for better life”. The objectives of reducing inequality and eliminating poverty are anchored by the NDP and vision 2030, which are the most existent guiding frameworks for advancements. With regards to the framework, Statistics South Africa, (2014) assume that the degree to which the lives and the opportunities of the poorest South Africans are transformed in a sustainable manner will be measured by accomplishment of the plan.

Table 2.2: The poverty headcounts and number of poor persons in South Africa for the years 2006, 2009, 2011 and 2015.

<u>Poverty headcounts</u>	2006	2009	2011	2015
Percentage of population that is UBPL poor	66,6%	62,1%	53,2%	55,5%
Number of UBPL poor persons (in millions)	31,6	30,9	27,3	30,4
Percentage of population that is LBPL poor	51,0%	47,6%	36,4%	40,0%
Number of LBPL poor persons (in millions)	24,2	23,7	18,7	21,9
Percentage of the population living in extreme poverty (below FPL)	28,4%	33,5%	21,4%	25,2%
Number of extremely poor persons (in millions)	13,4	16,7	11,0	13,8

Source: Statistics South Africa,(2017)

According to a STATS SA report (2017), the stated poverty lines in Table 2.2 were produced using the cost-needs approach by STATS SA. These lines capture different degrees of poverty and allow the country to measure and monitor poverty at different levels. Statistics South Africa, (2017) defines the Food Poverty line (FPL) as a rand value below which individuals are incapable of securing or consuming food to supply them with the minimum per capita per day energy essential for satisfactory health. Additionally, the Upper-Bound

Poverty level (UBPL) and the Lower-Bound poverty level (LBPL) are both derived from using the FPL as a base, yet consist of a non-food component (Statistics South Africa, 2017b). The levels of poverty in South Africa continued to rise in 2015, despite the extensive drop in poverty between 2006 and 2011. Applying the UBPL of R992 per person per month to the 2015 prices (most recent) it is clear that more than one out of two South Africans had been poor in 2015. This is evident through the rise of 55.5% from a succession low of 53,2% in 2011 on the poverty headcount. Despite the terrible implications of having an increase in the headcount, the country is still better than a decade earlier at 66,6%, i.e. 31,6 million people who were living below the UBPL in 2006.

Narrowing down to the focus area of the study, the poverty headcount has decreased from 14,4% in 2011 to 12,7% in 2016 in the Eastern Cape. In all district municipalities between the years 2011 and 2016, poverty headcount declines were recognised apart from the region of Chris Hani, where it had increased from 15,6% to 16,4% in 2011 and 2016 respectively. In Nelson Mandela Bay (3,0%), Sarah Baartman (4,5%) and Buffalo City 7,3%, the lowest poverty headcounts were recorded (Statistics South Africa, 2017b). In South Africa; rural livelihoods are affected by a number of dynamics. Daniels, Partridge, Kekana and Musundwa, (2013) stated that a number of these dynamics are dissimilar to the country and slackening from the inheritance of the apartheid history in the country, which contained procedures that excluded the majority of black South Africans from the nation's valuable assets.

2.3 The Eastern Cape (EC) scenario

This EC province is located on the east coast of South Africa between the Western Cape and KwaZulu-Natal provinces. It bordered inland by the Northern Cape and Free State provinces, as well as Lesotho. This region offers an incredible amount of natural diversity going from the semi-arid Great Karoo to the forests of the Wild Coast and the Keiskamma Valley, the fertile Langkloof, and the mountainous southern Drakensberg region. Moreover, its amazing coastline bordering the Indian Ocean is its main feature (Nyandeni local municipality, 2016). Likewise, the EC is amongst South Africa's most underprivileged provinces comprising large areas of South Africa's former native lands.

According to Nyandeni local municipality, (2016b) the EC province has an exceptional potential in agricultural and forestry. For instance, an important sheep-farming area is the Karoo interior, while Langkloof Valley in the south-west has fertile huge fruit orchards.

Coffee and tea are cultivated at Magwa, while pineapples, chicory and dairy products are produced at the Alexandria-Grahamstown area. In the former Transkei region, people mostly depend on agricultural resources such as cattle, maize and sorghum. These contribute to the overall economic growth through the establishment of jobs, providing labour, food and raw materials to other emerging areas of the economy. Conversely, it also depends on a country's level of progress in the economic realm. In addition, this supports in generating foreign exchange.

Conferring to Nyandeni Municipality, (2015), EC's population consisted of 6,6 million people in 2011 and increased to 7 million in 2016, making the province the third most heavily populated in the country, with Gauteng (13,4 million) and KwaZulu-Natal (11,1 million) behind. An increase in the number of households had also been recognised, from 1.7 to 1.8 million in 2011 and 2016 respectively. Buffalo City (368 520) had been recorded as the district municipality consisting of the leading share of households in the province, followed by OR Tambo (313 889), Nelson Mandela Bay (247 759), Amathole (222 415), Alfred Nzo (195 979), Chris Hani (191 356), Sarah Baartman (138 182) and Joe Gqabi (95 294) (Statistics South Africa, 2017b).

The Eastern Cape community results survey 2016 postulates that, a majority of 6.7 million of the 7 million people currently residing in the province, were born in the province. To add, about 322 177 of residents in the province were born elsewhere in the country or outside South Africa. According to the survey, a large number were born in the Western Cape (1 014 400), followed by those who were born in Gauteng 72 921, then outside South Africa 57 222, and in KwaZulu-Natal 45 089. Due to a number of 939 765 people moving from the province and 450 078 migrating to the province from elsewhere, the province had generally experienced a net negative migration of -489 686 between 2011 and 2016.

2.3.1 Population size and distribution

The total population of a region is defined by the overall number of people within a specific region, in the middle of a particular year (Nyandeni local municipality, 2016). As a result, it includes all residents, the non-residents and individuals of any age, gender and population group. The Eastern Cape province with its population of 6 996 976, covers an area of 168 966 km² and is the second-largest province in South Africa by surface area. Moreover, Bisho is its capital town. Port Elizabeth, East London, Grahamstown, Mthatha (formerly Umtata), Graaf-

Reinet, Cradock and Port St Johns are the other major cities and towns included in the EC province (Statistics South Africa, 2006).

Map 1: Eastern Cape map demonstration of OR Tambo district municipalities



Source: www.municipalities.co.za

2.3.2 Households and household services

In 2004, from a population of that 1,6 million households in the EC, a majority of them lived in traditional dwellings (Statistics South Africa, 2006). The more developed district councils had a high percentage of households consuming electricity for cooking, heating and lighting while the less developed areas greatly depended on paraffin for such utilities. The major number of households which is 49%, had some form of sanitation, while a small number had access to flush toilets in their dwellings. As the majority of households had public taps as their main source of water with an equally high number still using water acquired from the flowing rivers and streams, the situation regarding water availability for households was not satisfactory. With regards to refuse removal services, every individual household in the province had the responsibility to use these services; however more than 60% of households used their own refuse dumps.

2.3.3 Trends in average household size and population in the Eastern Cape municipalities between 1996, 2001 and 2011

Figure 2.1 reflects the average household size by province and district municipalities in the EC province. Between Censuses 1996 to Census 2011, household size has decreased in all district municipalities in general. The figure gives a clear visual of these trends.

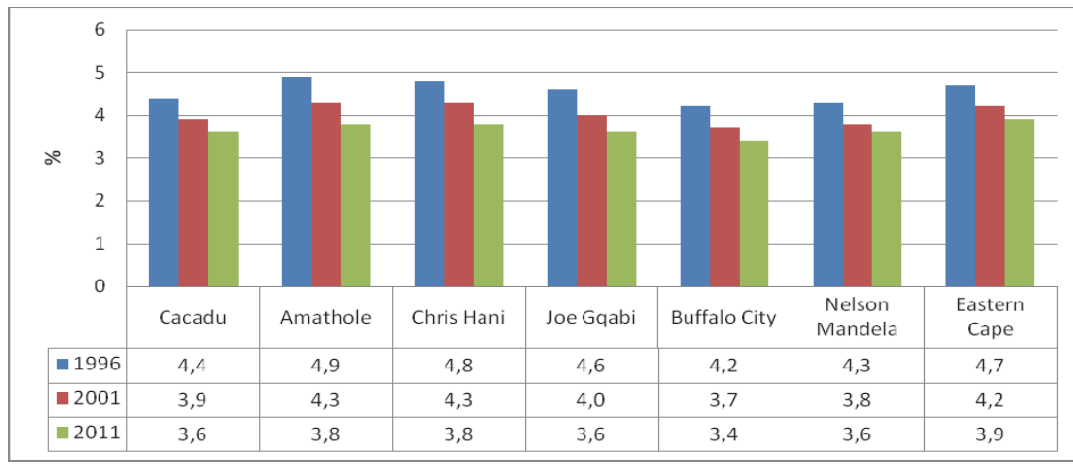


Figure 2.1

Source: STATS SA Census 1996, 2001 and 2011

2.3.4 The labour market

The Labour Force Survey of September 2004 estimated that just over 4 million of the working-age population were in the EC. About 45% out of this total were economically active whereas 55% were not. Black Africans represented the highest number of unemployed people with an unemployment rate of approximately 30% for the province. Furthermore, 64% of the employed in 2004 worked in the formal sector. The largest employers of people in the EC province were personal services, the community and social. According to Statistics South Africa, (2006) these sectors employed a larger proportion than any other industry, amounting to a total workforce of 21%.

2.4 The OR Tambo district

OR Tambo is a local district municipality situated in the Eastern Cape province which forms part of the other six district municipalities in the province. According to Nyandeni local municipality, (2016a) 80% of the district municipality was part of the former Transkei, which signifies a rural subsistence economy. This district consists of five local municipalities which are shown in the map 2. The income of the inhabitants together with their compensations in these municipalities is usually small. This implies that there very few opportunities for markets or even for the development of Small, Medium and Micro-Enterprises (SMMEs).

Map 2: The OR Tambo district municipality, its local municipalities and their cities respectively



Source: www.municipalities.co.za

2.4.1 Population dynamics

The Community Survey 2016 postulates that, out of the 6 996 976 estimated population in the Eastern Cape, the OR Tambo District Municipality accounts for 1 457 382 people and is leading the entire province with regards to the number of people. With regards to the local municipalities in OR Tambo, King Sabata Dalindyebo (KSD) local municipality is in first place with the largest population, followed by the Nyandeni in second place and third place is held by Ingquza Hill local municipality. In 2016, the OR Tambo District was home to 2,7% of the total South African population. Likewise, the population increased by 6,7% between 2011 and 2016, which was almost the same as that of the provincial growth rate of 6,6% in the same period. The largest population growth rates recorded was Ingquza Hill with an 8,9% increase and KSD with 8,1% between 2011 and 2016 respectively (O.R Tambo Municipality, 2017).

Table 2.3: Number and size of households per local municipality in the OR Tambo district

	2011		2016	
	Number of households	Average number of people per household	Number of households	Average number of people per household
Ingquza Hill	56 213	4.7	60 974	5
Nyandeni	61 647	4.6	61 867	5
Port St Johns	31 715	4.5	33 951	4.9
Mhlontlo	44 080	4.1	41 395	4.6

King Sabata Dalindyebo	104 878	4.0	115 894	4.3
OR Tambo	298 229	4.3	314 080	4.6
Eastern Cape	168 785	3.9	1 773 395	3.9

Source: Local Government Hand Guide, 2016

2.4.2 Infrastructure development

O.R Tambo Municipality, (2017) stated that the district is mainly dominated by rural settings with its population living in traditional villages and traditional households. Its central cities are situated alongside the key access roads that are used as skill centres for the rural areas to the neighbouring residents. The key challenges in this area with regards to infrastructure are the unresolved land claims, the difficult land management issues and also the ineffective approach in directing stakeholders.

2.4.2.1 Environmental management

The white paper on environmental management policy (EMP) had emphasised the need to apply an operative evidence management system to the O.R Tambo Municipality, (2017). In addition, it suggested that through the EMP, the environmental information would be effortlessly reached by all concerned and by affected parties in authority or perhaps interested with regards to the operative environmental management. In providing a baseline estimation of the main environmental concerns and encounters faced in the district, the OR Tambo district municipality developed an EMP.

2.4.2.2 Waste management

An Integrated Waste Management Plan (IWMP) had been approved in the district municipality, which functions as a significant instrument with regards to supporting sustainable development with service delivery contained by the district. According to (O.R Tambo Municipality, 2017), waste management had not usually been seen or observed as important, which has led to a number of consequences which have become visible in a clear system failure.

2.4.2.3 Provision of water services

Followed by the progression of transferring water service assets by the then Department of Water Affairs and Forestry, the OR Tambo district municipality anticipated the status of being a Water Services Authority (WSA) in the year 2003. With regards to Water Services

strategic framework, the district is liable for safeguarding the running of water services within its area of jurisdiction (O.R Tambo Municipality, 2017). There are a number of factors that had been outlined to be challenges with regards to provision of the services. These challenges are tabulated in table 2.4 along with their perceived causes.

Table 2.4: Challenges with regards to the delivery of water and sanitation services in the O.R Tambo district municipality

CHALLENGE	CAUSE
Huge Backlogs	Paying no attention to the area during the apartheid era. The imbalanced structure of the area makes it expensive for some areas to obtain services.
Old Infrastructure	The absence of renovation. As a matter of fact, the infrastructure is being functioned though it has long ago reached its target life span.
Infrastructure Capacity	Due to quick and unexpected growth, the demand is in surplus of accessible infrastructure. Consequently, the infrastructure is overburdened; leading to a reduction in its lifespan.
Non-functional on Schemes especially standalones	The reliability yet scarce resource of water and the climate change resulting to periods of draught.
Pollution in environment	Due to lack of resources, the sewage release is not of satisfactory standard with regards to the advancement of infrastructure.
Lack of energy supply	The reliance is generally on diesel which is restrictive on type of infrastructure that should be provided. The energy supply has an impact on the dimensions of the infrastructure to be provided.
High Level of Vandalism and theft	Increased rates in unemployment.
Shortage of skilled personnel	Due to financial constraints, the increased levels of illiteracy result in the inability to appeal to skilled employees from other areas.
Poor Maintenance of existing infrastructure	As many of the district's residents are unemployed, this is a consequence of low generation of revenues. Additionally, the dependency on grants which are very small is also an issue of concern.
Lack of funds for infrastructure investment planning	The funds for infrastructure project improvements are only made available through Grant funding, due to the rural nature of the district.

Source: O.R Tambo district municipality IDP, 2016

2.4.2.4 Roads and public transport infrastructure

According to O.R Tambo Municipality, (2017) an Integrated Transport Plan (ITP) had been developed by for the Department of Roads and Transport in conjunction with the district municipality. With regards to the agreed district ITP accepted in July 2011, a total number of 78 projects had been acknowledged to be performed in the district municipality in addressing the transport-related needs of the area. Currently in the national, provincial and district level, roads are being advanced and are undergoing some major renovations. The R61 from Queenstown to Port St Johns main roads together with the N2 road from East London to Durban, are work in progress (O.R Tambo Municipality, 2017).

Table 2.5: The current status of roads in the OR Tambo district municipality

Category of the road	kms in the District (in numbers)	The authority responsible
National	136	National Roads Agency
Provincial	497	Provincial Department of Roads and Public Woks
District	2 792	Regional Department of Roads and Public Works
Access Roads	2 957	District and Local Municipality
Street and Internal	Unverified	Local Municipalities

Source :O.R Tambo Municipality, (2017)

Table 2.5 shows minor investment in terms of networks of roads in the locality compared to other provinces. O.R Tambo Municipality, (2017) mentioned that the low investment in road access in the district has led to limited access to the major road paths. Rural communities that are already disadvantaged are further cut off from important socio-economic livelihood opportunities in nature. Low investment slows or rather hinders economic development as it makes it very costly moving products from various places in the district. It is therefore important that road infrastructure is maintained for the benefit of those who might need to use the services to reach their destinations like clinics and schools.

2.5 The Nyandeni municipality

The Nyandeni municipality's economy is largely dependent on agriculture. According to Nyandeni local municipality, (2016b) the Nyandeni Local Municipality is a Category B municipality which is located within the OR Tambo District in the Eastern Cape province. In addition, it is one of the five municipalities of the OR Tambo district municipality, and makes up nearly a quarter of its geographical area. Nyandeni local municipality is surrounded in the north by Mhlontlo, the Indian Ocean in the south, in the east by Port St Johns, and by King

Sabatha Dalindyebo in the west. It has Mthatha 30 km to the south and is 50 km north of Port St Johns. Likewise, it is surrounded by slightly more than 20 km of the coast on the eastern side together with the Umzimvubu River on the western border. The cities/towns in the Nyandeni comprise of Libode and Ngqeleni. Its main economic sectors consist of 63,4% community services, 16,1% trade and 10,4% finance.

The population in 2001 was 274 416 people which is a difference of 15 974 compared to that in 2011, consisting of 21,2% of the district's population. The municipality covers an area of 4 231 square kilometres, giving a population density of 68,6 people per square kilometre (Statistics South Africa, 2006). Referring to Nyandeni local municipality(2016); population statistics are essential when examining an economy, as the growth in population impacts on employment, unemployment, economic growth and per capita income and a variety of other economic variables. Table 2.6 demonstrates the demographics and population dynamics of Nyandeni municipality, comparing years 2011–2016.

Table 2.6: Demographics and population dynamics of Nyandeni municipality

	<u>2016</u>	<u>2011</u>
Total population	309 702	290 390
Structure of age		
Population < 15	40,70%	40,60%
Population from 15 to 64	54,80%	54,00%
Population > 65	4,40%	5,40%
Dependency Ratio		
Per 100 (15-64)	82.4	85.2
Sex Ratio		
Males per 100 females	86.7	86
Population Growth		
Per annum	1,46%	n/a
Labour Market		
Unemployment rate (official)	n/a	44,80%
Official youth unemployment rate 15-34	n/a	55,00%
Education (aged 20 and greater)		
No schooling	13,10%	18,20%
Matric	17,50%	15,20%
Higher education	5,20%	4,20%
The Household Dynamics		
Households	61 867	61 647
Average household size	5	4.6
Female headed households	57,20%	57,60%
Formal dwellings	36,80%	33,80%

Housing owned	90,00%	69,90%
Household Services		
Flush toilet connected to sewerage	0,90%	1,70%
Weekly refuse removal	1,00%	1,80%
Piped water inside dwelling	0,40%	2,80%
Electricity for lighting	81,40%	71,00%

Source: STATS SA, 2016

2.5.1 Socio-economic indicators in Nyandeni

According to Udjo, Simelane, & Booysen, (2000), socio-economic indicators were established by the international organisations with aims of assessing development progress through countries. This section on socio-economic indicators provides statistical data on a number of indicators in the Nyandeni region. They include education, gender, poverty, housing, services, employment and other economic indicators. These indicators assist with regards to recognising any linkages between socio-economic indicators and the achievement of the municipality's objectives, as well as that of the country. The Nyandeni local municipality does not function in separation from the district municipality, its province, South Africa and the world in this day and age. Most prominently, having dependable information on its economy for effective planning is most fundamental.

2.5.1.1 Economy

ECSECC,(2017) defines the Gross Domestic Product (GDP) as an essential indicator of economic performance which is used in comparing economies and economic conditions. In the Nyandeni area, GDP is calculated by region since it doesn't constitute the nation at large. In addition, GDP then becomes GDP(R), where R signifies the Nyandeni region. Therefore, the GDPR becomes a representation of the cost of all goods and services that are manufactured over a period of one year in an area, with the addition of taxes and subtracting the subsidies (ECSECC, 2017).

Table 2.7: Gross domestic product (GDP) - Nyandeni, O.R. Tambo, Eastern Cape and national total, 2006-2016 [r billions, current prices]

Years	Nyandeni	National Total
2006	1.2	1 839.4
2007	1.4	2 109.5
2008	1.5	2 369.1
2009	1.6	2 507.7
2010	1.8	2 748.0
2011	1.9	3 023.7

2012	2.1	3 253.9
2013	2.2	3 539.8
2014	2.4	3 807.7
2015	2.6	4 049.8
2016	2.7	4 338.9

Source :ECSECC, (2017)

The Nyandeni Local Municipality contributed 7,20% to the district municipality GDP of R37.9 billion in 2016 by a GDP of R2.7 billion in 2016, from R1.2 billion compared to that in 2006. This is an implication of growth with regards to the share of the district municipality from 7.6 % in 2006. The local municipality made a contribution of 0,81% GDP of the Eastern Cape, while contributing a total of R 4.34 trillion (rounded off to two decimals) i.e. measured in nominal or current prices and amounting to a 0,06% of GDP of South Africa in 2016. The input with regards to the national economy stayed the same in prominence since a contribution of 0,07% in 2006 in South Africa yet lower than that in 2007 peak of 0,07%. Basically, the initial peak of the economic growth in Nyandeni was in 2006(ECSECC, 2017).

2.5.1.2 Trends on historical economic growth

Due to various industries that the Nyandeni local municipality's economy is made up of, a certain measure of output is used with regards to providing sector breakdown. The gross value-added-region (GVA-R) offers a sector breakdown, whereby each sector is measured in relation to its value-added made in the local economy. The gross value-added (GVA) measures the total manufacturing of a region with regards to the value that had been produced within that region. The table 2.8 presents the trends on the gross value-added (GVA-R) by broad economic sectors of the Nyandeni local municipality in 2016.

Table 2.8: Gross value-added (GVA) by broad economic sector - Nyandeni local municipality, 2016 [R Billions, Current prices]

Sectors	2006	2011	2016	Average annual growth
Farming	25.3	29	25.2	-0,07%
Mining	14.2	11.8	11.8	-1,83%
Manufacturing	51.8	47.7	45.5	-1,28%
Energy	49	48.1	31.7	-4,25%
Construction	47.8	56.5	59.7	2,25%
Trade	351.4	359.9	378.1	0,74%
Transportation	103.3	100.6	101.6	-0,17%
Finance	237.8	274.2	328.2	3,28%
Public services	697.5	724.6	663	-0,51%

Total Productions	1,578.1	1,652.4	1,644.9	0,42%
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Source :ECSECC,(2017)

Nyandeni region had the highest average annual growth rate in the finance sector for periods 2006 and 2016, at 3.28%. The construction sector is the industry with the second-highest average annual growth rate, averaging at 2.25% per year. Following the construction sector, the mining sector had an average annual growth rate of -1.83%, whereas the electricity sector had the lowest average annual growth of -4.25%. Generally for all the industries since 2015, a progressive growth occurred through an annual growth rate of 0.26% in 2016. The community services consist of the government and are generally the largest contributor with relations to the GVA. It reached its utmost positive growth in 2011 with and the lowest growth rate in 2013 (ECSECC, 2017). The mining and the agricultural sector fall under the primary sector while manufacturing, electricity and construction are in the secondary sector. Lastly, the tertiary sector has the trade, transport, finance and the community services as its broad economic sectors (ECSECC, 2017).

2.5.1.3 Labour

In accordance with ECSECC, (2017), each person of working age (above a certain age and under retirement age) contributing as workers, i.e. people who are actively employed or seeking employment are acknowledged to be the labour force of a country. Alternatively, this is also termed as the economically active population (EAP). Persons that are excluded include students, elderly people, parents who stay home, jailed people or in similar institutions, people in jobs or with professions that have an unreported income, as well as workers who are struggling and cannot find work. The table 2.9 is in a format based on the EAP definition aforementioned.

Table 2.9: Economically active population (EAP) - Nyandeni, OR Tambo, Eastern CAPE and national total, 2006-2016 [NUMBER, %]

Years	Nyandeni	OR Tambo	Eastern Cape	National total	Nyandeni as % of district municipality	Nyandeni as % of province	Nyandeni as % of national
2006	44,100	256 000	1 840 000	17 500 000	17,20%	2,40%	0,25%
2007	44 600	259 000	1 850 000	18 000 000	17,20%	2,40%	0,25%
2008	43 800	255 000	1 840 000	18 400 000	17,20%	2,40%	0,24%
2009	42 000	244 000	1 790 000	18 300 000	17,20%	2,30%	0,23%
2010	39 700	231 000	1 730 000	18 100 000	17,20%	2,30%	0,22%
2011	39 100	227 000	1 740 000	18 300 000	17,20%	2,20%	0,21%

2012	40 000	232 000	1 770 000	18 700 000	17,30%	2,30%	0,21%
2013	42 600	246 000	1 840 000	19 300 000	17,30%	2,30%	0,22%
2014	46 100	265 000	1 940 000	20 100 000	17,40%	2,40%	0,23%
2015	48 500	278 000	2 000 000	20 800 000	17,40%	2,40%	0,23%
2016	50 400	288 000	2 060 000	21 300 000	17,50%	2,50%	0,24%
Average Annual growth							
2006-2016	1,34%	1,18%	1,12%	1,97%			

Source: (ECSECC, 2017)

The EAP of the Nyandeni local municipality amounted to 50 400 in 2016, which amounts to a 16.11% of its total population. Approximately 17.48% of the total EAP of OR Tambo district is also included in the EAP of the Nyandeni (ECSECC, 2017). Based on table 2.9, the average annual increase in the EAP in the Nyandeni Local Municipality was 1.34% in 2006 to 2016 and is higher than the growth in the EAP of OR Tambo for the same period by a percentage of 0.159 percentage points.

2.5.1.4 Unemployment

ECSECC,(2017) defines unemployment as an indicator which categorises all persons between ages 15 and 65 who are presently not working, however actively looking for work, as unemployed. People who are not actively seeking work are excluded. Table 2.10 is with regard to the aforementioned classification of unemployment.

Table 2.10: Unemployment - Nyandeni, OR Tambo, Eastern Cape and national total, 2006-2016 [Number %]

Years	Nyandeni	O.R Tambo	Eastern Cape	National total	Nyandeni as % of district municipality	Nyandeni as % of province	Nyandeni as % of national
2006	16 600	80 700	512 000	4 510 000	20,60%	3,20%	0,37%
2007	16 000	78 600	503 000	4 460 000	20,30%	3,20%	0,36%
2008	15 200	77 100	488 000	4 350 000	19,80%	3,10%	0,35%
2009	14 600	76 400	483 000	4 370 000	19,10%	3,00%	0,33%
2010	14 000	75 600	480 000	4 490 000	18,50%	2,90%	0,31%
2011	13 600	76 100	485 000	4 570 000	17,90%	2,80%	0,30%
2012	14 600	81 600	508 000	4 690 000	17,90%	2,90%	0,31%
2013	16 000	89 000	542 000	4 850 000	18,00%	3,00%	0,33%
2014	17 100	94 700	569 000	5 060 000	18,10%	3,00%	0,34%
2015	17 700	97 700	583 000	5 290 000	18,10%	3,00%	0,33%
2016	18 600	102 000	603 000	5 600 000	18,10%	3,10%	0,33%
Average Annual growth							
2006-2016	1,13%	2,41%	1,65%	2,19%			

Source:(ECSECC, 2017)

The total number of the unemployed people in Nyandeni was 18 600 in 2016, which shows an increase of 1 980 in 2006 from 16 600. A percentage of 18,14% people within the Nyandeni local municipality sets up the overall number of the jobless people in the district municipality (ECSECC, 2017). The local municipality had an average annual increase in the number of unemployed people of 1.13%. Even so, this percentage increase is better than that in the OR Tambo district with an average annual increase of 2.41% in unemployment.

2.5.1.5 Income and expenditure

In a developing economy where production factors are growing, the greater part of the household income is spent on the buying of commodities. As a result, assessing of incomes and expenditures of households becomes a major indicator of a number of economic trends. According to ECSECC,(2017), it was assessed that of all the households that are economically active in the Nyandeni Local Municipality in 2016, 23,08% were subject to an income of R30 000 or less p/a. When compared with the year 2006 of 62.05%, the number was approximately a half. Moreover, there is a R30 000–R42 000 income classification and Nyandeni has the highest number of households in that classification, amounting to 10 500. This group of economically active households is followed by the R18 000–R30 000 income group which consists of 10 100 households and merely 10 households are within the 0-2400 income group.

2.5.1.6 Development

ECSECC,(2017) specified that as part of the indicators of development, the human development index (HDI), Gini Coefficient (income inequality) would be employed. This index contains the factors of poverty, the poverty gap and education. Nyandeni Local Municipality had an HDI of 0.509 in 2016, weighed with the OR Tambo with a HDI of 0.53, 0.596 of Eastern Cape and 0.653 of national total in overall. Noting that South Africa verified a higher HDI in 2016 when weighed with Nyandeni Local Municipality, this implies a further terrible human development for Nyandeni Local municipality compared with South Africa. South Africa's HDI expanded at a normal yearly development rate of 1,79%, which is lower than that of Nyandeni Local Municipality of 3,41%.

The Gini coefficient in Nyandeni Local Municipality in 2016 was at 0.544, replicating a marginal decrease in the number over the ten-year period from 2006 to 2016. Both the district municipality and the province had other imbalanced ranges of income amongst their residents, amounting to 0.581 and 0.617 respectively when linked to Nyandeni local

municipality. There were 246 000 people living in poverty in 2016, using the upper poverty line definition, across Nyandeni Local Municipality. Disappointingly, this is higher than the 243 000 in 2006 by 1.09%. As well in 2006 and 2016, the percentage of people living in poverty has decreased from 85.16% to 78.60% respectively, showing a drop of 6.57 percentage points. The poverty gap rate in Nyandeni Local Municipality had been expected to amount to 32,7% in 2016, which is the rate needed to take in all poor households up to the poverty line and eventually free them from poverty.

2.5.1.7 Education

Education and the advancement of its activities are of utmost essential to the development of an economy in any country, as they provide a trained workforce and skilled professionals. The United Nations' definition of education as cited by the ECSECC, (2017) is a measure that symbolises the highest level of education of an individual, by means of an age category of 15 years and older. According to ECSECC,(2017), the number of people without any schooling in Nyandeni Local Municipality amounts to 20,32% of the number of people without schooling in the OR Tambo district municipality. A percentage of 6.27 sum that of the province, with a percentage of 0.86 of the national. In 2016, the number of people in local municipality with a matric amounted to 23 000, which is a share of 20.02% of the district municipality's total number of people that gained a matric. Lastly, the figure of people with a matric and a Postgraduate degree comprises 13.10% of the district municipality, with a 1.99% for the province and 0.17% for the national.

2.5.1.8 Household infrastructure

ECSECC, (2017) postulate that in the Nyandeni local municipality housing is categorised into three types of dwelling units being the very formal dwelling, formal dwelling and informal dwelling. The very formal dwelling units consists of a total number of 362 i.e. 0.5% of total households. Likewise, the formal dwelling units consist of a total of 23 200, which is 35.38% of total households. The informal dwelling units had a total number of 402, a 0.61% of total households. The King Sabata Dalindyebo local municipality had the highest number of very formal dwelling units as the region within the O.R.Tambo District Municipality, with a total of 18 000, which is 89.44% within the OR Tambo. The Nyandeni local municipality had the lowest total number of 362 of very formal dwelling units, also a share of 1.80% within the OR Tambo district. To sum up from 2006 to 2016, the total number of households within Nyandeni Local Municipality was greater than by an average annual rate of 1.61% and

was higher than the annual increase of 1.97% in the number of households in the nation as a whole.

Table 2.11: Households by dwelling unit type-Nyandeni and the rest of O.R.Tambo, 2016 [number]

Municipality	Very formal	Formal	Informal	Traditional	Other dwelling type	Total
Nyandeni	362	23 200	402	41 100	479	65 600
Ngquza Hill	717	23 500	753	34 500	678	60 200
Port St Johns	491	9 760	311	22 500	84	33 100
Mhlontlo	553	16 300	1,350	25 800	334	44 300
King Sabata Dalindyebo	18,000	48 300	2,270	47 400	1,080	117 000
Total: O.R.Tambo	20,097	120 992	5,085	171 374	2,657	320 205

Source : (ECSECC, 2017)

2.5.1.9 Tourism

This is one of the indicators that make the Eastern Cape recognisable. It consists of heritage sites, nature reserves and other places of interest that attract tourists or visitors from out of the province and internationally.

2.5.1.10 International trade

According to ECSECC, (2017), exports produced from the Nyandeni added up to R2.22 million, which as a level of aggregate national exports constitutes around 0.00%. Additionally, exports from Nyandeni local municipality represent 0.08% of the total Nyandeni Local Municipality's GDP. Product imports of R 318 000 added up to about 0.00% of national imports and the total trade within Nyandeni was about 0,00% of total national trade. In overall, Nyandeni Local Municipality had a positive trade balance to the value of R1.9 million in 2016.

2.6 National Acts and laws that protect people

According to Fabricius, Matsiliza and Sisitka, (2003), South Africa has a number of Community Based Natural Resource Management (CBNRM) ethics captured in a diversity of laws, regulations and programmes circulated across various government departments. According to the authors, the main objective of CBNRM is to improve the livelihoods of disadvantaged people making a living from natural resources. It further aims at addressing historic and current inequalities with regards to accessing resources and capital. It also aims at necessitating community participation in all aspects and the problem of unsustainable

resource use. All the CBNRM principles are therefore approved in the Bill of Rights of the South African constitution.

2.6.1 The South African Constitution (Act 108 of 1996)

2.6.1.1 Section 24 of the Bill of rights – Environmental rights

Conferring to the Constitution of the Republic of South Africa (section 24), which is deemed as the utmost law of the country and any rule or conduct that is in clash with it is illegal, states that everyone is entitled to: With regards to the constitution, everyone is entitled to protection of any kind. More emphasis is laid in Chapter 2 of the bill of rights, which protects the rights of every persons in the country, encouraging the democratic morals of the dignity of humanity, freedom and equality (South African Department of Justice and Constitutional Development, 2014). Inasmuch as infrastructure projects are meant for development of the economy, people should be protected in their environment together with their livelihoods. The developments should be implemented in a way that ensures that no natural resources are damaged as most people (the rural in particular) use these with regards to sustaining a livelihood. With regards to the constitution of South Africa, no one, even the government can act contrary to the law.

2.6.1.2 The freedom of movement and residence – Section 21

Section 21 of the constitution rules that every person is entitled to a right of moving anywhere in South Africa and every citizen can enter, stay or live anywhere. People should be displaced (if need be) only if they agree to, no one should feel threatened or forced during any major project that affects the environment that they have occupied .

2.6.1.3 The National Development Plan (NDP)

Referring to the National Planning Commission, (2011), NDP is amongst the planned visions drawn and designed for South Africa's rural economy towards 2030. Its concept forecasts a variety of contributions that have the potential of strengthening the abilities of rural communities. Additionally, the basics of the aforementioned notion give strong consideration to agricultural activities; implying that it mainly safeguards the interests of people who are living in rural communities.

2.6.1.4 The Removal of Restrictions Act 84 of 1967

Provincial Gazette, (1993) revealed that this Act was amended by Proc.160/94 by the replacement of vocabularies "Official Gazette" and "provincial secretary". Conferring to the

Act, wherever those terminologies occur, they were replaced by “Provincial Gazette” and “Director-General”, respectively. The prime objectives of this Act permit change to an administrator of a province, to either string up or eliminate limitations and obligations in respect of land. The Removal of Restrictions in Townships Act 48 of 1946 was cancelled with regards to the objective of the aforementioned Act, with additional objectives of confirming certain public statements of administrators with also being responsible for related matters.

2.7 Livelihood strategies of rural local communities

According to Regassa and Gidi, (2011), livelihood strategies consist of different activities carried out by a household with regards to sustaining a living. Such procedures of behaviour are mostly adopted by rural households to support household assets.

2.7.1 Diversification of livelihood strategies

Gautam and Andersen, (2016) viewed the diversification of livelihoods as an approach that is regularly used with regards to coping with both economic and environmental shocks; contributing in poverty alleviation. It is important that households invest in different livelihood strategies so as to weigh and secure a living with a strategy with best returns. Crop production; livestock and farming are most dominant activities in the rural communities and households are highly dependent on them. Households who depend on one livelihood strategy could be running a risk in a sense that, if for an example they depend on producing crops and experience a season of draught, they wouldn't be able to derive a livelihood from crops anymore for a very long period of time. Also, households who have been displaced as a result of the road construction and had only been depending on crop agriculture, chances are they might not have rich soil for growing their usual crop, which may force them to develop another strategy that will better suit the environment they are in.

According to Chibememe et al., (2007) more than 69% of Zimbabwean people are located within rural areas and are very much reliant upon the land and biodiversity for their livelihood. As a result, livelihood strategies used by local communities in Zimbabwe can be categorised into four activities: rural farming groups/smallholder farmers, fishing groups, livestock guards, and the emigrated farming groups. The standard of living and practices of these groups vary depending on location, i.e. whether forest, rivers or land, fields or plantation (Chibememe et al., 2007). Having more than one livelihood can thus be classified as a diversification.

The concern over diversification as a categorical “objective within livelihood development strategies” not only denotes that diversification will prompt lessened vulnerability and/or improved consumption levels for most rural households involved, but also implies that the poorest households in poor environments can, and without a doubt want to benefit themselves on the open doors offered, as existing portfolios reveal limitations as opposed to decision (Block & Webb, 2001). In essence, the idea postulates that different livelihood strategies are mostly reliant on people’s abilities with regards to creating and preserving their means of living while also improving their own well-being and that of generations that are yet to come. These abilities are mostly reliant upon the convenience and effortless use of choices which can be either “ecological, economic or political”.

2.8 Reasons for diversification of households’ livelihood strategies

In most developing countries, diversification of livelihood amongst rural households has received quite some attention in the development economics literature, mainly as an area of research (Ellis, 2000). Rural households rarely depend on one livelihood strategy for a living, they rather combine diverse economic activities (Agergaard & Birch-Thomsen, 2006). Hussein & Nelson, (1998) defined livelihood diversification as an effort of finding new ways of raising income and reducing environmental risk, by both individuals and households. This effort is said to strongly differ by the degree of freedom of choice and the reversibility of outcome, which is whether to diversify or not.

With regards to activities which are carried out in generating income, it had been further outlined that livelihood diversification consists of such activities being both on- and off-farm, contributing to that from the main household agricultural activities as a result of production of other agricultural and non-agricultural goods and services. Self-employment takes the form of the activities in small firms in relation to generating incomes and other approaches embarked on to expand any possibilities. Nowadays, the cost of living has become so high that even relying on a job becomes risky and sometimes worthless in terms of returns gained. It is best to have other means rather than focusing on one source of living, hence the diversification of livelihoods.

Various literatures stipulate that households diversify their livelihood strategies based on altered motives and such reasons are based on different classifications. Ellis, (2000) marks the difference between diversification of necessity and that of choice through the application of six contributing factors of diversification. These factors include “seasonality, risk, labour

markets, credit markets, asset strategies and coping strategies”. Furthermore, the study found that diversification has positive elements for livelihood welfare that could be greater than the negative implications that it may possibly hold under the uncertain circumstances that portray rural household existence in a number of low income countries (Ellis, 2000).

2.9 Rural households’ source of income in South Africa

Doss, (2006) advances that agriculture continues to be the most important source of employment as it contributes a large portion of national income in most of the world’s poorest countries and mainly in countries on the African continent. Economic activities such as growing and supplying of fruit/vegetables, tourism around the wild coast, livestock watch and selling, offers direct and indirect opportunities that transform to small business ventures that primarily look at serving to complement the needs of rural households.

As per recent statistical reports in South Africa, levels of unemployment in rural areas remain high. However, most rural households are able to draw an income from a range of sources. Alongside the payments from household members employed elsewhere and welfare payments (essentially pensions and other grants), locally made remunerations are usually the most important source of income as they also contribute a considerable factor. Amongst others, farming employment, piece jobs in a project, child grant, domestic worker, traditional healing, grazing land for feeding sheep are some of the economic activities dominant in the Nyandeni area that aid as sources of income.

2.9.1 Income sources

According to Covarrubias, Campos, Paula and Zezza, (2009), sources of income can be categorised into three forms.

2.9.1.1 Dependent income

This is one of the sources which consist of the wage income, which consist of the total income obtained through employee payment, both in cash or in kind. All incomes from primary, secondary or any extra jobs that are held in a 12-month period are also considered as wage income. Also, this is due to the fact that household members directly hold more than one job or either switch jobs during the survey position period (Covarrubias et al., 2009).

2.9.1.2 Independent income sources

According to Covarrubias et al.,(2009) labour income as this source of income is categorised as income not earned in the wage activities but relatively accounted as income by household enterprise. Additionally, this could be either being “on-farm” or “non-farm” activities in nature. Crop and livestock activities take the form of on-farm initiatives. These are agricultural manufacturing activities which transpire on the household’s crop land, whether shared or rented in or borrowed. Non-farm initiatives are the businesses by households, however not directly linked to their agricultural manufactures. Likewise, Statistics South Africa, (2017a) accounts for these independent activities in the income aggregate as crop, livestock and self-employment income categories.

2.9.1.3 Non-labour income sources

These include transfers and other sources. Transfers can either be private or public transfers that are obtained through cash or in-kind by the household. Primarily, private transfers denote settlement income but can also take in reimbursements acquired from private organisations and/or associations (Covarrubias et al., 2009). Contributions that are non-related to either the performance of a job or the provision of any service with types of gifts are also inclusive. Likewise, “public transfers are divided into state-funded pensions and social benefits”. These transfers include welfare support, maternity benefits, and educational transfers. Stats SA, (2017) detailed that social benefits and pensions are classified under the wage employment component, hence they have not been included in the section of benefits received from employers. The other sources take on the total of all “other non-labour income components” that are exclusive of the aforementioned. Lastly, the ‘other income’ category has three components; which are the “gross income from farm land rental”, the “gross income from the rental of non-farm real estate and/or of owned assets”, “and the other various non-labour sources” that have not been recognised.

2.10 Self-employment

Bollman et al., (2012) views self-employment as a common indicator of entrepreneurship, while Hurst and Pugsley, (2010) specified that not all self-employed persons intend to innovate nor do they grow or intend to grow their businesses. In essence, this clarifies that not all self-employed persons in rural areas are entrepreneurs but rather use the opportunity as a way of increasing their strategies. During the construction of roads in the Nyandeni area, different households embarked on self-employment activities, whereby an individual worked

for them with the aim of receiving earnings from services and goods that they provide for the people, targeting the national road being constructed. These different activities that some rural households take part in include basket-making for resale, home-made brooms and mats from natural resources and selling of refreshments. Small land holders around the area also took part in collective farming to expand production for selling fresh fruits and vegetables to the people.

Most of the small enterprises in rural areas, due to self-employment, generally end up operating illegally. Households regard this as their means of sustaining a standard of living. Self-employment in the rural areas impacts positively on the growth of an economy. It also reduces the level of people migrating from rural to urban areas in pursuit of finding jobs. As a result, jobs that are available in the urban areas can be taken by people living there. For that reason, this will reduce unemployment in urban areas; hence self-employment in rural areas leads to higher rate of urban employment. Okhankhuele & Opafunso, (2013) postulate that the movement to urban areas from the non-urban areas causes a decline in the rural population and that has a negative effect on rural agricultural output. As a result, it holds back the speed of development in the rural areas.

2.10.1 Trends on self-employment

Self-employment is categorised as an informal running of businesses, which consists of people with “non-Value Added Tax (VAT) registered” dealings, which are commonly located within the informal region (STATS SA, 2013). According to STATS SA, (2013), only 1.4 million people were in the informal division; out of a total of 1.5 million persons in succession of non-VAT registered dealings. In 2001, an approximate number of 2.3 million people were in succession of informal dealings. However, the quantities dropped to 1.5 million later in 2013. Additionally, these dealings had only one business in excess of a percentage of 95 of the owners. STATS SA, (2013) concluded that black Africans form the majority of persons who mainly run the informal dealings; persons between ages 35–44 years and with the lowest levels in terms of education.

STATS SA, (2013) also propose that the main reason people opt for informal dealings is due to being unemployed and not having any source of income. This was evident as a result of 60% reported persons in succession of informal dealings in 2001, which increased in 2013 to 69,2%. The other reason as reported by STATS SA, (2013) was that of limited incomes from other sources by 12,3% of people in 2001. Additionally, the drive towards the

aforementioned reason was that people mainly had the skills for the occupational jobs they were working on in 2013; amounting to 7,1%. With regards to the proportions of the working age that is involved in succession of informal dealings; Limpopo had the highest with 6,3% followed by Gauteng by 5,0% and lastly KwaZulu-Natal by 4,7% (STATS SA, 2013).

2.11 Current trends on economic indicators

2.11.1 Gross Domestic Product (GDP)

The GDP consists of the total value of everything that is produced by all the people and companies in the country and is the best way of measuring a country's economy. In addition, as long as people are citizens or have foreign-owned companies located within the boundaries of the country, their production is calculated as GDP. According to the Department of Research and Information, (2016) the South African economy increased by 0,3% in 2016. In addition, this was reported to be mainly due to much lower output in the three main sectors of the economy. These sectors include the agriculture, mining and electricity sectors. Some other sectors had shown fairly diffident rates of expansion. This had been reported as the worst growth performance since 1994, other than that of a recession in 2009 when GDP contracted by 1.5%,

Following a decrease of 0,6% in the first quarter of 2017, the GDP increased by 2,5% towards the second quarter. “Agriculture, forestry and fishing industry” were the main contributors to development in GDP during the second quarter (Statistics South Africa, 2017a). As per the statistical quarterly reports, these sectors increased by 33,6%. Additionally, this made a contribution of 0,7 of a percentage point to GDP growth. Furthermore, the “general government services” had a contribution of -0,1 of a percentage point to GDP growth as a result of its 0,6% decline.

2.11.2 Prices – Consumer Price Index (CPI) and Producer Price Index (PPI)

Stats SA, (2017) defines the Consumer Price Index (CPI) as a “current, social and economic indicator” established with regards to assessing variations in price over a certain historical phase of time. Moreover, this is done through an overall price level of customer goods and services that are purchased, used, or paid for by households. For the period of July 2017, the annual CPI increased from 4,6%, up to 4,8% in August 2017. On month-on-month, the CPI increased by 0,1% for August 2017. STATS SA, (2017) defines the Producer Price Index (PPI) as a “measure of the change in the prices of goods either as they leave their place of

production or as they enter the production process”. PPI is divided into five indicators, the “final manufactured goods, intermediate manufactured goods, electricity and water, mining, and agriculture, forestry and fishing”.

2.11.3 Annual percentage shifts in the PPI indicators

Conferring to STATS SA, (2017) , the annual percentage shift in the PPI in June 2017 for “final manufactured goods” matched with that of July 2017 was 4,0 and 3,6 respectively. This indicates an increase of 0,5%. Furthermore, the PPI for intermediate manufactured goods showed a decrease of 0,9 % between July and June 2017 through a 1,5% and 2,1% respectively. Between the periods of June and July 2017 the PPI for electricity and water increased by 4,0% (6,2% and 3,5% respectively) (STATS SA, 2017). Additionally, as from June 2017 to July 2017 PPI for mining showed an increase of 0,4%. This is through the -0,9% in July 2017 and -1,5% of June 2017. Lastly, “PPI for agriculture, forestry and fishing” in July 2017 amounted to a 0,3% yet a -1,4% for June 2017. This indicates an increase by 1,8% (STATS SA, 2017).

Table 2.12: Different groupings and their contributions towards the annual percentage change in CPI headline.

Groupings	Contributions made in July	Contributions made in August
	July 2017	August 2017
Food and non-alcoholic drinks	1.1	1.0
Alcohol and tobacco	0.2	0.3
Clothes and footwear	0.1	0.1
Housing and values	1.1	1.1
Household contents and its services	0.1	0.1
Health services	0.1	0.1
Transportation	0.1	0.6
Recreation and culture	0.2	0.1
Education	0.2	0.2
The restaurants and hotels	0.1	0.1
Assorted goods and services	1.2	1.1
left over/residuals	0.1	0.0
All Items	4.6	4.8

Source :Stats SA, (2017)

According to table 2.12, between July and August 2017 the “food and non-alcoholic” drinks reduced from 1,1% to 1,0% respectively. This resulted in a 5,7% year-on-year index increase. The alcohol drinks and “tobacco” also showed an increase from July to August by 0,2% to 0,3% respectively, increasing the year-on-year index by 4,3%. Also, transportation reflects an

increase from 0,1% to 0,6% of a percentage point. This leads to a 3,9% year-on-year index increase. The “recreation and culture” group indicated a cut from 0.2% in July to a 0.1 proportion points in August, increasing the index by 2,4%. Lastly, the assorted “goods and services” also indicate a drop of 1,2% points to 1,1% (for July and August). The index also improved by 7.5% year-on-year.

2.12 Major projects in the OR Tambo district

The development of major projects is the most significant contribution with regards to a country’s development and for employment creation. Garemo added that infrastructure mega projects are essential to the future of cities, states, and individual livelihoods, noting that the difficult thing is that the projects usually have adverse impacts, either with regards to budget, time or both.

It is also important that a project be completed, as delays and incomplete work may result in negative impacts to society. For an example, a borrow pit which was left uncovered near Umzimvubu dam, claimed a life of a 9-year-old earlier this year. According to PwC, (2013), construction companies operate in a number of remote locations where their construction projects are subject to the risks of local disturbance, that could lead to project delays, lower production and damage to equipment. There are a several projects in the O.R Tambo area that have been initiated and have been a success (O.R Tambo Municipality, 2017). However, there is no evidence on those which have failed or delayed completion.

The Kei Rail initiative is one of the major infrastructure projects that are underway in the district, which is designed for reviving the railway line from Mthatha to East London. Considerable speculations had already been completed with regards to reauthorizing the railway line. It is predicted that the line will be the fundamental economic driver which will be supporting the “Kei Development Corridor”, which is a developmental zone in the district (O.R Tambo Municipality, 2017). Additionally, another mega-construction was instigated and completed in 2003. According to Mashiri, Zukulu and Thevadasan, (2005), the infrastructure was executed in Mbizana in the OR Tambo district and it was a success. It was called ‘Amadiba construction’. Furthermore, the community perceived the construction to have opened an area for development for the society as a whole, in many possible ways.

2.13 Chapter summary

The intention of this chapter is to give an overview on rural dynamics and livelihood strategies among the rural households in South Africa, narrowing down to the Nyandeni local

district municipality as per focus of the study. From the South African dynamics, it is evident that the rural areas have been strongly affected by the apartheid segregations in a way that they have been struggling to find a way out of the deprivation instilled on their mind-sets. The Gini-coefficient also proves that rural households continue to be the most in poverty, as there is still a huge gap between the rich and poor. With regards to livelihoods and strategies, the study outlines the Acts and laws that are meant to protect people. Moreover, it is evident that there is a positive relationship between the advancement of major projects and households as residents in the locality.

CHAPTER THREE

Literature review

3.1 Introduction

The chapter presents the review of literature, both theoretical and empirical. It is divided into three main sections, which are: i) theoretical literature review; ii) empirical literature review and iii) assessment of literature. The theoretical literature section covers four prospective theories that are related to the study. These include the sustainable livelihoods framework in terms of the psychological theory with the rural livelihood framework, the Environmental Kuznets Curve and forest transitions theory, asset function theory and the cost-benefit analysis. Each theory is assessed based on road construction and its effect on the economic activities sustaining the livelihoods. The empirical theory discusses various studies with the main authors Ifeanyi-obi and Matthews-Njoku, (2014); Kamitewoko, (2013) who have looked at the determinants of rural household economic activities and Alemu, (2012b); Babulo et al., (2008); Tesfaye, Roos, Campbell and Bohlin, (2011) who studied different livelihood strategies in different areas. Investigating the impact on livelihood is relatively indirect since the variable is strongly influenced by context and measurement experiments (Mishi & Mudziwapasi, 2014).

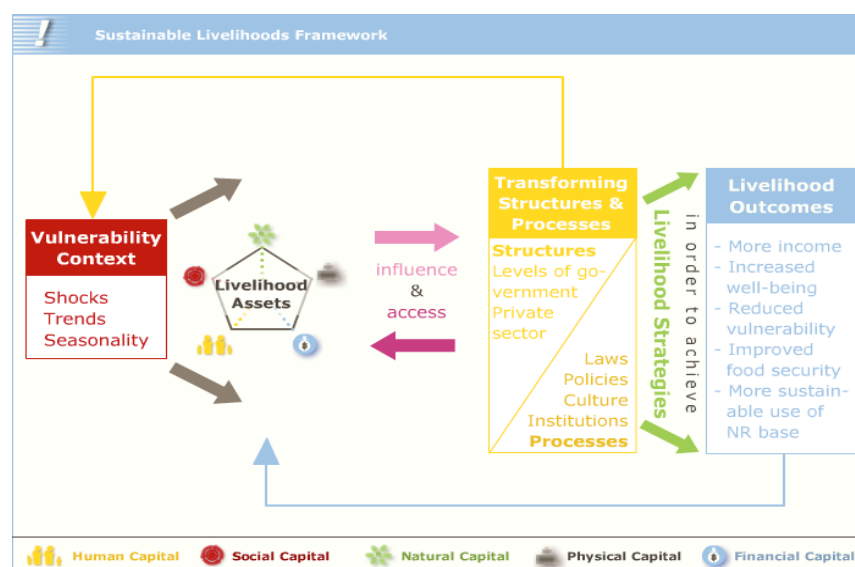
3.2 Theoretical literature

3.2.1 Sustainable livelihoods framework (SLF)

According to Muhindo, (2016), the sustainable livelihoods approach was developed in the 1990s after recognising that reducing poverty among the population needed a method where people and their traits of life would be put at the middle of any development intervention while simultaneously considering the resources available to them. Allison and Ellis, (2001) suggested that the approach of livelihoods has its backgrounds which are perceptively literature concerned, with consideration of the degree of difference on the ability of rural households surviving with shocks such as “droughts, floods, or plant and animal pests and diseases”. In addition, the literature emphasises reflection of the assets of rural society and how different patterns of asset holding such as land, stock, food stores and savings, can make big differences to the ability of families to withstand shocks. In general, the definition of livelihoods speaks to the means people use to sustain a living. For livelihoods to be sustainable there is a need to survive shocks and take advantage of any opportunities, which

the SLF argues depend on access to five groups of assets. Serrat, (2017) sights the SLF as based on evolving thinking on how the poor and vulnerable sustain a living, considering the importance of policies and institutions. The author advances to the framework as a tool of aiding in the formulation of development activities that supports in organising factors that constrain or enhance livelihood opportunities. The framework is diagrammatically illustrated below, with participants operating in a setting of vulnerability, having access to certain assets.

Figure 3.1: Sustainable livelihoods framework



Source: (DFID, 2008)

Sustainable livelihood thinking was motivated through works of Robert Chambers in the 1980s, then later advanced by Conway and others in the 1990s (DFID, 2008). The framework states that development should mainly focus on people in the affected communities, in this case, what matters to them, their different cultures and also how their cultures impact on their understanding and appreciation of livelihood. It goes to lay emphasis on the point that people have to be the main stakeholders in their communities, which includes classifying the important aspects of their livelihoods as they know what matters to them. Hence, it is important that the government and road construction organisers consider the community's priorities rather than assuming what is best for the people. Likewise, the pursuit of different livelihood strategies is reliant on the ownership of and/or the availability of the aforementioned resources, from which livelihoods are created and also dissimilar productive streams result. Adi, (2017) progressed to a livelihood strategy as an activity which households engage in generating a living, which could be either in agriculture, agriculture or cuts through. Given the resource endowments, household characteristics and exogenous

factors, the pressure of a rural household in forest-related actions becomes an economic choice with regards to the pursuit of making a living.

3.2.1.1 Human capital

These are inclusive of healthiness, sustenance, training, knowledge and skills, the capacity to work and adapt in pursuit of various livelihood strategies, through any economic activity of choice (Serrat, 2017). Construction projects and their advancements have a consequence on ecological resources, as they involve the opening up of the earth's surface, resulting in dust emissions and pollution from burning fuels during these activities (Karani, 2006). For small communities in the Nyandeni municipality where the road construction had been carried out, the bombing of quarries for crushed stones might result in causing severe dust which can be associated with various diseases like cancer. In terms of employment, human capital is affected in that a number of unemployed households have been exposed to employment opportunities associated with the road development, with a probability of some not getting the job, since construction companies usually come with their own employees, not considering the skills of people in the community. Overall, human capital is centred on the knowledge and skills developed through education, that also provides the training and experience needed for sustaining livelihoods.

3.2.1.2 Social capital

These consist of “social resources” such as networking, affiliation groups; dealings of trust, access to broader associations of society; whereby people also lure their search of means of support. Road construction is associated with extending or enlarging the actual sizes of the roads that are in existence. This is only possible if people are displaced from their households if they affect the plan of construction, to places located far from the process of construction. The social capital asset can then be seen as a strategy that strives to connect vulnerable households and those with resources required to achieve a livelihood strategy.

A study based on the protection of rural Zambian communities from displacement consequential to land-based investment found that the displacement of rural communities from their land, with either little or no benefit at all, characterises one of the negative impacts of land-based investments (Siachitema, 2015). The author further advanced that this included displacement of rural communities from the land they depend on for growing food, building shelters, fetching water, grazing their animals, and for gaining access to land-based resources. In some occurrences, rural households are moved to better houses than their own, which is

beneficial to society. Even so, black African people are connected to their ancestral graves, so it becomes difficult when the graves have to be relocated as well (Control civil services, 2013). Thus, displacements lead to lost relationships, which are social capital.

3.2.1.3 Physical capital

These comprise the basic infrastructure like means of transport, housing, water, energy, construction equipment and other economic activities contributing to people's pursuit of livelihoods strategies. Physical capital assets are attained through an economic production development which improves the growth and structures of livelihood strategies (Ellis, 2000). The author further contended that lack of provision of infrastructure services could be result in a number of households not having access to education, the information necessary with regards to advancing their livelihoods, health services and also other ways of achieving their income. Road constructions are meant to better the livelihoods of humankind as well as develop the economy, yet detours that were in place during the development caused a lot of inconveniences. Households that are economically active in affected areas take more time to reach their workplaces as a result of traffic congestion. Drinking water from lakes and dams had been ruined since constructors were using the same water for their processes. Also, gardens get affected when roads are extended; more especially households near the road.

3.2.1.4 Financial capital

These include investments, provisions of credit regular payments, remittances or social security, deemed as financial resources that are accessible to people. Moreover, these also assist with providing diverse livelihood choices. People get employed during the period of the construction, which realises them labour income they did not have before. Some of the well-known community vendors will be displaced to different areas, making it slightly difficult to earn the usual profits; hence their expected margins will decrease. DFID, (2008) advances that financial capital has the greatest capability in terms of resource-based assets, to generate additional income from any livelihood assets. Even though financial assets are deemed as the most important assets, rural households fall back in this category which becomes challenging to attain the anticipated livelihood outcomes. In the case of many rural communities in South Africa, barriers to accessing credit are why many households are not progressing with the physical assets that they already possess. In particular; they lack capital or motivation to strengthen their commercial ideas of ways to maintain their livelihoods. Regassa and Gidi, (2011) reasoned that the failure of African-rural farms and workers to make commercial

breakthroughs is the consequence of the lack of ability by rural households to access credit. In conclusion, labour and land unaided by any financial capital cease to provide a way of reaching livelihoods.

3.2.1.5 Natural capital

Serrat, (2017) views these as natural shocks from which assets flow useful for livelihoods, are created. These consist of the “land, water, wildlife, biodiversity, environmental resources”. During road construction, with the aim of connecting different roads, deforestation of some areas is probable. Households in such communities will have their easy transportation to markets invaded, since walking through the forests is usually the shortest and easiest route for them. Family units in affected communities who depend on agricultural farming are likely to be in distress, as well as the animals who feed on natural resources such as grass that had been destroyed due to the development.

3.2.1.6 The vulnerability context

According to the SLF, the vulnerability context highlights the shocks, trends and seasonality. These are risky conditions that rural households are exposed to. These shocks come in the form of effects that were not expected such as financial crisis in the economy or the impact that the road construction has on rural livelihoods, as per the study. Referring to the preceding chapter, trends compare the economic drifts or rural dynamics in a particular area. Lastly, seasonality refers to any periodic situations that influence the livelihood strategies of rural households in their communities. In the context of the road construction in Nyandeni district, seasonality refers to the employment opportunities that were realised by some of the community members for the period of the road development. As a result, these elements have both direct and indirect impacts on the rural household assets and their livelihood strategies.

Laying more emphasis on the SLF, Zantsi, (2016) developed an improved Rural Livelihoods Framework (RLF) based on the arguments he had made in his literature. This was a move from the social systems approach to the idealisation model approach which was based on the creation and planning of ideas, advanced by Ackoff, Magidson and Addison, (2006). Likewise, the idealisation model featured the description of requirements, stating them visibly without first considering the methods for accomplishing them. This conveys another valuable plan of being precisely aware of the intentions and consequences associated with any developments that involve people, which relate more in the case of the Nyandeni road construction that impacts on rural livelihoods. The above highlighted approaches provide

bases of rationality to policy makers and other researchers in particular; which then assists in developing a conceptual framework which combines them all into a framework (Zantsi, 2016). The RLF addresses all the limitations, building on strengths for the framework and nature of this study.

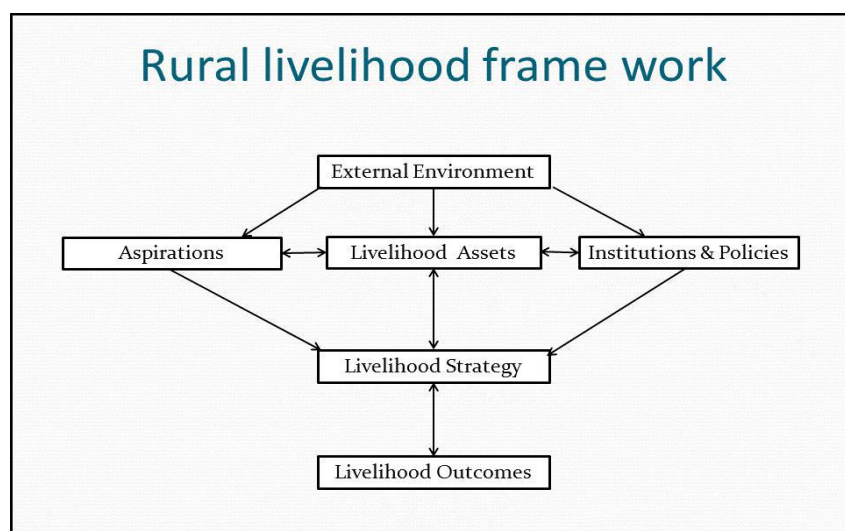


Figure 3.2: The rural livelihood framework

Source: Adapted from Chambers and Conway (1991) ;Brown (2000), cited by (Zantsi, 2016)

Referring to the RLF, the drive of livelihoods starts with aspirations affected by the external environment and the livelihood assets available from the household. The setting in which the household lives and exposure to social infrastructure is represented by the external environment; however, the livelihood assets constitute resources that are available for the household's disposal. According to Brown, Tullos, Tilt, Magee and Wolf, (2009) these assets support the realisation of a livelihood outcome which is a livelihood strategy. The adoption of this theory had been enthused by the importance of rural households having more than one livelihood to live on. The technique of having diverse livelihood strategies is an idealisation of uncertainty that is of significance with regards to preparing for any kind of shock that may be encountered, including that of the road construction which the study seeks to review in this chapter.

From the SLF, these assets include human capital, financial capital, natural resources, and social and physical capital: and access to these is inspired by the external environment, institutions (developments) and policies, culture and beliefs. However, access to livelihood resources together with aspirations and policies influence the livelihood strategy choice. For example, centred on some of the Nyandeni demographics from the Programme to Support

Pro-Poor Policy Development (PSPPD) II Economics quantitative data, if a household/individual has no access to land, skills, or education, there will be limitations regarding choosing livelihood strategies. The livelihood strategy also represents the abilities dimension of the social systems approach.

The SLF theory presents a clear conceptual framework which directs plan designs, application and observing, and also impact assessment. It further assists development executives and workers in the field by providing a simple road map to navigate complex situations but most essentially helps everyone to understand links and make necessary relations and linkages. Murray, (2000) opposed the theory to say that, imbalances of power and conflicts of interest are not appropriately recognised. To end with, livelihood strategies provide more guidance to the livelihood effects as some livelihood strategies are not sufficient and sustainable; therefore different households attempt to use more than one livelihood strategy (Zantsi, 2016).

3.2.2 Environmental Kuznets curve and forest transitions theories

Chow and Jie, (2014) defined the Environmental Kuznets curve as an empirical relationship during the progression of economic development, where per capita CO₂ productions first rises with per capita real GDP and later declines with per capita real GDP. According to this developing theory, economic development and maintenance of forests are considered compatible goals. It further speculates that an inverted U-shaped pattern over time is displayed by the environmental degradation, with other authors sharing the same view (Sunderlin et al., 2005). The U-shape implies that the Environmental Kuznets curve (EKC) is low, going on to the development of the economy, rises in the process and then declines when a certain level of income (GDP) is reached. Forest transitions theory takes into account the historical developments and observes that prior to economic development, resources from nature are likely to be abundant and healthy. However, as expansion processes kick in, there is marked degradation. This theory has been used by a number of authors such as Al-Mulali, Saboori and Ozturk, (2015) in trying to clarify dynamics that are central to generating higher incomes with less pressure on forests, such as agricultural productivity .

In enabling livelihood support, developing countries continue to convert natural forests into agricultural land. In most rural areas under the Nyandeni municipality, a majority of households are surrounded by forests that they use for generating income, either through supplying labour or obtaining income from selling products from the forests or use as pasture

fields and also for planting crops. They engage in economic activities such as fetching wood and cutting long grass for resale purposes. Some households use these resources to build their homesteads. The construction processes tend to lessen such opportunities, which can be interpreted as environmental degradation as discussed in the literature.

Culas, (2012) maintained that deforestation should take place on lands that have a growth potential which will benefit citizens, outlining the possibility of the forest loss in which livelihood activities are derived as a factor of significance. The author further outlined that poverty and over-population in low-income countries attracts attention to deforestation. "The requirement for income and economic growth results in growing demand for agricultural and forest derived products" (Culas, 2012). Developments of this nature are unusual in many urbanised countries where a higher level of national growth leads to variations in the demand for goods and services, with an additional demand for services on the environmental outlook. The theory promotes economic growth, as it rejects deforestation or degrading of the environment. Its intentions are also in line with safeguarding the economic activities of people on their respective areas, so as to put up with their livelihoods.

3.2.3 Cost-benefit analysis approach

Bianchini and Hewage, (2012) suggest that a construction industry is responsible on the satisfaction of human development needs, however it is, in general, extinguishing the environment at the same time. Construction practices are therefore known as one of the major contributors of environmental problems, with either having cost or benefit to well-being. This theory aims at providing reliable techniques in weighing decisions based on consequences and holds an enormous field. Transportation studies posit that, it is required that it be a priority for a construction programme to be planned fairly well in advance so as to meet a well-organized network outcome and future demand, as it is not possible to increase capacity of roads by small amounts at repeated intervals .

The weakness in this measure is that it ignores the difference in cost of road space in different parts of the metropolitan area and does not take account of differences in values. Various road users may place emphasis on saving of time or avoidance of accidents. Cost-benefit analysis therefore attempts to overcome such weaknesses by explicitly estimating the benefits with their costs. Not only are these costs of construction developments, particularly enhancements, taken specifically into account but there are other ways of improving the level of service so as to consider and improve livelihoods in affected areas. This action is often

overlooked in cases of mega project progressions, giving consideration to the development outcome rather than costs and benefits directly affecting human nature and their livelihoods. So far, this theory only deliberates developments to certain parts of the network in planning constructions.

3.2.4 Asset function theory

According to Dorward, Anderson, Clark, Keane and Moguel, (2001), the layout of the theory lays emphasis on the dynamic link between the assets with different functions and various livelihood activities; and processes in pursuit of their well-being. Asset function and livelihoods emphasise the significance of assets in increasing efficiency and reducing the vulnerability on poor people's livelihood assets. This framework was applied with an early investigation of small livestock- keeping in south-east Mexico by campers. Various studies have used this framework to explain different strategies (Baulch & Hoddinott, 2000; Ellis, 2000).

The framework shows the production/income activities and their processes, using productive assets to produce resources for consumption and social regeneration. Simple income approaches in defining poverty and well-being are also represented by the theory. Households in Nyandeni engage in economic activities to make a living using the available natural resources. The implications of road construction come as a shock to them. Their production assets in this regard are disturbed as well as consumption assets. This action affects their well-being as their economic activities to sustain their livelihood strategies will cease to exist.

Households mainly adopt livelihood strategies in trying to compare possible resource availability with expected demand in the community, with considerations of any sudden falls in resource supply such as heavy rains and also construction projects that come as long-term 'shock'. Some of the livelihood strategies are viewed as daily food and other needs that society in Nyandeni depends on. For that reason, the analysis of assets in the rural livelihood need to be reviewed and observed, including the purposes of the different types of asset within the ranges held by poor people with various livelihood strategies.

3.3 Empirical literature

This section reviews appropriate literature studies on effects of road construction on economic activities and livelihood strategies. There are studies that have looked at the determinants of rural household economic activities, and they include Ifeanyi-obi and

Matthews-Njoku, (2014); Kamitewoko, (2013) who have looked at the determinants of rural household economic activities and Alemu, (2012); Babulo et al., (2008); Tesfaye, Roos, Campbell, and Bohlin, (2011) who studied different livelihood strategies in different areas. Investigating the impact on livelihood is relatively indirect since the variable is strongly influenced on context and measurement experiments (Mishi & Mudziwapasi, 2014). This section therefore groups the empirical literature into four categorical subsections broadly subdivided along the objectives of the study as set out in the first chapter and are acknowledged below.

3.3.1 Identification of the main household economic activities

Determinations to promote vulnerable groups of rural households who stay in the Nyandeni community into joining self-employment activities, setting up micro-initiatives or growing their income-producing abilities can be sustainable and would enable individuals to get out of poverty, if connected to and supported by a number of other measures. These measures take account of appropriate identification of the main economic activities and prospects based on an accurate valuation of the obtainable assets and limitations in the community. In the Nyandeni municipality area, the identification of economic prospects is done by taking part in development, which involves the expected target recipients themselves (households) and a wide range of community participants such as the local development ruling classes, financial institutions, trade unions and livelihood organisations in structuring commitment and supporting the activation of the necessary resources. The effort on economic activities essentially suggests a process of increasing income, the livelihood strategies and livelihood diversification, in a different way from that of only “crop and livestock production”, however, concerning both farm and non-farm undertakings that are supported in generating additional income. According to Smith, Gordon, Meadows and Zwick, (2001), this could be by producing other “agricultural and non-agricultural goods and services”, dealings of paid labour or even self-employment in small initiatives .

A study that was done in a developed country had highlighted that the resources from the conservation of forests provides an important contribution to many rural dwellers and their well-being (Babulo et al., 2008). Factors that form a household’s choice of a livelihood strategy with specific emphasis on forest products were also acknowledged in the study. It had been outlined that these factors that form an economic significance on households in a specific economic activity in overall and on forest conservation assets can vary, subject to the

source endowment in different households. It could be its socio-economic characteristics or the exogenous factors. On the methodology, “environmentally augmented household income data” was gathered from a sample of 360 households in Tigray, Northern Ethiopia. Students’ tests and Analysis of variance (ANOVA) were employed in testing income variances in the clusters, which were grouped into dissimilar livelihood strategies round the core of share of forest conservation income in the total income of households. The “Multinomial logit (MNL) regression” on asset established explanatory variables were run to identify important dynamics in determining choice of household livelihood strategy and their forest necessity. In essence, the study showed that the degree of difference in access to, or support of livelihood assets, settles a household’s strategy choice. “Asset-poor households should be encouraged to take part in activities with higher economic return” (Babulo et al, 2008).

On the other hand , with thoughtful consideration of public forestry in Nepal; a study by Thoms, (2008) looked at the challenge faced with improving local livelihoods also in view of the control of community resources. The study persevered with the notion of the existence of a solid possibility for community forests in functioning as a reason for enhancing the estimation of “life and the status” of jobs/livelihood strategies in the rural Nepal community, despite safeguarding woodland assets. However, the study opposed the idea that groups of the public forest user were frequently controlled by nearby elects that decide on right of utilisation to group forest land for quite. Nonetheless, forestry environments are enhancing and the deprived family units endure the cost of severe assurance. The core argument of the study was that of community forestry being in consequence of having rather an inadequate success at enhancing rural livelihoods. Unlike aforementioned studies on high dependence of forests as a livelihood strategy, this study takes along transparency that forest “livelihood contributions” by forests often become more established as well as dependable when forests are well preserved.

Besides, this essentially means that households cannot sustain a livelihood only based on forestry as it wouldn’t be the best activity since forests need to be managed properly so as to balance the economic activities they provide. Additionally, since rural households are often perceived as the most disadvantaged group, they might not be able to afford the costs of frequently maintaining a forest. Even though community forestry is validly successful at conservation, the study mentioned that huge money inconsistencies also remain amongst the public forest member households, some degree of right to use on most important forestry harvests and power inequalities within the public forestry user groups (Thoms, 2008).

Therefore, in such circumstances of disparities secured by existing public forestry “policy and practice”, the chance of the development of community-controlled natural resources is strictly challenged. Lastly, with regards to overcoming these encounters, the study suggests a call for modification in policy that dictates broader decision-making in the local community.

Tesfaye, Roos, Campbel and Bohlin (2011) looked at the role of forest income in participatory-managed forests and livelihood strategies in Dodola, Southern Ethiopia. Focus groups' discussions as well as four quarterly household income surveys were used in data collection. Five livelihood strategies were distinguished from the results that came out, with different outcomes and levels of livelihood diversification. In addition, these used a “principal component analysis” pursued by the cluster analysis that was applied to establish typologies of households centred on the strategies of livelihoods. The study additionally found that forest income was an important source of cash income within the rural societies (mainly for low-income groups), as it creates chances of increasing their livelihoods. The most important “determinants of livelihood strategy choices” in the study were defined as being the households' characteristics, such as the age of household head, the ownership of yield-land including environmental dynamics such as altitude and distance from the market.

Literature on the identification of the main household economic activities is of relevance in the study as it emphasises the safeguarding of assets of poor households, who are likely to be affected by infrastructure developments such as that of the road construction in the Nyandeni area. Not all households get on the same economic activity; hence every possible identified livelihood needs to be conserved. Also, households cannot sustain a living from only forest, which encourages diversification; even though forests are successful at conserving.

3.3.2 Factors explaining choice of economic activities by households

Zantsi (2016) describes a livelihood as made up of different activities and assets, including material, human capital and financial assets. Also Barrett, Reardon and Webb, (2001) suggest that assets, activity and income diversification lie at the heart of livelihood strategies in rural Africa. The decision for a household to pursue a certain economic activity and livelihood strategy is self-motivated, influenced by a change in relationship between individuals within a society, opportunities for access and ability to make use of the opportunities in order to make a living (Walker, Mitchell, & Wismer, 2001). Such dynamics call for approaches to combine them. Different economic activities by households include land-based activities including livestock, cropping, a funeral parlour business, remittances, security guard,

waitress, piece jobs (manual labour), working part-time jobs, which characterise “direct cash saving” and trade, offering extra cash income with locally transacted goods and services vended at lower prices compared to vending at viable outlets (Daniels et al., 2013). Other economic activities include farming and non-farming activities, whose value needs to be given attention since they contribute to rural household proceeds. Dovie, (2001) claimed that researchers often ignore the direct home-use value of agricultural resources and put more attention on market values.

Likewise, Kamitewoko, (2013) focused on the analysis of dynamics which describe choice of economic activities with the extent to which those choices could be influenced by individual characteristics. On methodology, the study used a thorough “centre of research and prospective studies survey data”, which was composed in Brazzaville in 2013 regarding analysing dynamics that describe the choice of an economic activity for Chinese migrants. A logit model was used in this regard. The study found the “relational networks, province of origin, sex, primary level” as the four main aspects which play a major role regarding this choice. In the same manner, Ifeanyi-obi and Matthews-Njoku, (2014) identified the major livelihoods of rural dwellers to be farming, stating that rural dwellers in Nigeria have farming as their major livelihood activity. A further observation was made that rural households have limited economic activities to engage in, due to limited access to basic infrastructure like good roads, water, and electricity. Such observations relate to the situation in rural South Africa, in areas such as Nyandeni. It will be of interest to know how such economic activities can be influenced by shocks to communities, like mega road construction and how households respond in a way that will help maximise gain or lessen the risk.

Alemu, (2012) viewed the livelihood strategies in rural South Africa which were associated with the reduction of poverty, with aims of classifying the main livelihood strategies of the area. Unlike preceding studies done in South Africa, the study looked at a current large household survey. It categorised the livelihood strategies into four common groups and eight detailed livelihood strategy sets, and coordinated them with welfare divisions of rural households. In addition, the study considered “socio-economic” limitations faced by poor households when involving themselves on “high return livelihood strategies”. “Stochastic dominance test and multinomial logistic regression” were used to achieve this objective. The outcomes were that those households with income created through wage employment in non-farm/farm activities, were far better off than other households. Additionally, some of the difficulties that poor households in rural areas come across when entering into “high-return

livelihood strategies” were outlined through the analysis of the socio-economic characteristics of rural households such as age, labour endowment, education and community characteristics in terms of the right to use basic infrastructure (Alemu, 2012).

On reconsidering the accessible evidence on the levels and wage sources embraced by rural households, Carletto et al. (2007) reassessed the evidence through a study based on rural income-generating activities in developing countries. Additionally, the study based its examination on the changing scene in the developing country’s rural labour markets. This was done to understand the link between the different monetary exercises occurring in rural regions and their suggestions for financial development and poverty reduction. With regards to achieving this, the study accessed the Rural Income Generating Activities (RIGA) database, which is assumed to have been made recently as the source of “household survey data, the income measures and cross-country comparable indicators”. In assuming a descriptive analysis of the agricultural and non-agricultural sectors of the rural economy, the RIGA database was then used. To begin with, the study considered the level of participation in different activities by rural households then examined the comparative importance of these activities for income generation by looking at the share of total income that is derived from each activity (Carletto et al., 2007).

Furthermore, the database was used in evaluating the importance of rural non-farm activities within the different income methods implemented by rural households in developing countries and their connection to poverty and inequality (Carletto et al., 2007). According to the study, the results of the analysis of the RIGA dataset confirmed previous findings that the rural non-farm economy plays an important role in the income generation of rural households. Basically, the outcomes hypothesise that it may be more important than already recognised, in many cases up to more than fifty percent of rural income. The contribution has grown too extensive to disregard in rural advancement approaches and poverty lessening programs alike (Carletto et al., 2007).

Sesabo and Tol, (2005) examined factors of income strategies among households in Tanzanian coastal villages, and their implications for development-conservation initiatives. The study applied Tobit models to investigate factors that explain households’ decision-making on whether or not to participate in various activities. Furthermore, household data was collected from two Tanzanian coastal villages and the results showed that households’ decision on whether to contribute to various activities were importantly influenced by asset

endowments, households' structure, local institutions and location specific characteristics of both villages (Sesabo & Tol, 2005). The study showed that the results revealed fishing asset titles and access influences as the main determinants for differences in total household income. Overall, the findings demonstrated the existence of households' heterogeneity in creating choices among different activities, which should be considered by policymakers when planning conservation-development policies in coastal areas (Sesabo & Tol, 2005).

Literature on explaining the choice of economic activity by households emphasises that a decision for a household in pursuing a certain economic activity is self-motivated and influenced by a change in relationships between individuals within society. Opportunities of success and ability to make use of those opportunities in pursuit of sustaining a living also influence the choice of economic activity by households. Similarly to the study, the effect of road construction on rural livelihoods either enhances or damage rural household's way of living. Situations such as where people are displaced, social capital is affected which forces of influences a change in the choice of an economic activity.

3.3.3 Effects of mega-construction projects (including road construction) on economic activities

Ferf et al., (2014) carried out a study on livelihoods and services in areas affected by conflict, focusing on South Kivu, Democratic Republic of Congo (DRC). According to the study, the focus was on road infrastructure and the use of newly reconstructed roads. Their study used survey techniques, information on problems of movement, transport use and people's insight into the consequence, and also asked questions on the impact of development of the road. The survey consisted of questions on social status, use of health services, assets and roughly 1 250 individual respondents were reached by the survey. Interviews and focus groups complemented the surveys. The study found interesting results especially the effect of construction on flora and fauna, as well as indicating that roads are vital for economic purposes. However, the study failed to explicitly investigate the effect of such kinds of projects on livelihood activities of rural households.

Kibreab, (2003) had examined the operational and established factors that avoid the risk prevention and recovery strategies of refugees, who are the best-known victims of displacement. The author defines refugees as people who leave their homes without any sort of permission given, as they fear for their lives. Also, during the process of their escape, the author speculates that they undergo huge losses in life-sustaining assets, including social

support systems, relatives, livestock, jobs, houses, and access to common property resources such as forest produce, surface water and wildlife (Kibreab, 2003). Regarding displacements that occurred in the Nyandeni area due to the road construction that had been undertaken, households experienced the same consequences when they were being displaced as they were moved from their homes against their will, for the success of the construction project. Even though the stakeholders responsible built them even better houses than they had before, it is just as much of a huge loss being separated from the usual life-sustaining resources. They become refugees in their own land, having to start over and search for other livelihood strategies that will best suit their new environment. Although displacement is commonly a depriving experience, the ups and downs associated with it may, under positive conditions, stimulate social change and development (Kibreab, 2003). The study revealed that there is a strong sense of close interdependence between individuals or their ancestry group in most rural societies, including the land with which that group is traditionally linked; hence it becomes an issue to relocate in most cases.

By way of contrast, Tanga et al., (2014) observed the impact of improved road infrastructure on the livelihoods of the rural people in Phamong, Lesotho. The objective of the study was to look at the effect that improved road infrastructure has on the livelihoods of the rural people in that area. Data collection was undertaken by means of semi-structured questionnaires with interview guides used on 300 respondents. The findings showed that Phamong was suffering from a lack of basic social services and citizens had to access them from one of the district capitals of the country, which is 135 km away. The study also shows that before road infrastructure development, inhabitants were affected unfavourably but after the improvements, they were able to access social services from other places. The findings also indicated that there is poor maintenance of roads by the liable road officials; hence there had been lack of transportation where social services could be accessed. Even though there have been improvements in livelihoods, there needs be more intervention in provision of social services for the community. This study is of relevance as it touches on the issue of livelihoods, although it looks on the impact on the improved side of the project. It remains related by the nature of its positive objective of enhancing the livelihoods of the society they operate in. Road infrastructure plays an important role in the socio-economic and cultural development of any region (Gayatri, 2014). However, road construction represents shock to sustainability and the literature that has been reviewed supports this notion.

Demenge et al., (2015) viewed the potential effects of mutual roads and water gathering infrastructure on both livelihoods and poverty in Ethiopian multifunctional roads. According to the study, “multifunctional approach to road building” supports the likelihood that the improvement of roads carries essential developments to the circumstances that challenge the rural poor. This is by primarily improving their means of accessing water, and as a result has positive impacts on their livelihoods. Additionally, the study had viewed that positive impacts may possibly consist of better-quality physical assets such as the road, livelihood diversification, reduced vulnerability and saved time in transport/travelling (Demenge et al., 2015).

The study further observed that development of roads in rural regions is aimed at advancing people’s flexibility and their access to markets, schools, health and governmental centres. These are recognised by important socio-economic changes. The government in Ethiopia had been assumed to have embarked on a massive road construction programme, particularly in aiding needs of a fundamentally rural population and economy (Demenge et al., 2015). Furthermore, in assisting the needs of a population whose livelihoods depend heavily on rain-fed agriculture, the government had also been becoming involved in water-gathering and saving measures, as well as irrigation. The effects of road construction are complex and can be either positive or negative for countries like Ethiopia, with its large rural agriculture-based population. Therefore, since the infrastructure development of roads and the production integrating hydrologic concerns were recent, the effects of a multifunctional approach to road construction had been resolved (Demenge et al., 2015).

Karani, (2006) carried out a study on the environmental implications of the road network in South Africa and found that constructing roads involved moving animals and plants. The study suggested that construction leads to hills opening on roadsides developing into erosions and other landslide effects. However, some species of plants grow well on the edges of hills and most of them are weedy types which in most environments are not sustainable. “The impact of current roads in the country is a consequence of displaced species, deteriorating ecosystems, pollution, hydrological and erosion effects” (Karani, 2006). Basically, roads are crucial to the development of the economy hence the need for them to be constructed, upgraded and sustained in combination with organisation of the environments concerned.

Tilt, Braun and He, (2009) observed a study on the social impacts of large dam projects, comparing international case studies and their implication for best practices. The study

applied a social impact assessment (SIA) tool in understanding the properties of large dam constructions on rural communities. The study objectives were to present a social impact assessment tool and reflect on its effectiveness. Vanclay, (2002) defined social impact assessment as a method of handling and analysing both planned and unplanned concerns on the human environment of planned interventions like big construction projects and any other social change developments involved in such interventions, so as to carry out a more maintainable, fair biophysical-human environment. As a result of identifying possible impacts prior to a project, better decisions about which interventions should be undertaken by agencies and individuals can be made. The study illustrated data from the Lesotho Highland water project and the Manwan Dam, which were the most recent social impact assessment projects. The latter was situated at the upper Mekong River in the south-west of China. The two cases above had been used in the study in examining the social impacts of large dam constructions that were common across a number of environmental scales. These include migration or relocation of people near dam sites, the impacts on health of households, the ups and downs in rural economy and infrastructure and housing effects (Tilt et al., 2009). The study had resolved its investigation with a summary of knowledge of the case studies and recommendations for best practises in measuring the social impact of large dams. These assessments contribute to promoting growth strategies that summarise the most important worries for local residents and develop long-term sustainability of dam constructions.

A similar study had focused on the health impacts of large dam constructions in communities and had specified that even though dams are important in communities, especially in the less-developed countries, they also result in a number of both the negative environmental and social impacts (Lerer & Scudder, 1999). Brown, Tullos, Tilt, Magee and Wolf, (2009) relatedly looked at the “Modelling costs and benefits of dam construction from a multidisciplinary viewpoint”. The study indicated that although dams have a negative impact, they can add positively to human growth through the setting up of stable resources such as drinking water and irrigation, recreation and other important livelihood benefits. Moreover, during a change in climate, dams come with an ever more essential role of guarding water resources. The study utilised the Integrative Dam Assessment Modelling tool, known as IDAM in short. This tool was developed for measuring comparative costs and benefits of large-scale construction of dams aligned on the multi-objective development methods, in order to integrate biophysical, social, economic and environmental views into a particular cost and benefit analysis of dam construction (Brown et al., 2009).

The literature on effects of mega construction points out probable positive and negative externalities impaired with developments to people and their livelihoods. Since Nyandeni has various communities, the impact is likely to differ amongst the rural households; even though in the same area. Some households have positive responses, while others complain about the negatives as a result of the development project. The literature also touches on the issue of ‘shock’ to sustainability as a result of mega projects. Similarly to the study, the importance of livelihoods that have been affected is documented based on the findings.

3.3.4 How households respond to mega-construction shock/road construction shock on their livelihoods

Mega-construction projects create an important and major impact on human and economic development and are governed by a number of aspects that include the number of persons affected by the project, its duration, the cost of the investment, benefits associated with the project, the location of project and its nature. According to Gautam & Andersen (2016), the diversification of livelihoods is a regularly used approach for coping with economic and environmental shocks and contributory to poverty reduction. The statement means that it is important for households to diversify their livelihoods and not depend on only one livelihood strategy for a living but rather combine different economic activities, so as to be able to have a choice when they might happen to experience a shock on one of their already-existing livelihoods.

Mukul, (2017) studied the threat of a mega projects struggle of two Himalayan villages, called Papriana and Jamak in the Garhwal region. They had suffered from a shared impact of mega projects and natural disasters. Although these two villages are said to be located far from each other, the outcome from the project is said to be the same. In the study, Papriana was said to be an old village, where more than 70 families are living, mainly involved in other agricultural activities. The study went on to say that the old village was almost entirely destroyed in the massive landslide, while the other was totally destroyed in the shocking earthquake in October, as the landslide and earthquake had affected many places in their areas. This was due to events that are direct consequence of interconnected construction and development activities going on in the Garhwal region, even though the cases of Papriana and Jamak were not linked. However, both these villages were amongst the poorest and had for many years been on the alert for the risk of being ruined in the disturbance of so-called natural disasters (Mukul, 2017). Their voices on the other hand are said to have been ignored

and bottled-up now and again. When the Tehri dam argument and the movement against it were raised strongly after the earthquake, the similarities of these two villages of the Himalayan region offer important lessons.

Whatever took place in these villages is important in understanding of the connection between natural disasters, development policies and their shocking impact on the local people and their livelihoods. “The whole Himalayan area is geo-dynamically very sensitive, which is reflected in its seismicity and instability where many of the blunders and drives of the Himalayas have given rise to earthquakes, some of them of very high magnitude” (Mukul, 2017). According to the study, those two villages are now centres of protest on their districts in the Garhwal region and Papriana is shaken up against the biased town development and is demanding suitable reimbursement under the leadership of Mahila Mangal Dal and Chandi Prasad Bhatt (Mukul, 2017). They have also filed a public interest lawsuit in the Supreme Court as regards to this. Jamak is has been said to not be prepared to accept the blasting and other construction activities close by and also wants a different site. “They have realised the threat that mega projects pose to the Himalayan region and have joined the movement launched by Sunderlal Bahuguna against Tehri dam, though they are not directly affected by this dam” (Mukul, 2017).

A study by Mok, Shen, and Yang, (2015) titled the “Stakeholder management studies in mega-construction projects, a review and future directions” highlighted an effective stakeholder management approach necessitated by the challenging and uncertain nature of mega-construction projects in accommodating inconsistent stakeholder interests. The study suggested that stakeholder management preceding reviews in the construction sector are general such that their considerations had been positioned on rather lesser scale projects. It pointed out that systematic review stakeholder management based studies with regards to mega-construction projects appeared not to be there. Also, the most recent research developments in this field were examined by revising a number of articles available from 1997 to 2014. The study then disclosed to say, approaches to stakeholder management in mega-construction projects are only an issue to a national context of the project and indicated a need to classify the impact it had on this discipline. Similarly, “traditional stakeholder analysis techniques” are broadly adopted in the mega-construction projects surviving their weaknesses. With regards to managing stakeholder interrelationships in these projects, the study found that a social network approach is required (Mok et al., 2015).

Mega road construction projects are associated with household displacements. This is compulsory so as to continue with the road construction projects without any kind of events or instabilities that might take place. Some uncertainty would be such that individual households refusing to be moved from places of the construction site, leading to health impaired consequences. Kusiluka, Kongela, Kusiluka, Karimuribo and Kusiluka (2011) looked at “the negative impact of land acquisition programmes on the local communities’ livelihood and environment”. Their paper offered key outcomes of a study which was previously conducted in Morogoro Municipality, Tanzania with some segments of the “Uluguru mountains forest reserve”. A grouping of Participatory Urban Appraisal (PUA) techniques were used in the study with interpretations of direct researchers in collecting primary data. Secondary data took form of “published and grey literature” which was used. Findings were such that; in the study area, programmes on land attainment had an adverse impact on livelihoods of local people and the environment they live in.

According to the study, “land attainment” represents compulsory acquirement of land by the government. “More or less of the problems outstanding contained of loss of land and means of livelihood, disturbance of economic activities, determined land-related engagements, and removals to poorly developed areas, insufficient and late reimbursement, and environmental degradation” (Kusiluka et al., 2011). The study focused on the main land linked disagreements over the enactment of the provisions of the legislation on the acquisition of land, as being one of the main sources. In addition, a majority of the local people were discovered to be another cause of land-related arguments with limited knowledge and education by the law according to the study. In addressing the complications, the study advanced some recommendations, which involved steering of acceptable discussion and sensitisation preceding the start of land exercises, “the payment of full, fair and prompt compensation to the affected people, promoting conservation agriculture on the mountain slopes, strengthening awareness programmes on the land laws and policies, and improving ordinary people’s access to formal institutions responsible for the provision of justice” (Kusiluka et al., 2011).

Ikioda, (2016) studied the impact of a road construction on market and street trading introduced by the state government of Lagos in Nigeria. The development introduced a construction of a ten-lane highway that joined a light rail track alongside the existing Lagos–Badagry main highway. With the support of the World Bank, with a cost of about 220 billion Naira (US\$1.5 billion) when complete, the project was believed to link “Lagos with the

Republic of Benin and other West African countries as part of the Economic Community of West African States (ECOWAS) transit Corridor” (Ikioda, 2016). Furthermore, the study argued that while the planned development was anticipated to possibly grow the city of Lagos with its businesses and international status, the road development had effects on a variety of non-transport activities which adjoined on dwellings that were surrounding the projected main road.

Referring to the study, right of way with regards to connecting areas of the existing main highway had to be acquired by the government in achieving the conditions for expanding the road and by this procedure, heritage sites, housing structures, motorised parking, schools, markets and mechanical workshops (to mention a few activities), had been moved to enable the completion of the project (Ikioda, 2016). The study concluded that the impact of such displacements had resulted from the road construction activities. The study defines the effect of such displacements arising from road construction activities on the livelihood of market and street sellers at two markets located along the main highway; that is Agboju market and New-Alayabiagba market. In 2010 and 2012, a qualitative study with traders in the aforementioned markets was adopted to discover the often overlooked effects that the development of large-scale transport can have on the livelihoods of urban residents who may assign changing meanings to a road, even though well intentioned (Ikioda, 2016).

A study by Abass, Afriyie and Abrafi-Adomako, (2013) observed the responses of households on a livelihood transformation, which mutually identified the farming and non-farming livelihood strategies as the main livelihood strategies that were in use in the study communities by households. It had been revealed in the study that most households seldom rely on one strategy with regards to surviving and also that, farming households have less diversified livelihood strategies compared to those of non-farming households. These discoveries were achieved through data collection and household survey as the main tools, through focus group discussions and interviews with key informants. Quantitative data was obtained through charts, graphs and tables; nonetheless, references that were direct from respondents were used in presenting the qualitative data (Abass et al., 2013). Farm and non-farming livelihood strategies were both classified as the main livelihood strategies that households live on in the study communities. The social network support base was also employed and had been recognised to have contributed a very significant role in the respondent’s livelihoods. Social media platforms have now become the easiest form of communication and obtaining information in the most rapid and effective way.

For as long as farming remains an important component of the livelihood strategies in communities, the study had recommended that some method of stability needed to be introduced into the land market; as well as quick immediate work on the urban policy while land policy needs to be fully applied. In addition, farmers who have lost their farm lands with regards to urbanisation can be provided with alternatives as means of an involvement on their livelihood. In the same way as the Nyandeni case, the government or stakeholders responsible for the road project operation should appropriately compensate the households that have had the construction disturbing their livelihood activities, which some might even cease to exist. This is in line with what (Abass et al., 2013) proposed, stating that it would be a viable option to build the capacity of the study area, ensuring a proper entry of the dwellers into the urban monetary economy of a peri-urban area.

An investigation into changing livelihoods by Dauda, Mariwah and Abane, (2013) in response to mining; major improvements and liberalisation in the sector have encouraged increased investment with new multinational mining companies coming on board as well as the recovery of old mines. In this regard, this projection can be viewed as a shock to society and their livelihoods in a sense that it might be impaired with cumulative effects resulting from the intensification of mining activities and the development in operations across the mining zones in the country (Dauda et al., 2013). Furthermore, the study observed that developments in mining operations would mean rural livelihoods would be extensively challenged as most rural livelihoods are greatly reliant on natural capital.

Therefore, the study considered peoples' response to the variations in their major livelihoods as a result of loss of land to mining in the Asutifi District as well as the role of participants in ensuring livelihood safety for the people. The data for the study was collected from 217 randomly selected household respondents and 10 key stakeholders selected on purpose, drawn from five settlements that are mostly affected by mining activities in the district. As well, interview schedules, in-depth interview guides and observation were also undertaken and the study findings were that there had been significant changes in the livelihoods of the people since the introduction of mining in the district. Noticeable among these changes in the livelihoods is the shift from agriculture to trading due to loss of agricultural land to mining, yet the relevant stakeholders had not been able to cooperate effectively to ensure livelihood safety (Dauda et al., 2013). In conclusion, the study recommended the implementation of a complete national policy that supports the interests of people of the mining-fringe

communities and a reconsideration of the country's mineral and mining laws as a means to secure and sustain the livelihoods of residents living in mining-fringe communities.

The responses of households located on the urban frontiers of Ogbomoso, a fast-growing city situated in south-west Nigeria were observed in a paper by Du, Zhen, Yan and de Groot, (2016), , found the project to be unconstructive to city advancement. For an example, the increased absence of farmland, rising area cost, increasing house rents and nourishment costs, and additionally essential administration were mentioned in the observations on the responses. The paper started by examining the matter of spatial adjustments in Ogbomoso city in the vicinity of 1914 and 2007 utilising a Geographic Information System, a framework proposed to catch, store, work, break down, oversee and exhibit spatial or geographic information. In exploring the responses of household units to urban encroachment, the examination pooled families and society in the Ogbomoso urban area as units of investigation. The collection of data was pursued through structured questionnaires and focus group discussions, which included an aggregate of 359 questionnaires that were submitted to haphazardly chosen household units in the eighteen groups of the Ogbomoso urban area with regards to gathering data concerning socio-economic and demographic characteristics of respondents (Du et al., 2016).

Data concerning the impact that expansion of the city has on their livelihoods was contained within the session of focus group discussions which was directed among community elders in five communities, with regards to discovering the changing commercial base of the groups under examination. Outcomes pointed out that, because of changes in the livelihoods of households, there had been a shift from farming and fishing to an exchanging economy. As a result, the study recommended that the legislature should make farm repayments in chosen places that were located on urban external areas. Further, the land has to be appointed to agriculturists in light of need, with an arrangement of other ranch input sponsorships and important administrations. Such procedures will be of an incentive in reviving monetary exercises, enhancing expectations for everyday comforts and capacity as a check to keep away from any further spatial development of the city (Du et al., 2016).

Literature on how households respond to mega construction shows that households struggle to cope with the shock affecting their way of living. Households that had negatively responded were ignored, which has caused major instabilities in their usual ways of livelihood sustainability. Those who had not been affected by displacements appreciated the

opportunity of being with the same neighbourhood, as social capital serves as an important element as an economic activity. This is of relevance to the study as it also seeks to close the gap in literature where voices of affected households had been overlooked in many occasions on mega construction projects.

3.4 Assessment of literature

The capability of people in pursuing livelihood strategies that are different is subject to the material, social, tangible and intangible assets that are available to them and a livelihood is said to be sustainable if it responds to the social, economic and cultural needs of people (Dauda et al., 2013). From the SLF, the RLF suggests an idealisation for planning processes, including the consequences of outcomes. In summary, the theoretical literature has been discussed in such a way that highlights the possible impacts that the road development has on the rural livelihoods and how the well-being of households had been disrupted in the process.

The empirical literature suggests that any kind of construction has a significant component of structure development in any country. Be it a road construction, large dam project, buildings or bridges, the impact can be both socially and environmentally equal towards people. It further settles that construction projects add to the economic outlooks while also unfavourably disturbing huge numbers of the residents around affected communities and the population as a whole, which could possibly bother well-known social struggles and serious changes in political links.

Literature on how households respond to mega-construction shock/road construction on their livelihoods is narrow; hence the study will fill the gap by constructing focus-prompt interviews targeting the households in affected areas of the Nyandeni area. The aim is to document the actual response of households on the shock they experienced on their livelihood due to the road construction. In conclusion, the impact of any construction on local communities is mostly a loss on livelihood, the economic activities and environment as a whole. To point a few amongst others, the risk of dam failures remains a significant factor despite continuing improvement in construction technology. For that reason, construction can be equally key to economic growth and prosperity, yet also leading to environmental damage through the usage of huge amounts of natural resources (Brooks & Rich, 2016).

CHAPTER FOUR

Research design and methodology

4.1 Introduction

This chapter covers model specification and discussion of analysis techniques. It is generally divided into the research philosophy, research approach, research design, model specification, analysis techniques, population and sampling, interview protocol, data collection and analysis; methods of ensuring data quality and ethical considerations.

4.1. The research philosophy /paradigm

Creswell and Poth, (2017) defines the research philosophy as an intellectual way or understanding of knowledge on a particular research. Its significance is to help in accomplishing dependable and proper results from the research, further giving the readers a profound insight into how researchers view the world. There are three research paradigms that could be followed: positivism, interpretivism and pragmatism.

Mack, (2010) views positivism as a scientific paradigm, whose purpose is either proving or disproving a hypothesis. Additional characteristics of positivism as per the author include the prominence of scientific methods, statistical analysis and findings that can be generalizable. Interpretivism paradigm is reinforced by assessment and understanding, as a result of collecting statistics about proceedings, while also gathering such information so as to make meaning through illustration of readings. The interpretivism paradigm can be also referred to as the anti-positivist paradigm, as it was developed as a reaction to positivism (Mack, 2010). The pragmatism paradigm encompasses the two aforementioned paradigms, which covers both qualitative and quantitative research.

This study adopts the pragmatic approach. It is underpinned by the belief that the experiences of the households in Nyandeni can be investigated using the scientific method to objectively determine the factors that affect their livelihoods. By investigating the experiences of a significant number of households in this area, the results can be statistically analysed and generalised to communities with similar characteristics. Further, the study recognises that the lived experiences of the households in Nyandeni provide a critical foundation to understanding the underlying factors that are identified during this statistical analysis. The qualitative aspect of the study provides this foundation. Hence a pragmatic approach is more relevant to this study.

4.3 The research design

Research designs are a type of analysis within qualitative, quantitative and mixed methods approaches that offer detailed information for processes in a research design Creswell and Poth, (2017). A research design is of assistance with regards to proper research methods being used, so as to make sure that the objectives set out in the first chapter are achieved. The purpose of research design is regulating unwanted gaps and providing answers to research questions. Moreover, choosing the most applicable design is mainly subject to the objectives of the research and how much is known about the problem and those research objectives. Exploratory, descriptive and casual research designs are those generally used by researchers.

4.3.1 Exploratory research

Volsoo, (2001) describes this design as the most commonly unstructured, informal research which is undertaken with regards to achieving background information about the general nature of the research problem. It is unstructured in the sense that there is no formal set of objectives, sample plan, or questionnaire and is usually conducted when the researcher does not know much about the problems or there are high levels of uncertainty and ignorance about the subject. It is mostly conducted at the beginning of research projects to identify the boundaries of the environment in which the problems, opportunities or situations of interest are likely to reside and to identify the leading factors or variables that might be found there and be of relevance to the research. The design is highly flexible as there is no formal structure. The objective of exploratory research is mainly to recognise key issues and key variables (Volsoo, 2001). Wiid & Diggines, (2009), describe the central objective of doing exploratory research as a way to obtain perceptions and develop an understanding rather than collecting particular data. In addition, this process entails conducting in-depth interviews, analysing and the use of sources.

4.3.2 Descriptive research

Wiid and Diggines, (2009) define a descriptive study as “statistical method” that is used in classifying strategies or ideas in certain circumstances. This is more structured than exploratory research and is carried in order to provide responses to questions of who, what, where, when and how. This design is necessary when assessing a study’s findings as related to a larger population, if the study’s sample is descriptive. It assists in describing the characteristics of a particular individual or group. The descriptive research is aimed at

providing accurate and valid representation of the factors or variables that pertain or are relevant to the research questions (Lambert & Lambert, 2013).

4.3.3 Casual research/explanatory research

This differs from most common methods in being concerned with explanations rather than descriptions and aims at theoretical settings rather than hypothesis testing (Hedström, 2004). Occasionally, it is referred to as analytical studies as they look for explanations of the nature of certain relationships and such research is said to be very structured in nature. The main objective of explanatory research is detecting any contributory links between the dynamics or variables that connect to the research problem (Mishi, 2015). In simple terms, casual studies are prepared through the experiment procedure, which is defined as influencing an independent variable to see how it affects a dependent variable while also monitoring the effects of additional extraneous variables.

The study applies both the exploratory and descriptive research designs, as the objectives in the first chapter seek to gather data on rural households with an attempt to link ideas in understanding the cause and effect that the construction of a road has had on the rural livelihoods in the Nyandeni area. Getting insights of the households on what has occurred and how households respond to the ‘shock’ of the road construction assists as it connects to the research problem. With regards to the descriptive design, frequency tables are used in the study while exploring the distribution of various household characteristics with respect to their economic activities and livelihood strategies.

4.4 The research approach

A research can decide to either follow one of each of the approaches. These include the qualitative, quantitative and/or the mixed methods approach. The study has followed the mixed methods approach.

4.4.1 Qualitative research

This research relies on the collection of qualitative data which could be either in a form of interview/participant observation or recording, which can be used for problems that need exploration or that need a difficult detailed understanding so as to empower individual and collective voices.

4.4.2 Quantitative research

This research relies primarily on the collection of quantitative data, which could be through asking people for their opinions in a structured way; so as to produce hard facts and statistics in guiding the research study. This type of approach aims at determining a relationship between dependent and independent variables in forms of statistical techniques (Wiid & Diggines, 2009).

4.4.3 Mixed research

Creswell and Plano Clark, (2007) define mixed methods research as a research design with theoretical assumptions as well as methods of analysis. As a methodology, they further clarify that it consists of theoretical assumptions that guide the direction of the collection and analysis of data and also the combination of qualitative and quantitative data in a single study or series of studies. It's essential evidence is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell & Plano Clark, 2007).

Clark and Vicki, (2017) further explained the purpose of the mixed methods approach as to collect and analyse both quantitative and qualitative data, collaborating these two forms of data in different ways. It further gives significance to one or both forms of data and can be in a single study or in multiple phases of a study. It is important to use mixed methods research, as one data resource may not be enough. Preliminary results need to be further explained and a second method is needed to add to a primary method (Clark & Vicki, 2017). The study uses the mixed methods to validate the first and second objectives of the study through the quantitative data, also using the qualitative data in achieving the third and fourth objective.

The mixed methods approach helps in understanding results well as both these methods complement each other. This has been done by using secondary data from the PSPPD-II data in investigating the economic activities dominant in the Nyandeni area and also econometrically determining the main factors which explain these household economic activities. The qualitative data links in the study through using focus prompts interviews as primary data in assessing whether those household economic activities determined as per study objective; had been affected by the road construction in the area. Primary data is then used to document the effects associated with the road construction on the economic activities and livelihood strategies, and further documenting how households respond to the road construction 'shock' to the livelihoods. In analysing qualitative and quantitative data within a

mixed methods framework, the study developed a table representing the process of stages of how the study has been put together. See Table 4.1. The analysis, regardless of whether the data is qualitative or quantitative, may define and sum up the data, classifying relationships between variables, comparing them and predicting results (Culén, 2010). Two bases of data are identified in this study, which are focus prompts interviews referred to as the primary source of data from the purposely randomly selected household representatives in the Nyandeni municipality area, analysed using thematic analysis; with also the PSPPD-II quantitative data from a project conducted by the Economics department at the University of Fort Hare.

Table 4.1: Process of the research

RESEARCH QUESTION	DATA SET	ANALYSIS TECHNIQUES
1. What are the main economic activities in the Nyandeni municipality?	PSPPD II – Economics 2015/16 household survey	Quantitative method
2. What factors explain choice of economic activities by households?	PSPPD II – Economics 2015/16 household survey	Quantitative method
3. What do households say was the effect of road construction on their economic activities?	Focus prompts interviews – primary sources of data from selected household representatives.	Qualitative method – thematic analysis
4. How did households respond to road construction shock on their livelihoods?	Focus prompts interviews – primary sources of data from selected household representatives	Qualitative method – thematic analysis

4.4.4 Quantitative methods

4.4.4.1 Data sources

Data on investigating household economic activities dominant in the Nyandeni local municipality area and econometrically determining the main factors explaining household economic activities was obtained from a population of Eastern Cape, using a sample of 2 000 households in OR Tambo from the PSPPD II – Economics 2015/16 data. The OR Tambo is the district municipality in the Eastern Cape which encompasses five local districts including Ingquza Hill, Port St Johns, Mhlontlo, King Sabata Dalindyebo and Nyandeni as the study area. The PSPPD II household survey from Nyandeni consisted of 262 households from the sample of households in OR Tambo. Nyandeni district is where the road construction has

been done. The instruments used to collect the data have been validated and all ethical issues have been adequately addressed.

4.4.4.2 Quantitative data analysis techniques

The purpose of analysing data is to get practical and useful information. The quantitative data had been evaluated using the statistical techniques such as descriptive statistics as well as inferential techniques such regression analysis. Analysis takes into account the variable measurements and the research question being investigated. Data analysis has been supported by Stata software. As a result, investigating household economic activities dominant in the Nyandeni local municipality area has been done through descriptive statistics, making use of frequency tables, Chi-square test of association.

Determining the main factors explaining household economic activities was evaluated through modelling, multinomial logistic regression, specified as:

$$EA_i = \beta_0 + \beta_1 H_i + \beta_2 N_i + \beta_3 P_i + \beta_4 S_i + \beta_5 F_i + \varepsilon_i \dots\dots\dots (1)$$

Where,

EA indicates the economic activities that are carried out in the area, including crop farming, animal husbandry, paid labour, formal businesses, informal trading, farming employment, piece jobs in a project, domestic working, traditional healing services, grazing land for feeding sheep, remittances and social grants ;

α is the intercept;

H is a vector of human capital variable, for example the highest education, dependency ratio, and number of males between 16–64 years, among others;

N is a vector of natural capital variable, for example, access to land;

P is vector of physical capital which is the quality of roads, housing, deprivation of access to basic goods and services such as health, food, education;

S is a vector of social capital, such as membership of social groups in church, stokvels, clubs, neighbourhood; and

F is vector of financial capital for an example loans, savings, and access to credit amongst others.

Pampel, (2000) postulates that “multinomial logistic regression” as a statistical technique can be used for investigating a dataset that contains one or more independent variables that conclude an outcome. An outcome is then measured with a dichotomous variable; whereby there will only be two likely results. Likewise, the dependent variable in multinomial logistic regression is binary or dichotomous. This methodologically means that, it only comprises statistics “coded as 1 [TRUE, success, pregnant, etc.] or 0 [FALSE, failure, non-pregnant, etc.]” (Pampel, 2000). In essence, the values that are to be predicted are that of the dependent variable, hence it must be binary or dichotomous consisting of data only “coded as 0 or 1”. If therefore data has been coded in a different way, the “define status” tool will be used with regards to recoding the data. On the other hand, variables that the study anticipates on influencing will be selected by independent variables through selection of a different dependent variable (Pampel, 2000). As a result; the multinomial logistic regression necessitates the linearity relation from an independent variable to a logit of dependent variable. Hosmer Jr, Lemeshow and Sturdivant, (2013) describe the strength of the logistic regression model as having the ability to handle many variables, some of which may be on different measurement scales. Additionally, Pampel, (2000) identified the objective of logistic regression as finding the best fitting (yet biologically realistic) model to define the relationship between the dichotomous characteristic of interest which is [dependent variable = response or outcome variable] and a set of independent or explanatory variables.

Multinomial logistic regression creates the coefficients (and its standard errors and significance levels) of a formula to predict a logit transformation of the probability of presence of the characteristic of interest. The coefficients of a multinomial logistic regression take the form of $b_0, b_1, b_2 \dots b_5$ on the regression equation. Moreover, these coefficients show the change (increase when $b_1 > 0$, decrease when $b_1 < 0$) in the anticipated logged odds of having the characteristic of interest for a one-unit change in the independent variables. When the independent variables are dichotomous variables, then the influence of these variables on the dependent variable can simply be compared by comparing their regression coefficients. The logistic regression model uses the Hosmer-Lemeshow test as a statistical test for goodness of fit, amongst others. The observed and expected number of cases in each is calculated as well as the Chi-squared statistic. A large value of Chi-squared (with small p-value < 0.05) indicates poor fit and small Chi-squared values (with larger p-value closer to 1) indicate a good logistic regression model fit (Hosmer Jr, Lemeshow, & Sturdivant, 2013; Pampel, 2000).

Given that the dependent variable is measured at nominal level (is categorical with more than two categories), a multinomial regression will be conducted. The dependent variable in this case consists of three categories of livelihood strategies; namely earned income, social grant and remittances. In essence, this is an experimenter measure whose value is determined by the independent variable. According Starkweather and Moske, (2011), multinomial logistic regression is used to forecast categorical placement or the probability of category membership on a dependent variable based on numerous independent variables. Additionally, the independent variables can be either dichotomous (i.e. binary) or continuous (i.e. interval or ratio in scale). The independent variables in the study represent factors explaining the household economic activities in the study area. Amongst few, these consist of the deprivation score, household size and the assets access. The multinomial logistic regression is explained as the simple extension lead of binary logistic regression; approving of more than two categories of the dependent or the outcome variable.

4.4.4.3 Justification of the model

The specification of the model is influenced by the sustainable livelihoods approach from the preceding chapter. In determining the impact of road construction on the livelihoods of rural communities in Nyandeni in the Eastern Cape, the study investigates the household economic activities dominant in the area. Furthermore, these are used for purposes of the regression in econometrically determining the main factors explaining those household economic activities. The variables in the regression are also enthused by the sustainable livelihoods framework from the theoretical literature, which explains the vulnerability and demonstrates how sustainable livelihoods are accomplished in diverse perspectives. For this purpose the specification below has been adopted:

$$\text{Economic activities} = f(\text{human, social, natural, physical, financial}) \dots \dots \dots (2)$$

Economic activities – these are reported to be activities each household does (for the purpose of regression we take what is considered the main economic activity – what contributes more to livelihood or depending on data, classify them into, for example agriculture based, trade based, etc.) and is measured at nominal level. The explanatory variables are based on the sustainable livelihoods framework where they symbolise different measures of the five capitals, having road construction as a physical capital. These variables are measured at various levels (nominal, ordinal and interval/ratio). On the other hand, the qualitative

approach has also been employed through focus prompts, which interviews households with regards to how the road construction affected them.

4.4.4.4 Definition of variables used in the regression (dependent and independent)

These are the variables that have been used in the study. Other studies such as Makhetha-Kosi, Mishi, Tsegaye and Khumalo, (2017) have utilised similar variables in achieving objectives that are dissimilar from that of this study .

- a) **Livelihood strategies:** These are the dependent variables which consist of three categories capturing main livelihood strategies; earned income, social grant and remittances.
- b) **Deprivation score:** This is a covariate computed from questionnaire item asking if the household has failed to access basic goods and services such as food, health, education. High score implies highly deprived.
- c) **Trust score:** Households have been asked to indicate how much trust they have in different individuals and/or institutions within the system including family, neighbours and political leaders. A trust score was then computed with high scores signifying more trust.
- d) **Household size:** This is the number of individuals within the household.
- e) **Economic active members:** This is the total number of household members between the ages of 16–64 years.
- f) **Social grouping member/Club:** This is whether the household has a member who is part of a social grouping like stokvels, burial society. 0 no, Yes=1. This variable captures social capital.
- g) **Contacted local leadership:** This variable measures whether the household has a member who has contacted local leadership, or in the event of none, will the respondent be willing and able to contact would the need arise. The strength of institutions is tested.
- h) **Asset access:** This measures access to physical assets by households which includes access to cell phones, electrical stove, and refrigerator among other things.
- i) **Saving:** This variable indicates whether a household has savings, Yes/ No.
- j) **Loan:** This variable denotes whether a household has a loan, Yes/ No.
- k) **Risk:** This variable shows whether the respondent is risk taking or not and is captured by walking at night.

- 1) **Walk night:** This variable assess whether household members walk at night after 7pm and is aligned with risk taking and work commitments. It's captured on basis of often, rarely and sometimes.

4.4.5 Qualitative methods

4.4.5.1 Data collection

Qualitative data had been collected through focus prompts interviews on rural households in the Nyandeni area. The study aimed for data capacity with a target sample of at least 40 participants which are selected through purposive random selection. However, certainty of selected households answering the questions was not guaranteed.

4.4.5.2 Interview protocol

The interview protocol applies to the qualitative primary data collection. It is important to be clear with regards to the overall objective of the research so as to be able to adopt the most suitable data collection method. Jacob and Furgerson, (2012) advances that, an interview protocol does not only have a list of questions in it but extends to a certain level of interviewing, with a script of what the interviewer will say. Furthermore, the author advances that the script also covers prompts to collect informed consent with that of reminding the interviewer about the information interested in collecting. "Interview protocols become not only a set of questions, but also a procedural guide for directing a new qualitative researcher through the interview process" (Jacob & Furgerson, 2012b).

The study uses the focus prompts method with Labov's technique. Focus prompts are a type of individual interview that is mainly based on interactions on evolving prompting questions selected by the researcher, which also allows probing. Ideally, the interaction is directed by the representative who asks questions and keeps the discussion on the topic and closes the discussion when the time is deemed to be right. The focus prompts are more useful as a tool of shaping government policy. The aim of doing focus prompts is to get through the profound insights of people's experiences and perception about the impact of the construction project on their livelihood strategies (Dana, Dawes, & Peterson, 2013). This is done through probing, which is a procedure of getting the interviewee to say more about a specific topic.

Before conducting the interview, the interviewer ensured that the purpose of conducting the research study was well understood by the interviewee. The interviews were one on one, through visiting participants in their homes and workplaces. The prompts take approximately

10–20 minutes per participant. The focus prompts schedule was explained in a way that was easy to understand for the participants, in their preferred language (IsiXhosa). The aforementioned groups of participants were strictly accessed on the chosen days, to ensure confirmability. This was done to avoid ruining momentum and be able to establish some form of themes evolving amongst the groups. The focus prompt interviews were recorded through an audio tape. They were also transcribed and captured in Microsoft Word in the week following the fieldwork. The data had been also rearranged around the evolving themes. The content of the responses had been analysed with regards to understanding the underlying issues amongst the four groups. Refer to Appendix 4 for the guide.

4.4.5.3 Sampling methods

There are two sampling methods that can each be followed, which includes the probability and non-probability sampling. According to Alvi, (2016) , probability sampling consists of simple random, systematic random, stratified random, cluster and multistage. The author further added that non-probability consists of the volunteer sampling, convenient sampling, purposive sampling, quota sampling (proportional and non-proportional), snowball sampling, matched sampling and genealogy based sampling. The study applied a non-probability method with purposive sampling. The criteria of the chosen sampling method was such that the participants were selected with a purpose in mind, which incorporated household participants who were displaced during the road development in Nyandeni and those affected in the process. This means that not any available person/household was included but only those who met the criteria.

4.4.5.4 Chosen sample justification

It is important to determine a sample that will be used in a research study, so as to produce results that are proper. According to Collis, Hussey and Hussey, (2009), the matter of the appropriate sample size and number is a challenging issue which has no agreed size. The researcher has therefore arrived at a decision of using a purposive sampling. This is done through combining age and gender, which includes women and men (36 to 60), the elderly (+65), youth (16 to 35) and men (Economically active between 16 to 64 years); with 10 participants in each amounting to an overall sample of 40. Households that had been displaced had been located in diverse areas. Also, those who have been affected are in different communities around the Nyandeni district.

4.4.5.5 Selecting the participants

The study is focused on the Nyandeni district area. The selection of the participants has been such that total participants amount to 40. The target respondents are mainly those were located alongside the roads and some moved, however not excluding the other household members in the area as they also have been affected in the process of the road construction. There had been a number of households who have been moved from their homes and located in newly built houses as a result of the development. The study found it suitable to mix the participants in an equal measure that will represent the whole population of the Nyandeni, rather than having a biased number which might lead to data that is not accurate.

4.4.5.6 Qualitative data analysis techniques

Denzin and Lincoln, (2005) describe qualitative research as a positioned activity which identifies the observer in the world. The objective of qualitative research is to promote better self-understanding and increase insight into the human condition. Unlike quantitative research which has as its objective collecting facts about human behaviour that will lead to verification and extension of theories, qualitative research emphasises the improved understanding of human behaviour and experience (University of Pretoria, 2003). Qualitative data can be either evaluated using thematic and or content analysis.

According to Powers and Knapp, (2010), both content analysis and thematic analysis have similar objectives of thoroughly examining narrative materials from life stories by breaking the text into legitimately small units of content and submitting them to expressive treatment. The authors further specified that they are applicable when responding to questions concerning people about an event. Bloor and Wood, (2006) suggest that examining who says what, to whom, and with what effect is the main objective of content analysis. Taking into account the emotions attached to the words, the idea is to obtain trends and patterns in word use and the structure of dialogues (Grbich, 2012; Mayring, 2000; Pope, Ziebland, & Mays, 2000).

Braun and Clarke, (2006) advance that thematic analysis seems to be an unfitting branded method, and that it does not seem to occur as a named method of analysis in the same way that content analysis does. However, Vaismoradi, Turunen and Bondas, (2013) explain thematic analysis as “an independent qualitative descriptive approach that is mainly described as a method for identifying, analysing and reporting themes within data, which had been introduced as a qualitative descriptive method that provides essential skills to researchers for

conducting many other forms of qualitative analysis. The study adopts a thematic analysis based on the above arguments and justifications. Six steps suggested by Braun and Clarke, (2006) are used in Chapter 6 of the study in analysing the data answering the two last objectives of the study. The focus prompts interview schedules are such that the researcher probes the participant on each of the identified issues/statements through using Labov's technique. See Appendix 2.

4.5 Methods of ensuring data quality

Gunawan, (2015) mentioned that a research study is trustworthy “only if the reader of the research report judges it to be so”. In principle, trustworthiness is used in ensuring data quality. The issue of trustworthiness differs in the mixed methods approach, as it covers both the qualitative and quantitative methods. For qualitative data, trustworthiness is evaluated using dependability, credibility, transferability and confirmability. Shenton, (2004) stated that “positivists” often query the issue of trustworthiness in the qualitative research, since its concepts of validity and reliability cannot be addressed in the same way in the “naturalistic work”. In quantitative research, internal validity, external validity, reliability, and objectivity are used with regards to ensuring trustworthiness in data. Shenton, (2004) cited that a certain author known as Guba recommended that four criteria should be considered in the qualitative and then corresponded with that constructed by the positivist. A summary reflecting the criteria of both the qualitative and quantitative methods towards ensuring trustworthiness is presented in Table 4.3.

Table 4.2: Qualitative vs. Quantitative

Qualitative	Quantitative
Credibility	Internal validity
Dependability	Reliability
Transferability	External validity
Confirmability	Objectivity

4.5.1 Credibility

Patton,(1999) suggests that the issue of credibility depends on the three different basics, which are:

- i) “Harsh techniques and methods for gathering high-quality data that are carefully analysed, with attention to issues of validity, reliability, and triangulation”;
- ii) “The credibility of the researcher, which is dependent on training, experience, track record, status, and presentation of self”; and
- iii) “Philosophical belief in the value of qualitative inquiry, that is, a fundamental appreciation of naturalistic inquiry, qualitative methods, inductive analysis, purposeful sampling, and holistic thinking”.

In essence, a researcher has to evaluate credibility so as to examine the data and analysis with conclusions to check the truthfulness of the study. Credibility has been ensured in the study through using the Labovian technique in probing participants on the focus prompts interviews. For the quantitative measure, data had been analysed by means of statistical test measures. Therefore, internal validity has been assessed by the validity of the instruments and measurements used in a study.

4.5.2 Dependability

Golafshani, (2003) suggests that in qualitative research, “dependability” carefully agrees to the view of “reliability” in the quantitative research. As centre for validity, reliability is significant to quantitative researcher; as it measures whether or not the same results are obtained in a study each time. Dependability also looks at consistency in terms of themes or findings in the qualitative research.

4.5.3 Transferability

This method had been used with regards to providing thorough narratives of the site, the participants as well as procedures used to collect data in the study; so as to makes sense to generalisation. Golafshani, (2003) pointed out that external validity is concerned with the degree to which conclusions of a single study could be useful in other situations.

4.5.4 Confirmability

According to Shenton, (2004) this method is used for the benefit of ensuring that the study’s findings are feasibly the result of the “experiences and ideas” of the participants; relative to that of the researcher’s features and inclinations. Audit tracking consisting of the original data like documented materials whether written down or recorded through an electronic device is done in this regard; so that alternative researchers would have the ability to confirm the study

given the same data. In the study, this had been done through dividing the sample into 4 groups, interviewing 10 participants per day. This was to avoid ruining momentum and also to establish some sort of theme amongst the four groups (women, elderly, youth and men that are economically active). Information has been recorded and stored. For quantitative, Shenton, (2004) mentioned that the objectivity involves the use of instruments that are not dependent on human skill and perception. This has been done through the “methodology of measurements, data collection and data analysis through which reliability and validity are established”.

4.6 Mixing the methods

The study falls into the mixed design category, where both qualitative and quantitative methodologies are used. “As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies” (Creswell & Plano Clark, 2007). The central idea is that the use of quantitative and qualitative approaches linked together, provides a better understanding of research problems than either approach alone (Creswell, Klassen, Clark & Smith, 2011). In essence, the triangulation helps in understanding the results better as there is information from the quantitative and qualitative side complementing one another. Each method is discussed based on its own technique. The main reason for using a mixed methods approach is to validate the outcomes from the quantitative data, with the use of focus prompt interviews; which helps in understanding the results better. The statistical indication from quantitative data is considered essential and it is however necessary that the full dimensions of qualitative data be used.

4.7 Ethical considerations

Ethical clearance had been obtained from the University of Fort Hare’s Research and Ethics Committee and the study has adhered to the principles of confidentiality and anonymity. This had been ensured by treating people with dignity and respect by explaining the processes with the purpose of the research; and that they were not forced to participate when uncomfortable. No names had been inquired unwillingly during the process and where need be, false names had been used. Data has been stored in a format that does not identify respondents to ensure privacy during the processes. Questions had been translated into a relevant language (IsiXhosa) for understanding.

4.8 Summary of the chapter

This chapter is documented to identify the methods used; the model specification, analysis techniques, data collection methods, techniques estimated in contribution of meeting the objectives laid out in the first chapter. The presentation and analysis of pragmatic findings is directed in the next chapters and quantitative data analysis has been supported by Stata software.

CHAPTER FIVE

Quantitative results presentation and discussions

5.1 Introduction

This chapter presents the results of the descriptive and inferential analysis carried out from the PSPPD-II Economics data consisting of a number of 2 000 OR Tambo district households, narrowed down to the Nyandeni local district constituting of 262 households. The main objective of the study is to investigate the impact of road construction on the livelihoods of rural households in the Nyandeni local municipality. A specific objective of the study has been followed by the chapter. This includes investigating household economic activities dominant in the Nyandeni local municipality area and factors affecting the choice of these activities. In this regard, the study utilised the fitting of a multinomial logistic regression model in order to determine those economic activities; enthused by the sustainable livelihood framework.

5.2 Livelihood strategies and economic activities

According to Regassa and Gidi, (2011), ‘Livelihood strategies’ consist of a number of activities carried out by the household with regards to making a living. They are also a form of strategy of activities implemented by the household as a result of the intervention procedures on household assets. Furthermore as cited by Ojong, (2011) from Grown and Sebstad, (1989, p.941); the grouping of individual and household strategies that are established over a particular period of time, that also strive for categorising accessible assets and opportunities are also referred to ‘livelihood strategies’. As stated from the preceding chapter in the study, these are the dependent variables and they capture the three main categories of livelihood strategies. These are inclusive of earned income, social grants and remittances. These livelihood strategies have been grouped with reference to the economic activities of households from the PSPPD-II household survey data. Refer to Appendix 8. The grouping was such that all the five capitals of the sustainable livelihood framework were covered, by only capturing the data on the different economic activities that a household is involved in; including self-production for home consumption. Table 5.1 presents the different economic activities, which were fused into the five sustainable livelihood assets; then into the three categories of livelihood strategies. Each of the economic activities was grouped under the three aforementioned categories based on which livelihood classification they fall under.

Table 5.1: Frequency distribution table of economic activities in the Nyandeni area

ECONOMIC ACTIVITIES	LIVELIHOOD STRATEGY	LIVELIHOOD ASSESTS	FREQUENCY
Business owners: hair stylist, funeral parlour owner, self-employed, selling fruit, barber shop, small chips business, caterer, traditional healer, shebeen owner, spaza shop, selling at local school, selling tins, painting, taxi, hair salon, selling earrings, re-cycle, mechanic	Earned income	Physical capital assets	28
Grant recipients: disability grant, social grant Social support groups, community trust contributions.	Social grant	Social capital assets	16
Remittances: depending on parents, transfer	Remittances	Financial capital assets	2
Formally employed: teachers, nurses, lecturers, electrician, OR Tambo worker, health services, waitress, environmentalist, municipality worker, employed, working, general assistant, employed at public works.	Earned income	Physical capital assets	39
Other: security, cleaners, caretaker, part time jobs, piece jobs, domestic worker, depend on parents, kitchen work, job, construction worker, driver, welding, contract worker, plumber	Earned income	Physical capital assets	30
Agriculture: Farming, poultry project	Earned income	Physical capital assets	11
None	-	-	136
Total			262

As shown on the table 5.1, households in Nyandeni embark on different economic activities. Some are business owners, grant recipients, some rely on remittances, some are formally employed which includes lecturers, nurses and teachers. Some households rely on farming as an activity for home consumption, while others do it for vending purposes. Some have casual jobs such as drivers, piece jobs, part time, cleaning and security jobs. These activities are further used in the study in assessing the impact that the road construction has had on them. Households experience a ‘shock’ on their way of sustaining their livelihoods and might be unable to bounce back after the shock. On the other side, some rural households are unable to cope with the stresses associated with the ‘shock’ on their ways of sustaining a living. Refer to Appendix 8 for full presentation of the economic activities. Based on the table above, four groups of livelihood assets are identified. Physical capital assets (business related activities, employment activities) appear to be the most dominant, followed by social capital assets (social resources such as traditional healing, social grant receipts), the natural capital assets (environmental resources such as farming, agriculture) and the financial capital assets such as remittances. These economic activities are used in the next section in assessing factors that explain the choice of the aforementioned activities.

5.3 Factors explaining the choice of livelihood strategies/economic activities by households in Nyandeni area

A frequency distribution was conducted with regards to assessing livelihood strategies and factors affecting the choice of these activities, so as to later in the next chapter assess the probable impact of the construction of the N2 highway on these economic activities and livelihood strategies towards the households in the Nyandeni area. The variables used include trust, contacting community leaders, belonging to social clubs (as social capital); asset access, deprivation (as physical capital); banking, savings and loans (as financial capital); economic active members, household size (as human capital) and access to land/deprivation as the natural resources. Each of these variables (independent) has been explained in the previous chapter. The extent to which these variables influence the livelihood strategies is evaluated in the following table:

Table 5.2: Frequency distribution table

Variables and Categories	Frequency	%
Livelihood strategies (Income sources):		
Earned income	161	62,89
Social grants	81	31,64
Remittances	14	5,47
Bank account :No	227	86,64
Yes	35	13,36
Saving :No	202	79,22
Yes	53	20,78
Social grouping :No	66	25,58
Yes	192	74,42
Contacted leadership: No	209	88,19
Yes	28	11,81
Savings club :No	245	93,51
Yes	17	6,49
Loan :No	201	79,45
Yes	52	20,55
Walk night: Never	99	38,67
Often	44	17,19
Rarely	36	14,06
Sometimes	77	30,08

5.3.1 Bank account

According to the results in the frequency distribution, household members with bank accounts amounted to a frequency of 35 out of 262 (Yes) households, with 227 without bank accounts (No). These amounted to 86.64% and 13.36% respectively. The reason with regards to high frequency of households with no bank account would be that, majority of these households are depending on social grants and they have no reason to be opening bank accounts since they have different cards for social grants money withdrawals. Hogarth, Angelov and Lee, (2005) suggest that households who receive any form of means-tested benefits such as food grants or the low incomes believe that having an ownership of a bank account would possibly affect their entitlement for these benefits. Additionally, it would be irrational having an account with no savings when a household cannot afford this, as the bank will still accumulate charges leading to unnecessary costs that could have been avoided.

The other portion of 13.36% households with bank accounts is possibly the portion who is working and receiving earned income. Lyons and Scherpf, (2004) suggested that, in determining the ownership of a bank account, past studies had identified a number of characteristics as being of importance. Such factors include the net worth, income,

employment status, age and credit history. Hence, the results on the total percentage of the households using banks had been in accordance with the characteristics that are supported by literature and are statistically significant. In essence, only a few households in the Nyandeni municipality area have access to earned income and the rest are either receiving social grants or remittances.

5.3.2 Savings

Out of a total frequency of 255, only 53 households or 20.78% have savings (Yes). The 79,22% of households with no savings is with a frequency of 202. The NPC, (2010) suggests that the possible view amongst the poor that banks and savings are not for them may be in fact not far off from the reality. The NPC further advanced that there is a difference with regards to the way that the rich and poor are treated by the banks, as they promote debt over savings for the poor. Promoting debt can be profitable as savings are deemed to be uncertain to the poor or disadvantaged and as opposed to savings which have a potential of being huge and profitable over debt that the wealthy or rich are likely to repay without a penalty. With 62,89% of households receiving earned income, 31,64% receiving social grants and 5,47% getting remittances; it is evident that only earned income earners can afford to secure savings on their accounts. The non-income earners probably make cash savings amongst their communities but at a slow pace, depending on how much they have used and what is left.

5.3.3 Belonging to social grouping

A total of 258 observations were made with regards to examining the number of households belonging to social groups. Only 66 households had no members belonging to any social group, with 192 of household members belonging to social grouping. The percentage of households with members belonging to a social group is higher than that of who don't belong to any, 74,42% and 25,58% respectively. Social grouping can be either in a form of burial society, stokvels and captures social capital. Household members who are part of social groups are mostly those of who receive social grants and remittances. This serves as a form of welfare security amongst their families and societal groups of trust formed. Social grouping can be also be understood as a form of saving amongst the underprivileged households. The portion who do not belong to any social group is likely to be the households with members working and receiving earned income.

Referring to the results in the distribution table above, the total distribution of household members who are not in savings clubs is 245 (93,51%), while 17 (6,49%) are into savings

clubs. Savings club can be assumed as a type of a traditional savings account that the poor use to keep money jointly in groups, since they cannot afford the ownership of bank accounts. In highlighting the importance of the social and economic benefits of partaking in social grouping, Maluku and Kaseke, (2014) suggest that stokvels form part of the fundamental strategies that help in reducing poverty and have been participated in by the majority of black South Africans for several years. The author proposed that due to the extreme high levels of poverty as well as that of inequality and unemployment faced in South Africa; the poor should involuntarily rely on “self-help community based” services in line with their survival schemes.

5.3.4 Contact community leadership

According to the Local government association, (2012), community leadership can be understood as serving communities so as to detect and deal with obstacles that are faced in communities, in an utmost operative way. The role of community leadership also necessitates the conveying-in of services from officers and allies, as well as being a voice to “the council and partners” on behalf of the community members. From the indications in Table 5.2, the community leadership appears to be contacted by a few household members amounting to a total 28 (11,81%). However, household members who have no contact with community leadership amount to 209 (88,19%). Community members mainly contact their leadership with regards to security issues, the resolving of community and family related issues, legal advice and the aforementioned contingencies. In most cases, the poor cannot afford to seek professional intervention based on the above-mentioned encounters hence they strongly rely on the community leadership. A number of household members who afford private services like legal aid and private securities see no need to contact the community leadership.

5.3.5 Loans

Out of a total distribution of 253 household member observations, assessing whether they use loans or not; only a total of 52 have loans. A portion of 201 household members do not have loans. Loans mostly require some sort of account or asset ownership, which most households in rural communities do not possess. High repayments associated with getting a loan are the main reasons the percentage of household members having loans is not so high. These loans charge interest, which necessitates an individual having some sort of income. Borrowing money when unemployed is a difficult and risky measure to try; even worse for people living in the rural areas. Murthy, (2009) mentioned that rural finance has commonly directed the

way in addressing social, gender and ethnic equity issues which hold families in poverty. Conversely, the author discovered that the access was limited for poor households and for micro, small and medium enterprises. Household members with no form of income should stick to social clubs, which also becomes an advantage when a member faces a financial challenge and might need support from peers in the social group.

5.3.6 Walk night

The walk night variable is inclined to risk that is related with work commitments amongst the working household members and the vulnerability of household community members as a whole. Charness, Gneezy and Imas, (2013) speculate that risk is everywhere in making decisions and that the extent of willingness of people taking risks is inclined to their risk preferences. According to the study analysis, the walk night variable examined in terms of household members who walk at night after 7 p.m. Referring to Table 5.2, household members amounting to a distribution of 99 (38,67%) out of 256 never walk at night after 7 p.m. Also, 44 (17,19%) of household members often walk at night after 7 p.m. with 36 (14,06%) rarely and 77 (30,08%) of household members who sometimes walk at night after 7 p.m.

Household members who are working are bound to take the risk of walking at night when they are working overnight at their respective occupations. Their decisions to walk at night are possibly based on their responsibility of having to provide for their families with the income they earn, as the majority of people walking at night after 7 p.m. are often people with work commitments. Household members who rely on social grants and remittances do not necessary take the risk of walking at night after 7 p.m. unless they having social club meetings.

Table 5.3: Summary statistics

Variable	Observations	Mean	Standard deviation	Min	Max
Deprivation reversed	262	7.030534	5.834813	0	30
Number of people in a household	256	5.410156	3.117272	1	19
Economic active members	203	1.118227	.8359573	0	5
Trust score	262	24.18321	4.885355	0	30
Assets access	262	11.53817	5.623268	0	24

Table 5.3 depicts the summary statistics that are in the study. These include the summary of deprivation-reversed, the number of people in a household, economic active members, trust score and assets access. Referring to the summary table, deprivation score has a total observation of 262 with a mean of 7.030534, measuring the average of data values. The standard deviation is 5,834813 of the average distance between a single observation and the mean deprivation 0 minimum data value together with the economic active members, trust score and the asset access. Furthermore, it has the largest data value of 30 with trust score, followed by the asset access, the number of people in a household then the economic active members. The number of people in a household reflects a minimum of 1 with regards to the smallest data.

5.4 Importance of social capital on rural livelihoods

Woolcock and Mill, (2001) suggests that the idea of social capital is that “one’s family, friends and associates” create an essential asset, even more when reliable in times of crisis. The author further advanced that communities with endowed community relations and a rich stock of social capital have high chances of sustained livelihoods with regards to challenging poverty and vulnerability within their communities. The level of closeness, connecting and networking of neighbourhoods amongst households in rural communities is an important value which allows individuals to accomplish most of the things they could not achieve by themselves. Some of the things include strong networks or groupings of people, which are built over time. Jordan, Anil and Munasib, (2010) assume that the social capital core argument is that of promoting support, partnership, and direction, which thus has a diversity of “micro and macro level outcomes” that are valuable to economies.

Fiala, (2012) stated that some papers have made a determination with regards to assessing the effects of involuntary displacement but came up with a little or no reference of identification impediments. The author further posits that preliminary shock to household assets, which can be every so often experienced in the course of displacement, may possibly lead to a poorer balance towards the affected households than those who were not directly affected by the shock. Some of the displaced households enjoy the benefits associated with newly built homes for them which are far better than their own, ignoring shocks linked to their livelihoods strategies. On the other hand, there are important links that are destroyed by displacement which result in loss of informal security which is relied upon by many of the poor who cannot afford formal insurance or at least the markets are absent.

The market failure is often corrected by social capital which relies on established relationships built on trust and sharing as a result of belonging to social groups. People are cut from various linkages such as their economic activities including farming, infrastructure, sharing of resources, and secured livestock. As a result of the apartheid government's Group Areas Act, displacement has resulted in a number of inequalities which still influence in our communities to date. With developmental projects that are carried out by government mostly in rural areas, the assumption would be that people will accept situations as they come. Irving, (2005) in a review of existing literature on social capital inequalities, concludes that the types and distribution of this asset differ by gender. Even though men and women are both usually take part in a related number of social capital gatherings, men are more likely to partake in large associations with economic links, while women are likely to join in minor institutes directed on "domestic and community affairs". This implies that the women's networks offer a far better variety and awareness of people's bonds. In essence, social capital forms a strong base with regards to social protection, empowerment amongst members and the provision of essential services to help underprivileged household members in accomplishment of their daily lives.

5.5 Importance of physical capital on rural livelihoods

Commission built for Architecture and the environment, (2005) defines physical capital as a potential value based on "financial, social and cultural" of the built environment. Referring to the author, the physical capital of a specific place is formed to combine "schools, clinics, houses, offices, factories, streets, parks, museums, public art, squares and bridges". The author further advanced that these assets have value in themselves and in the approach of association within the built environment. The key determining factor of how far their prospective value is understood is in what manner they are "designed, managed and maintained. Physical assets in the study take the form of asset access and/or deprivation on basic goods and services, housing and quality of roads.

Basic infrastructure such as transport, communication and water are amongst the assets that are expected to be commonly affected by any development as households generally live on those in pursuit of their livelihood strategies. This is possibly due to the relocation of a number of households from their places to different locations, also known as displacement. The Department for Culture, (2012) directs that displacement arises in a situation whereby an interference of policy increases economic activity in particular "economic geographical" divisions, then indirectly leads to losses in economic activity elsewhere.

The neoclassical growth model suggests that an equilibrium income or growth cannot be affected by a “one-time shock” towards capital. The theory further puts forward that this is as a result of variation in the investment in physical combined with human capital in reaction to the shock that lets households “return to their long-run growth rate”. When households are deprived of access to basic assets, it also becomes a challenge to society or the municipality involved. In essence, lack of physical capital would mean less productivity with regards to development of the economy.

5.6 Chi-square test of association

The Chi-square test of association is used in the study to discover whether there is a relationship between the livelihood strategies and the explanatory variables. The livelihood strategies include earned income, remittances and social grants. The independent variables used include trust, contacting community leaders, belonging to social clubs (as social capital); asset access, deprivation (as physical capital); savings and loans (as financial capital); economic active members, household size (as human capital) and access to land/deprivation as the natural resources. Each of these variables (independent) has been explained in the preceding chapter. These variables were used in the study to assess the extent to which they influence the livelihood strategies (dependent variables). Chi-square is applicable in the study as it has a large sample. Table 5.4 presents the summary of the results, with a discussion below.

Table 5.4: The chi-square test results - Association between identified factors and livelihood strategies

<u>Variable</u>	<u>Chi-square value</u>	<u>P-value</u>	<u>Comment</u>
Livelihood strategies (earned income, remittances, social grant)			
Walk night	12.0248	0.061	Insignificant
Bank account	9.4347	0.009	Significant
Savings	13.19990	0.001	Significant
Belonging to a social group	0.2379	0.8888	Insignificant
Contacted community leader	6.3458	0.042	Significant
Attended community Meeting	22.6417	0.000	Significant
Savings club	3.2195	0.200	Insignificant
Loans	3.9380	0.140	insignificant

According to Table 5.4, the variables are displayed with their probabilities of association in the data. The Chi-square P-value is the probability. The p-value is the probability that the test

outcome would take a value as extreme as or more extreme than observed. Moreover, a p-value that is ≤ 0.05 depicts strong evidence (significance), while a p-value that is ≥ 0.05 describes weak evidence (insignificance) against the variable of association. The association between the income sources and the walking at night variable is insignificant by a 0.061.

Household members who amongst the earned income group have the highest row percentage (50%) followed by a close proportion 42% of households getting social grants then remittances by 7.29 % in terms of the number of never walk after 7 p.m. Again, households who receive earned income have the highest number with regards to often walking after 7 p.m. and are an expected outcome since they have work commitments. The earned income also has a leading percentage with regards to sometimes walking at night after 7 p.m. This could be possibly that they sometimes have overtime duties or late knock offs at their occupations.

The relationship between the income sources and the bank account depicts significance (0.009). The earned income has the highest proportion in terms of the households with a bank account and is an expected outcome, with again 59,28% with no bank accounts. Social grants holders had 34,39% (No) with 14,29 % (Yes). Lastly, the household members with remittances had 6,33% of (No) non-bank accounts and 0,00% (Yes) who have bank accounts. Savings and income sources portray strong evidence. The probability is less than the p-value of 0.05. Households who receive earned income with savings (Yes) were 84,91% and 57,87% without savings (No), those who receive social grants without (No) savings were 36,04% while 13,21% had savings. Household members receiving remittances without savings (No) amounted to 6,09% and 7,69% with savings (Yes). Overall, there is a strong association between banks and earned income compared to other livelihood strategies.

The income sources with the variable of belonging to social grouping indicate no association, by probability of 0.888. The link between contacting the community leader and income sources showed a 0.042 strong significance. The category of attending community meetings with the income source variable indicates strong evidence by a 0.000 probability. In terms of income sources, majority of the households with earned income (65.31%) do not attend community meetings with 62.25% who do attend. Social grants holders and member receiving remittances are likely to be the ones attending those meetings, as they are highly reliant on the community services. The savings club and income sources show weak evidence, with a probability of 0.200. This indicates a non-association between the two.

Furthermore, there is an insignificant association between the members who have loans and the income sources. Refer to Appendix 7.

5.7 Multinomial logistic regression

Savath, Fletschner, Peterman and Santos, (2014) defined multinomial logistic regression as a technique that is used in assessing the extent to which the influence of household livelihood choices, are affected by the access households have to resources. The authors further advanced that multinomial regression allows researchers to statistically categorise factors that could likely affect the chosen household livelihood strategy than other strategies then determine the role played by resource factors. Marginal effects are estimated for each explanatory variable to understand the additional effect as a result of a change in each independent variable. With regards to determining the livelihood strategies used as well as the related determinants, the study used the multinomial logistic regression. This is due to the fact that the model allows for analysis and interpretation of data in a case where households have more than two dependent variables. Largely, the model is used to measure the extent of influence that independent variables (determinants of livelihoods) have on different livelihood strategies (dependent variables).

Table 5.5: Multinomial logistic regression

VARIABLES	Earned Income (base)	Social Grant	Remittances	Transfer income (base) vs. Earned income
Deprivation		0.0945** (0.0431)	-0.0749 (0.143)	-0.0870** (0.0428)
Economic active members		-1.931*** (0.446)	-4.281*** (1.206)	2.218*** (0.438)
Trust		0.271 (1.036)	0.649 (2.186)	-0.327 (1.000)
Save (Yes)		0.188 (0.635)	-0.171 (1.495)	-0.179 (0.605)
Contacted (YES)		1.353** (0.624)	-16.23 (3.384)	-1.152* (0.619)
Club (Yes)		-0.983 (1.209)	-13.83 (2.864)	1.054 (1.197)
Loan (Yes)		-0.0245 (0.552)	-16.78 (1.844)	0.279 (0.552)
Walk night (often)		-1.102* (0.664)	-0.990 (1.438)	1.041 (0.637)
Walk night (rarely)		-1.651* (0.871)	-16.92 (2.357)	1.851** (0.876)
Walk night (sometimes)		-0.586 (0.537)	0.392 (1.127)	0.490 (0.513)
Constant		-0.665 (3.326)	-1.144 (7.101)	0.358 (3.220)

Observations	175	175	175	175
Standard errors in parentheses				
*** p<0.01, ** p<0.05, *p<0.1				

There are three livelihood strategies reflected in the regression table shown in Table 5.5, with the transfer income vs. earned income. There are 175 observations for each income source. The significance of the variables is ranked from ***p<0.01, **p<0.05 and *p<0.1. The smaller the p-value, the stronger the evidence and the bigger the p-value, the weaker the evidence.

Deprivation: According to the regression table, there is a positive relationship between deprivation and households receiving social grants. The p-value 0.0431 indicates a statistical significance. There is a negative relationship between deprivation and household members receiving remittances which also prove insignificant results. Likewise, there is a negative relationship between deprivation and the transfer incomes vs. earned income; however there is a statistical significance. In essence, deprived households are more likely to rely on grants.

Economic active members (EAM): The coefficient of the EAM is negative, which indicates that as the independent variable increases, the dependent variable decreases. Therefore, there is a negative relationship between the EAM and household members receiving social grants. The p-value of 0.446 reflects insignificance. There is a negative relationship between EAM and remittances with a p-value of (0.438) reflecting statistical insignificance. Transfer income vs. earned income and the independent variable indicate a positive relationship; however there is a statistical insignificance. To add, being economically active reduces chances of relying on social grant or remittances, though increasing chances of relying on earned income.

Trust: This variable has a positive coefficient towards social grant and remittances but no significance based on the p-values. Transfer income vs. earned income and the independent variable show a negative relationship with a statistical insignificance at 1.000. The insignificant score on the trust variable would imply that individuals have a very limited trust towards other individuals and or the institutions amongst them, such as neighbours, leaders and family.

Save (Yes): The variable coefficients of remittances and transfer income vs. earned income show a negative relationship towards household members who have savings, yet social grants

show a positive relationship. Nonetheless, there is a statistical insignificance throughout their p-values. This implies that households with savings are those who receive social grants only. The reason for the outcome could be that social grant money is not as much as the money earned as an income and households are aware that they need to save as it would take them another month to receive another grant.

Contacted (Yes): The relationship between households who have contacted community leadership and the social grant dependent variable is positive. This implies that household members who receive social grants are mostly reliant on the community leadership. However, there is no significance on the results. The coefficient of the independent variable on remittances and transfer income vs. earned income indicate a negative relationship with a statistical insignificance. Social grant and the independent variables have a positive relationship (1.353) yet no form of significance. Those who contacted local leadership are more likely to be relying on grants than earned income. The possible factor would be that they have more to benefit from through contact local leadership than those who have their jobs.

Club (Yes): This variable is negatively related to social grants and remittances, with coefficients of -0.983 and -13.83 respectively. Individual households receiving grants and remittances could be struggling with club fees and money for regular contributions, hence the negative relationship with p-values of (1.209) and (2,864) proving no statistical significance. Also, there is a positive relationship between the independent variable and transfer income vs. earned income with insignificance; which would imply that individuals earning some income have the capability of forming part of social group clubs.

Loan (Yes): There is a negative relationship between households who have a loan and social grant dependent variable; also towards remittance. This is mainly because these households are not receiving income that would allow them to meet the criteria of getting a loan. This implies that they are not able to take loans, as a result of relying on social grants and remittances. Transfer income vs. earned income indicates a positive relationship towards the independent variable. However, there evidence proves no statistical significance amongst the variable.

Walk night: There is a negative relationship towards household members who walk at night often, sometimes, and rarely with the social grants as dependent variable. This is mainly because these household members have no work commitments that will force them to be

arriving late at their homesteads. There is no significance towards those results. Household members who walk at night often and rarely indicate a negative link concerning the remittances dependant variable, with also a positive relationship towards walking at night (sometimes) with remittances. Again, there is no statistical significance. The coefficients of transfer income vs. the earned income show a positive relationship toward the independent variable. However, there is no statistical significance on the results. In essence, there is no statistical significance between households members who walk at night after 7 p.m. and the income sources. Walking at night may imply that those who are trusting are less likely to survive on grants, they can easily cooperate with others and realise economic surplus. More trusting suggests a possibility towards getting employment or business and hence relying on earned income.

5.8 Summary and conclusion

The chapter aimed at exploring the dominant household economic activities within the Nyandeni municipality area, with factors affecting the choice of those activities. On investigating the economic activities dominant in the Nyandeni area, physical capital assets including business related activities, employment activities followed by social capital assets then agriculture and financial capital assets were identified. There were factors used in assessing factors affecting the choice of the identified activities. These were inclusive of bank account, saving, social grouping, contacted community leadership, saving clubs, loans and the walk-at night variable. These variables were used in determining the ease of access and use of the economic activities by the rural households in Nyandeni area.

A Chi-square test association was used with regards to exploring whether there is a relationship between livelihood strategies and the explanatory variables. Earned income reflected a strong link towards households with bank accounts compared to other livelihood strategies. It was evident that households who receive earned income are strongly linked to the walking-after 7 p.m. variable, and the savings, loans, bank account; while remittances with social grant recipients reflect a weak link towards the aforementioned variables. The reason is that these households do not have enough money from the grants they receive, so as to obtain loans and have bank accounts. These activities are encumbered with charges and interest that are payable to these institutions with money they probably would not have. Nevertheless, households with earned income do not necessarily need community contact, social grouping or to attend community meetings as they can sustain a living without support from those parties.

Centred on the frequency tables, social and physical capital are important with regards to community developments hence the discussion emphasised deliberating on the statistical results proving that the economic activities mainly affected. The multinomial logistic regression indicated only a few variables with statistical significance. It was used in the chapter to determine the main factors that explain household economic activities, also measuring the extent of influence the independent variables have on dependent variables. The analysis revealed that livelihood strategies are mostly determined by physical capital (deprivation or access to assets), and the economic active members in a household, with the summary statistics correspondingly portraying deprivation having the largest data value of 30 with trust score, followed by the asset access, the number of people in a household, then the economic active members. These include a positive relationship towards households receiving social grants, a negative relationship towards remittances, likewise on transfer income vs. earned income. This implies that households who receive social grants are highly deprived of access to assets.

CHAPTER SIX

Qualitative results presentation and discussion

6.1 Introduction

This chapter presents qualitative analysis and results of the focus prompts interviews that were conducted in the Nyandeni district communities. Following the quantitative findings from the preceding chapter on the dominant household economic activities within the study area, with factors affecting the choice of these activities, this chapter will explore the probable impact of the construction of the N2 highway on the identified economic activities and livelihood strategies. The findings pointed out that the physical capital assets including business related activities, employment activities followed by social capital assets then agriculture and financial capital assets were the identified economic activities dominant in the Nyandeni area.

The multinomial logistic regression was applied in determining the main factors explaining household economic activities, also measuring the extent of influence the independent variables have on dependent variables. The analysis revealed that livelihood strategies (dependent variables) are mostly determined by physical capital (deprivation or access to assets), and economic active members in a household. This chapter will also document how households respond to road construction ‘shock’ on their livelihoods, relating to the qualitative data analysis, as data from the quantitative analysis did not provide the response.

Qualitative data analysed in this chapter was collected from 7–10 November 2017, amongst different communities under the Nyandeni district municipality area. Such communities include Thabo Mbeki in Libode, Mareweni, Ntlaza, Ngqeleni, Gxulu, and Mafini. The chapter reflects on the second and third research questions that are underpinned in the research study. The analysis of the data is done through thematic analysis. The themes developed are enthused by the SLF. The framework is linked in the discussion such that the impact of the road construction is addressed with relation to the livelihood strategies and economic activities that were discovered in the preceding chapter; so as to demonstrate how those assets have been interrupted in different ways.

6.2 Thematic analysis

Thematic analysis is the process of pinpointing, probing and recording patterns. There are six steps proposed by Braun and Clarke, (2006) in following a thematic analysis. They include:

1. Familiarising yourself with your data, which requires repeated reading. Refer to Appendix 4 for transcripts.
2. Generating initial codes – this is the initial list of what is in the data and what is considered to be interesting. Refer to Appendix 4.
3. Searching for themes – this entails sorting the different codes into prospective themes and organising all coded data extracts within the identified themes. Refer to Appendix 4.
4. Reviewing themes – this is an adjustment or alteration process of themes, where it could be possibly discovered that some scheduled themes are not really themes. Hence a need for the review of themes.
5. Defining and naming themes – this step comes after a satisfactory thematic map of one's data, whereby the researcher then began to define and further refining the themes that have represented the analysis; analysing data within the themes.
6. Producing a report – this is the final step on the thematic analysis, which involved the last analysis and write-up report, using the fully worked out themes. Each theme is then directly linked to the supported research questions.

6.2.1 Identification of patterns

During the process of transcribing data and repeated reading of transcripts, the researcher began to identify the patterns and trends throughout the four transcripts. Codes were then identified in the completion of this process. Refer to Appendix 4.

6.2.2 Analysis of codes

The analysis of codes was done manually. This was through picking different features in the data that appeared to be interesting, based on the first two questions of the focus prompts interview schedule, from each of the four transcripts. Refer to Appendix 2. Some codes were similar in meaning and some in context, so they were then arranged and organised into meaningful groups. Refer to Appendix 4 for the visual processes.

6.2.3 Reviewing of themes

Themes are an important aspect of the data with regards to literature and the research question, as they represent some level of patterned response. Themes were developed from the evolving initial codes and are defined in the next section. The themes are presented in table 6.1, with the livelihood asset category and sub-themes.

Table 6.1: Presentation of themes

Livelihood asset category	Initial Codes	Themes	Sub-themes
PHYSICAL CAPITAL	<ul style="list-style-type: none"> -Free from gravel. -Built toilets. -Church rebuilt for the community. -Visible road signs. -Proper dwelling. -Access to facilities. -Road has improved. -Speed humps regulating speed. -Easy to get transport. -Bypass and overpass bridges. -Banks and ATMs closeby now -No longer muddy and dusty roads. -Congested roads between houses. -House collapsed during blasting. -Houses cracked. -Uncompleted roads. -Grave sites collapsed. -Yards reduced. -Walkways removed in the community. -Houses not properly built. -Fencing removed and never fitted back. -Livestock highly exposed to accidents. -Dust dimming house paintings. -Blocked junction entering the community. 	<ul style="list-style-type: none"> -Community and household development. -Accessibility and road improvement. -Household drawbacks 	<ul style="list-style-type: none"> -Community and its households developed. -Improved access and convenience in using the main road. -Households agonised by damages on their yards and livelihoods. -Public infrastructure in the community disrupted.
SOCIAL CAPITAL	<ul style="list-style-type: none"> -Improved connections with the outside world. -more people coming through. -more people residing in the community. -Displacements -Trust issues -new neighbours crowding -Graves moved 	<ul style="list-style-type: none"> - Improved links from surroundings. -Neighbour unrest relations. 	<ul style="list-style-type: none"> -Relationships with outside world progressively improving. -Imperfect associations amongst neighbours. -Ancestry connection dislocated.
FINANCIAL CAPITAL	<ul style="list-style-type: none"> -Received job salaries. -Compensated for land. -Investment potential. -Business opportunities during the development. -Some households never compensated for their used land. -Own cost for fixing the damages. -Relocation costs -Once-off payment for our land. 	<ul style="list-style-type: none"> - Used property reimbursement. -Developed community. - Affected households deceived 	<ul style="list-style-type: none"> -Households received some form of compensation. -Economic growth and development. -Households treated differently and unfairly.
HUMAN CAPITAL	<ul style="list-style-type: none"> -Life has been better. -Community supplied with tanks. -Crimes reduced. -Poverty levels reduced. -Accidents reduced. -Scholars crossing safely now. -Training experience. -Employment opportunities. -Skills acquired. -Dust entering into houses. -Complaints ignored. -Exposed to accidents. -New road too steep and slippery. 	<ul style="list-style-type: none"> - Better well-being -Opportunities realised. -Negative externalities 	<ul style="list-style-type: none"> -Easy and improved way to access facilities. -More safe now when using the road. -Crime rates as a result of poverty have reduced. -Jobs had been created and experience gained. -Voices of affected community members overlooked.

NATURAL CAPITAL	<ul style="list-style-type: none"> -Big stones crowding in front of yards. -Too much flooding. -Soil eroded -Big stones falling on roads. -Pitfalls left unattended. 	-Environmental degradation	-Household yards left unsettled.
VULNERABILITY	<ul style="list-style-type: none"> -Unfair employment criterion used. -New locations too limiting. -Fights and misunderstanding between community members. -Source of livelihood destroyed. -Water pipes disrupted. -Home-economic activities disrupted. -Now strongly depended on piece jobs. -Blasting and house trembling. -Water drains flooding nearest households. -Some along the road not moved, now exposed to accidents. -Motorists reckless in the R61. 	<ul style="list-style-type: none"> -Community members not prioritised. -Livelihood strategies disrupted. -Exposure to death 	<ul style="list-style-type: none"> -Community members exposed to unfair treatment. -Unsatisfactory locations for displaced households. -Household economic activities and livelihood strategies disrupted. -Affected households vulnerable to death.

6.2.4 Defining the themes

The description of these themes is associated with theoretical framework and research questions.

HUMAN CAPITAL:

6.2.4.1 Better well-being

Ryan and Deci, (2001) defines well-being as an “optimal psychological functioning and experience”. The authors view this concept in two approaches, the “hedonic and eudaimonic well-being”; where hedonic well-being is associated with happiness and pleasure of people. “Eudaimonic” well-being is defined as being distinct from happiness, such that; even though the outcomes of a certain development may be pleasing, the chances are that some effects are not good for people and would not encourage wellness. This theme takes into account the improved way of life such as the easy access to livelihood strategies through effortless ways of accessing transport as a result of the road development. One of the respondents from the economically active men had this to say:

Ndisa: ... *“Even for scholars, there are speed humps that regulate speed for the kids to cross safely. The scholars and livestock previously got hit by cars, not that it doesn’t happen now; just that the rate of such accidents has reduced. Basically, the implementation of this road has been a great strategy and relief to the development of the society.”*

Mamtshali from men and women category had this to say:

...“Our children got the opportunity to work as a result of the construction. Previously, the situation was bad. Some children made a living out of stealing people’s belongings to sustain a living. You would here a cry of victims at any time but now that they got the opportunity, life has been better in this community”.

This suggests that individuals were happy about the developments resulting from the construction of the road. As mentioned by the respondent, the speed humps have reduced the rates of accidents which were previously high. Rates of crime in the area have reduced as a result of the employment opportunities given to the people who previously had nothing and would practically live on criminal activities to sustain a living.

6.2.4.2 Opportunities realised

This is an accomplishment of livelihood outcomes such the skills acquired, employment opportunities. In support of the theme, this is what respondents from the men and women category had to say:

Mamputi: *“....I personally benefited in terms of employment as result of the road construction. I was in construction of building some of the new houses in the community, which lasted for 3-6 months. The money really assisted me as I was paying my last born child’s college fees. Before, I was only surviving on growing crops for reselling them in the taxi/bus rank.”.*

Wando: *“...employment opportunities for people of our community, realising them training experience and also have something to sustain a living. This can be used as reference to get other jobs, as they have acquired skills. Previously, the situation with other households was very bad such that some went on poverty for a long time and some living in RDP low income homes with not much to provide for their families. Now that this project came to place, a lot has changed.”*

The response from the respondents reflects on the positive impact that has been brought by the construction of the road. With opportunities that have been given to the Nyandeni community, the skills acquired from the training experiences, it is evident that there has a financial relief and better days for the communities in Nyandeni.

6.2.4.3 Negative externalities

McWilliams, Siegel and Wright, (2006) defines externalities as the impact of an economic agent's actions on the well-being of another. This theme views the “shock” that was experienced by households during and after the construction of the road. These include the slippery R61 road, exposure to break-ins as a result of removing fencing. One of the respondents said:

Mamntuntu: *“...the danger with this road is the high speed by the users. We always fear for our kids. We experience cases whereby people from this community don’t even reach their destinations when walking around, maybe going to the post office or shops; as they get hit by cars as a result of reckless driving in speed. This is very terrifying to us”.*

From the response provided, it is evident that the community is not happy with the new development. Instances of high speed by motorists which put pedestrians at risk of being involved in accidents have been the result of the new road. Parents fear for their children and that implies that the road construction has brought a negative impact to rural households.

PHYSICAL CAPITAL:

6.2.4.4 Community and household development

This theme looks at the elements that have contributed to the community’s pursuit of livelihood strategies and the development of households. These are inclusive of the basic infrastructure such as proper dwellings, toilets, housing. For an example, one of the respondents from the elderly had this to say:

KOYO:.... *“The most positive thing that occurred here is that, there were people who had poorly built houses which were alongside the road and the company involved built them better houses. There is also a church in this neighbourhood which had been struggling to be on its feet such that whenever it was almost done, it would collapse. The arrival of this road development company took over and built in and it’s now in operation. Before, the aforementioned people were staying in mud houses which were not so in a good condition. As a result, their lives have now changed because they have also been supplied with tanks”.*

Also, NKOZI from the youth category added to say:

“...the road signs are now visible now. Previously, there were no signs and the road was too small. A lot has improved now”.

Individual households have benefited in the process of the road development. Most of those who have houses located nearby the road were moved and given a proper dwelling, more especially those of who had poor homesteads. Even a church which had been struggling to be completed had finally got assistance from the project in terms of material and final structure. This suggests a positive impact by the road construction towards households in the affected communities. This also corresponds with the quantitative findings which implied that, amongst the physical assets that were identified as dominant; households have been positively impacted by the construction through being moved to proper dwellings/housing.

6.2.4.5 Accessibility and road improvement

This theme views the success of the road construction which has led to improved access to facilities as a result of the development. For an example, one of the respondents amongst the men and women category had to say:

“Wani: ... “We faced a lot of difficulties before, such as accessing basic facilities like hospitals. It was difficult to get to the main road or even the rank in time. Things have improved now such that, even if one doesn’t have a car when fetching a person who had been discharged from hospital; we even use wheelbarrows since the road is now smooth and friendly to use than before...”

While the other respondent from the youth category added to say:

Lela: ... “The only positive thing is the success of the R61 road. The community only benefited on the bypass that has been built for them. Before, we didn’t have any direct road. The bypass leads us to the basic facilities such as the hospital and schools. Initially, the road which is now a bypass was used by livestock”.

Individuals are happy with the outcome of the development. Access to basic facilities has improved and people are no longer struggling to get transport to their desired destinations. They use bypass roads which are deemed to be a short-cut to get where they want to. Also, there had been reported speed humps that are put with regards to regulating speed. Overall, this points towards having a positive impact. One of the multinomial logistic results showed that livelihood strategies (dependent variables) were mostly determined by physical capital (deprivation or access to assets). It is also evident that the rural households have benefited positively on the access to assets, mostly those of the previously deprived, such as the poor roads that made it hard to travel to get basic health services and other basic infrastructure.

6.2.4.6 Household drawbacks

This theme observes the situations that have disadvantaged the households as a result of the road construction. This are inclusive of grave sites that collapsed, houses that suffered extreme cracks, yards reduced to pursue the road development, incomplete and congested roads between houses in the community. For an example, one of the elderly respondents had this to say:

MAMTOLO: ...*“Our houses have cracked as a result of the blasting they would occur nearby as per the construction. There has just been no order and things had been left hanging”.*

While MaMcirha had this to say: ...*“It had been really hard and challenging mostly for those with livestock, they suffer. For me, farming has been mostly affected as I strongly rely on it for sustaining a living. My garden had been cut small and now I cannot do much of the farming like before”.*

This is an implication that households are not satisfied with the results leading to incurring damages on their livelihoods as well as homesteads. Some were not compensated for the damages they incurred, which would mean that they will have to use their own money to incur costs they didn't plan for. Overall, the physical capacity in terms on housings and/or homesteads had been negatively impacted by the road construction, through the cracks and reduced yards with collapsed gravesites that had been reported. Refer to Appendix 5.

VULNERABILITY

6.2.4.7 Community members not prioritised

This is the situation whereby members of the community were exposed to fights and unnecessary misunderstandings as a result of biased criterions of terms of employment. The construction company would come with employees from elsewhere and would not consider members of the community for jobs. Some households were displaced from their homes and located to other places. Their new yards were too limiting to do their home activities such as gardening. One respondent from the men and women grouping had to say:

Ungiswa: ...*absorbing same sub-contractors over and over again. Contractors should have been chosen based on the area the construction is being drawn in. Every contractor in these*

different areas of the Nyandeni ought to be given an opportunity and exposure to work in their communities”.

Rural households in the Nyandeni community felt that they were not prioritised in the process of the development. This is evident through the unfair criterion used in the procedure of employment by the company that was in place, which led to fights and misunderstandings towards community members. The new locations of individuals who were displaced were too limiting. This indicates carelessness, which leaves households vulnerable, with nothing to do but accept the situation. This is a reflection of a negative impact towards rural households.

6.2.4.8 Livelihood strategies disrupted

This is the situation whereby community members felt that the development of the road didn't prioritise the well-being of the community but only the idea of getting the road constructed and completed. Sources of livelihood such as plants and vegetation that were used for reselling were destroyed, leaving some households depending on piece-jobs.

“....You see all these newly built houses here, they were by the main road. We are now located in a garden. We were shown a map and told that we should move. We had a choice whether to relocate elsewhere or move far from the road. We then decide to stay since we like this community. The same garden we moved to was our source of livelihood. We used to plants crops like vegetables. Now life is challenging such that the garden is too small and limited to grow more vegetables than before”.

Likewise, MaMcirha from the elderly grouping had this to say: *“....as there had been things that were removed and destroyed in the process of taking my land; a number of things in my yard had been disturbed and they promised they would recover them. For example, my bricks were damaged, the plants and vegetation I had there also. Their promise was that, all these would be recovered soon. These plants were on in my garden, such as spinach, my beans but none of those were recovered as per the damage”.*

Different households complained that their livelihood strategies had been disrupted during the road construction process, implying a negative consequence to affected individual households. As a consequence, some had their vegetation damaged with other home activities which they relied on for sustaining a living. Since this occurrence, most households have not been able to bounce back and as a result, they now strongly depend on “piece-jobs” to sustain a living. Agriculture as an economic activity which had also been identified as dominant in

the Nyandeni municipality area has also been negatively affected by the road construction. Rural households who depended on farming for selling or own consumption have suffered in this regard.

6.2.4.9 Exposure to death

This theme views the condition where the community members were exposed to risky of harmful situations. This includes various situations where blasting would lead to house quakes. Some households near drains that control water from the main road overflow and direct water to nearest households, causing extreme flooding. Motorists have become so reckless that households fear for their lives. Respondents from the men and women grouping had this to say:

Mamlindi: *“...due to the road construction processes, we experience floods now. Water running from the roads when it’s raining goes directly to our yards. As you saw when you came in, my garden is flooded in the gate”.*

Mamleka: *“...we face a challenge of too much speed. Motorists now have too much freedom such that they are too reckless. Scholars and livestock crossing are in a high risk of being hit by cars.”*

Households feel that there had been too much flooding since the new road development, which has a negative impact to their way of living. They are concerned about a lot of water running from the national road directly to their homesteads. Gates and gardens get flooded, which makes it difficult to enter their houses. There had been a notably massive increase in the rate of reckless driving reported by households. This becomes worrisome as it could lead to deaths. Lastly, the blasting that resulted during construction of the road led to houses to tremble, with some also collapsing and could have resulted in deadly outcomes.

NATURAL CAPITAL

6.2.4.10 Environmental degradation

Tyagi, Garg and Paudel, (2014) refers to environmental degradation as “the disintegration of the earth or deterioration of the environment”. The theme simply views this subject as a condition of destruction of the environment as well as extinction of wildlife. These include soil being eroded, too much floods, and ditches left unattended, and huge stones from the blasting which are crowding some yards. These elements may have hazardous effects on

society, such as health issues and long-term livelihood impact. MaNguni from the elderly group had to say:

“Even the toilets in our yards have collapsed. I went to the South African National Roads Agency Limited (SANRAL) and reported the matter and they said they will send assessors to the community. I later received a letter telling me that these houses at home have been built with [with] fake and cheap material, yet all these damages were caused by a huge hole they dug and left unattended. The hole was done to level the bypass road, yet when it rains it gets filled up by water; which flows directly in this yards causing floods. Since then in 2012, I have never been able to continue with gardening at home; as this place is always flooded”.

One of the things that respondents had highlighted was the negligence by the construction company. Households had suffered as their yard were negatively affected in the process, such that there were pitfalls dug by the developers but left unattended. Similarly, the constructors left huge stones in front of peoples’ yards and they now feel crowded; making it hard to perform their activities in their space.

SOCIAL CAPITAL

6.2.4.11 Improved links from surroundings

This theme is allied to social resources that different households embark on in search and sustaining livelihoods through means of support amongst the community. The development of the road has improved connections from outside Nyandeni district, more people relocated to the district as a result of the improved road. For an example, this is what one of the respondents under the youth category had to say:

Phiwe: *“...We see new shops and malls being opened as a result of an outreach of people coming from the outside cities. Before you would find very few people in town but now that the road has been developed and easily accessed; a flock of people often visit the town which then enhances the economy. The community only used the nearest shops but now big shops are now being realised; which shows that Libode is now a place with an investment potential”.*

With the development of the road, social alliances in terms of other people from outside Nyandeni municipality area visiting this town has improved. This is due to the improved road connections that have also affected the development of the town. Individuals can now access

malls and other residing places around Nyandeni, which were previously unobtainable as a result of poor roads. As results, social interactions will also improve as well as the economy of Nyandeni. This implies a positive impact of road construction on livelihoods.

6.2.4.12 Neighbour relation unrest

This theme views the instability that has resulted in social associations amongst households in the community. These include the displacement of various households, removal of graves (ancestry connection), trust issues amongst the new neighbourhood, as well as the new neighbourhood located and crowding other communities. Some respondents from the economically active men category had this to say:

Bonga: *“...Most of my neighbours were moved elsewhere, some I don’t even know where they are. This has definitely affected our relationship; we have been separated as such”.*

Vela: *“...With regards to displacements, people in this community had been highly affected in various ways. Households who were alongside the road before had been moved. In a way, a few have benefited in this regard in a way that some of their houses were not even in good conditions; such that you would see that they wouldn’t survive long. The company would move them to newly build concrete houses then compensate them for their land. The other issue was the removal of grave sites, as they would be moved in their new yards.”*

Households had been disturbed with the issue of displacements. This progression affects mostly everything, such as removal of grave sites in their yards, and trust issues based on new neighbours. Even though some benefited in the process, moving a grave involves certain traditions which could be an exhausting activity when not planned for. People affected had to adjust to such changes, which is not quite an easy thing to digest. Overall, this had been a negative impact towards rural household livelihoods in the Nyandeni community.

FINANCIAL CAPITAL

6.2.4.13 Used property reimbursement

This refers to the financial benefit to community members as a result of the road construction, which contributed to sustaining a living. These comprise of the compensation for the portion of land that was used in part of the road development, and salaries received in jobs were realised. One of the respondents had this to say:

Mamyonke: ...*“Due to the road construction, I had received some amount of money. What had happened is that, someone came on behalf of SANRAL. I was showed a map which directly cuts through my yard as part of the development. I was then given forms to confirm that the site truly belonged to me, so that I’d be compensated for the land. I then gave them my bank statement and the money was processed. It was a sum of R8030, which was for the part of my yard they took. It was a very huge site; they took half of my yard. The road is now complete, my yard covered part of it. So I think that is a good thing”.*

As stated, some of the individual households who sacrificed part of their land for the progression of the road development had received a sum of money as a way of reimbursement. This had been one of the positive outcomes resulting from the road construction. People were satisfied and happy even though they gave up their land. Some realised job salaries during the period of development, which was money they never had previously.

6.2.4.14 Developed economy

This takes the form of the economical image of the Nyandeni district as a result of the road development. Community members embarked on various livelihood strategies such as selling by the road during the construction. There were also instances whereby some households rented out their homes to people who in construction to get extra money. Some got to open shops on completion of the development, next to the national road. These activities have boosted the economy of Nyandeni district. Phiwe from the youth category had to say:

“...the development of this economy had been too slow or not showing progress but ever since the establishment of this road, a lot has changed now. We see new shops and malls being opened as a result of an outreach of people coming from the outside cities”

The implementation of the road construction has also had a positive impact, not only to certain individuals but also to the society as a whole. The economic growth of the Nyandeni district has developed from the established shops and malls, as a result of the extension and the major development of the R61 national road. People from other cities now see Nyandeni as a place with an on-going investment potential.

6.2.4.15 Affected households deceived

This theme reflects on occurrences whereby some households who were affected by the road construction, such as being displaced were promised remunerations but never received any.

Some had expected monthly payments for their land that was used, yet some didn't even get a pinch of payment. In most cases, people were displaced to newly built houses yet some households were just told to move and had to cover at their disbursement all the relocation cost. As a result, Zuko and Mangwanya from the men and women category had to say:

“...the place of locating was a personal decision. No one was forced to relocate on specific place. Even on that, we were never compensated; instead we used the same material to build these current houses. We did everything at our own cost.”

“Again, I reported the matter and I was told that another company was underway to fix all the damages. With all these damages, none of the community members was compensated but the chief. They even renovated his home”.

With the views from the respondents, it had been evident that households that were directly affected by the construction did not get same fair treatment. Some were reimbursed and some not. They were deceived by being told they would receive payment for the land they sacrificed but that never came to pass. Also, some of those who were displaced had to cover the costs on their own for relocation.

6.2.5 Producing the report

From the set of aforementioned the themes, four final conclusions for the analysis report can be drawn, which are linked to the research questions.

- Community and household development, leading to better access to facilities.
- Improved links and surroundings, leading to a developed economy. Also, a better well-being enthused by employment opportunities.
- Household drawbacks linked to the development, the neighbour unrest relations, as households were also deceived. Negative externalities which arose from the newly constructed road and community members not prioritised in terms of proper dwellings and employment opportunities.
- Livelihood strategies disrupted, living households under vulnerable conditions which are also linked to exposure to death. These themes highlight what households say was the effect of the road construction on their economic activities.

6.3 Impact of road construction on rural households in Nyandeni

Based on the focus prompts interviews that were conducted in the Nyandeni area, the research captured data with both the positive and negative impacts of the road construction on rural livelihoods of households in the Nyandeni communities. Referring to the patterned response within the data, it is evident that physical and social capital assets of households in the study area were highly affected by the road development. On the positive impact, the data reflected that there had been improvement in the access and public use infrastructure; which also benefits the local communities. As a result, households who were previously deprived of housing, access to basic goods and services have benefited on the developments of the road.

There are now road signs on the main road, which makes it much safer to use the road. Some participants during the data collection period highlighted the issue of being reimbursed for part of their yards/land that was used in part of the road developments. A number of community members realised employment opportunities and some students received training as part of fulfilment of their diplomas. The majority of households who had improperly built houses near the road were moved and located to newly built houses. This was one of the positive highlights dominating in the data set. The impact of road construction on the rural communities in the study area did come out as a positive in that a number of members in the community reported to have greatly benefited in the development.

There were cases whereby some community household members felt vulnerable with the impact associated with the road development. Even though the road had improved, eliminating the gravel and resulting in better access to facilities, for some households this development led to some level of exposure to death. Such exposure was as a result of blasting which led to houses trembling, resulting to wall cracks. Some households who had houses along the road were not moved and are now exposed to accidents as motorists have become so reckless on the R61. Additionally, water-drains that had been placed by the roads so as to direct water from the main road to the drains on rainy days causes extreme flooding to the nearest households. Household economic activities and livelihood strategies are also disrupted, as a result of degradation which causes the yards to be so flooded that it becomes impossible to continue with gardening.

Gardening is sometimes used by households in planting vegetating for reselling purposes. Since the building of the road, households have been forced to opt for piece-jobs amongst the community as the majority do not have an education. Households who were displaced from

the different communities were exposed to unfair treatment. Some were told to move but were never reimbursed like in other communities. Those who were moved complained of unsatisfactory locations, which were too limiting for pursuing their home economy. Similarly, the issue of household displacement has led to social capital instabilities amongst neighbours, such that there are trust issues that have emerged and some households complain that new occupants in the area are crowding their space.

Ancestral links had also been dislocated as graves were moved in the process of the road development. A number of households as per data set showed an increased pattern of responses reflecting massive house damage. As a result of development procedures such as blasting, toilets that were rebuilt in household yards collapsed due to the fact the ground would quake during the process. Even a few houses were said to have collapsed together with gravesites. Some of the roads built amongst the community that adjoins the main road were incomplete and still congested. This puts the livestock and children who like playing outside, at a high risk of accidents. Refer to Appendix 5.

6.4 Response to road construction ‘shock’ on rural livelihoods

Road construction development is an essential strategy implemented by the government, which is linked with so many positive projections which lead to the development of the community as well as growth in the economy. The road development became a ‘shock’ to the rural communities and their livelihoods. Refer to Appendix 5. Households have suffered a major impact as a result of the project, as well as benefits associated. A number of households who had their economic activities affected as well as their livelihood strategies are opting for livelihood diversification with aims of finding new ways of nurturing income in the situation that they have found themselves in. The economic activities that were identified during the focus prompt interviews were farming/gardening as well as livestock watching. As part of the data context, households had raised their areas of concern and things that would be better done prioritised.

Community members were concerned about the damages that had been incurred and left unattended. Some of the houses had collapsed as a result. The grievances were submitted to the authorities concerned but till this day, there had not been any positive response. Instead, households who suffered these damages from the blasting were told that their houses were of made from cheap and non-genuine material. As the road development has been a success;

community households are still concerned about the street lights that were put up yet are not working. They said that it becomes so dark that they fear being crime targets.

Barrier gates that have been put up on the road as a way of fencing to protect livestock and children from falling over, have not been done properly and are still not established in some affected communities. The issue of extreme levels of speed and reckless driving by motorists on the new road remains a concern as pedestrians are highly exposed to accidents as well as the livestock. The community suggest that speed humps or robots be established to regulate speed.

Households in different communities in the Nyandeni feel that there are certain things that could be done better if prioritised in future, such as engaging community members prior and after the development so that they could contribute their views in the implementation of the project. This measure would assist in eliminating most of the negative impacts that could have been avoided. Also, community members feel they were overlooked in that they were not made a priority in the development. Empty promises conveyed to households were followed by several heartaches as a result of deceptions. All these responses directly link to the last two objectives and research questions that were introduced in the first chapter. Refer to Appendix 6.

6.5 Chapter summary and conclusion

The aim of this chapter was to discover the impact that the road construction has had on the livelihoods of rural households in the Nyandeni municipality area, based on the economic activities that were identified in Chapter 5. Likewise, the question behind this section of the research was what do households say was the effect of road construction on their economic activities? In other words, this section tries to find the effects of road construction on economic activities. This chapter further analysed the data from focus prompts interviews conducted in the Nyandeni district areas in answering the underpinned question, as the quantitative data in the previous chapter did not provide response.

The discoveries as per thematic analysis reflect a total of 15 themes that represent the analysis. A sum of 7 themes shows that the road construction had a positive impact, while 8 reflect a negative impact on rural community livelihoods. Referring to the initial codes, the findings in this chapter link directly to the underpinned research question. The road construction has had an impact on the way households carry out their activities and their linkages to economic activities. From the data set from the field work, it is evident that a

various households were cut off from various linkages such as their economic activities including farming, infrastructure, sharing of resources and secured livestock.

Correspondingly, the results from the multinomial regression analysis have indicated social capital as one of the livelihood assets that had been strongly affected by the road construction in the Nyandeni area. Also, according to the results, the livelihood strategies have been discovered to have been strongly determined by physical and social capital assets, hence the impact of road construction had been mostly on these assets. The social capital impact happened through household displacements from their places of comfort to elsewhere, which disturbed the social connections amongst some households in the area. Referring to the qualitative results, road development processes such as bombing and blasting of quarries had led to environmental degradation and house cracks, with some collapsing.

CHAPTER SEVEN

Summary, conclusions and recommendations

7.1 Introduction

This chapter concludes the findings of this study. The conclusions relate to the problem statement of the research study by evidencing solutions of the research questions asked at the beginning of the study, as well as the study objectives.

7.2 Summary

Rural household in communities such as Nyandeni depend on combining the five capitals in efforts to make a living. However, some are mostly denied the access to these resources. Moreover, key problems in South Africa such as inequality, unemployment and poverty are often addressed through infrastructure development which commonly focuses on the ‘bigger picture’ with no understanding of the impact on local communities. Such efforts by the government in a form of infrastructure development like the road construction can be regarded as a shock to the livelihoods of the surrounding communities. The main objective of the study is investigating the impact of the construction of the N2 Wild Coast Highway in the Eastern Cape Province on the livelihoods of rural households in the Nyandeni local municipality. The study also sought to investigate the dominant household economic activities within the municipality, factors affecting the choice of these activities and the probable impact of the construction of the N2 highway on these economic activities and livelihood strategies. Also, to further document how households respond to road construction ‘shock’ to their livelihoods, based on the findings of the study.

The quantitative data was used in exploring the economic activities dominant within the study area, with factors affecting the choice of these activities. The outcome indicated that physical capital assets including business related activities, employment activities followed by social capital assets then agriculture and financial capital assets were the identified economic activities dominant in the Nyandeni area. Multinomial logistic regression was used in analysing the quantitative data based on determining the main factors explaining household economic activities in this selected area, aided by Stata software. The multinomial logistic regression results reflected physical assets (housing, quality of roads, deprivation to access basic goods and services) and social capital (neighbourhood relations, issues of trust) to mostly determine the livelihood strategies of the Nyandeni municipality area. For that reason,

focusing on the impact that the road construction has had on those activities and how households respond to road construction ‘shock’ to their livelihoods was aided by qualitative data, as findings from the quantitative data did not provide the response. This had been done through conducting focus prompts interviews on household participants in the Nyandeni municipality area. The study aimed for data capacity with a target sample of at least 40 participants, selected through purposive random selection. Four groups of 10 participants each were varied in an equal measure to represent the whole population of Nyandeni, rather than having a biased number which might lead to data that is not accurate. The data obtained from the participants was recorded, transcribed and analysed to pick patterns so as to be able to finally produce a report. Codes were produced and sorted according to potential themes. The themes were categorised into livelihood assets, inspired by the sustainable livelihoods framework.

As for the economic activities that were identified as dominant from the quantitative data, findings from the qualitative data reflected a number of factors to have both positive and negative impact on livelihoods of the rural communities and their economic activities as a result of the road construction. The positive factor was that of the success of the road, which benefits the road users including the community members. The benefits are that access to facilities had been improved, while also realising job opportunities for some. The negative effects had also been highlighted, such as the household drawbacks linked with the development as well as the disruptions in livelihood strategies. Findings from both the quantitative and qualitative approaches are interrelated, hence the mixed method approach used. Also, their readings are different as a result of research questions each approach seeks to answer. Overall, it is evident that the construction of the road affected the livelihoods of rural households in the Nyandeni municipality area mostly by affecting their social and physical capital assets through deprivation of access to assets. That is, physical capital on their economic activities and social networking, trust amongst neighbours as a result of displacements.

7.3 Research conclusion and recommendations

From the patterned responses of themes identified on the qualitative data through rural household that had been interviewed as part of the focus prompts, it can be concluded that the voices of the affected rural household members had been overlooked. Also, responses on the ‘shock’ by the road development, the study found that households were treated unfairly and were never a priority on the development processes. Instead, the main focus was on the

‘bigger picture’ of focusing on improving the road. This is evident through the complaints that were laid and never attended to, also by deceiving affected households by promising those reimbursements and never providing them with such. The study findings indicate that any mega project carried out by the South African Government should also aim at the sustainable development of poor rural communities, with their livelihood strategies given consideration, rather than looking at only providing better access roads for the benefit of growth of the economy. From the study findings, the following are recommendations proposed by the researcher:

- Diversification of livelihoods should be strongly encouraged in rural communities so as to prepare for any environmental risks that may come with any developments. This could also assist rural households in achieving different ways of raising income, so as to sustain a better lifestyle for themselves and their livelihoods. Rural households who primarily relied on agriculture for selling or home consumption with no other livelihood strategies, the ‘shock’ on their economic activities will make it difficult to bounce back as they had been damaged in the process of the development in various ways such as environmental degradation and extreme flooding. It is therefore important that livelihood strategies be diversified in each household.
- The South African Government together with SANRAL and any board that is involved in infrastructure development should do assessments with regards to any company that is awarded a tender on embarking on an infrastructure development project that is probable to affect the well-being of people. This will help eliminate the ignorance by the awardees that often ignore the damages caused by the developments that are instigated by them in a certain area. Too much ignorance and deception by the constructors that were involved in the road development in the Nyandeni district municipality, had left rural households in a vulnerable situation where they had to suffer in terms of fixing damages incurred in the process of the road development, with money they probably do not have or had not budgeted for.
- Pre- and post-assessments should be a priority in areas where a development is anticipated to take place. In cases where there are community members affected, every complaint of individual households affected must be attended to so as to avoid discriminatory and unfair behaviours. The rural households in the Nyandeni area were

not treated equally in terms of attending to damages for those that had been affected. Responses from various respondents in different communities that had been visited for interviews, reported that only a few leaders of the community were reimbursed and had their homesteads fixed from the damage that was done as a result of the road development. This action is considered unfair to other community members whose complaints were never attended to about the same grievances they had pertaining to damages.

7.4 Areas of future work

As much as this study attempted to cover in-depth the impact of road construction on livelihoods, there is more opportunity to investigate using different mega projects, such as dams, shopping malls, among others. In addition future research can attempt to capture the before and after development situations to reduce bias from over reliance on respondents' memory on whether their livelihood situation had changed or not because of such mega projects. It will be interesting to also take into account actions of consultation and engagement with affected communities before and during the life of mega project and decipher the role of consultation process and its effectiveness.

7.5 Delimitations

The study is limited to the OR Tambo district of Eastern Cape province, narrowing down more on communities in Nyandeni local municipality where the road development had occurred. Therefore, generalisation had been done with great caution. Studies of this nature would be more informative if there is a pre- and post-observation of livelihoods. However, in the absence of such data, the study relied on individuals' memories. Concerning lessening the effect of loss of memory, different participants had been interviewed and checked corroboration of facts.

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APPENDICES

Appendix 1: Reflections on the journey

Introduction

This chapter is the reflection of each chapter that I worked on this study, beginning from the proposal. The research was planned such that it would be approached using mixed methods, which has qualitative data as primary data and quantitative data as secondary data. Each chapter will be reviewed, with all the lessons, challenges and experiences that had been encountered throughout the journey.

Chapter reflections

Chapter one

This is where it all began. Chapter one was the first document I had worked on, which was in the form of a proposal that I would use in presenting and defending my topic in the Department of Economics committee and the SBE committee. I was so excited with the topic and it did not take so much time to compile my proposal. I registered in April 2016 and started working on my proposal late May after my honours graduation. Sometimes I felt the pressure with regards to writing something that I would have to justify in both the committees that would determine the fate of the research study. Sometime after submitting and receiving corrections from my supervisors, I finally presented on the departmental committee level in August. The SBE presentations were in September. However, there was a slight delay from the feedback on the SBE. I was told to resubmit with no presentation, which I was not sure whether to continue with my work or wait for the final response from the committee. The process took a bit longer but I finally got feedback early November. Therefore, presentations went well on both committees and my topic was approved. I finally got to continue and plan my entire work. I was so excited that I anticipated that I would be done by July 2017 but due to some issues that were beyond my control, things did not go as planned.

Chapter two

This chapter looked at the ‘Overview on rural dynamics and livelihood strategies among the rural households South Africa’. Before I reached this topic of discussion under this section, I had gone through so many sub-topics which I thought were best in covering this chapter. This was the third chapter I worked on, after the literature chapter. With a volume and diversity of

material, this chapter was very challenging in that I decided to plan the outlay based on the topic of the chapter. After planning, things got a lot easier and I was then able to continue doing my work. After two months working on this chapter, I learnt a lot on the rural dynamics and livelihood strategies. I also got a much clear vision on how the whole study would go. By the time when this chapter was approved, I had learnt so much patience from my work and also that things will not always be right at first but eventually they will.

Chapter three

This chapter covered the theoretical and empirical literature of the study. This was a very interesting part as there were various materials to look at in order to arrange the literature in a way that would make sense. Theoretical literature mainly highlighted the sustainable livelihood framework which entailed the vulnerability and the five livelihood assets. Compiling the empirical literature got tricky with regards to arranging the large volume of information. After some discussion with the supervisor, I finally found the appropriate way to structure this section. I decided to arrange the empirical literature based on the research objectives of the study and that became a success. From a number of sources of information, I learnt a lot of things relating to my topic and other cases based on the impact that mega projects have on society. Working on this chapter had been very interesting and I had acquired a lot of knowledge in this regard. I started and completed this chapter within a month.

Chapter four

This is the research design and methodology chapter. At the beginning, the only thing I was certain about this chapter was the research approach. My idea of applying the mixed methods approach was merely to validate the first and second objectives of the study through the quantitative data, also using the qualitative data to achieve the third and fourth objectives. My knowledge was that using the mixed methods approach was an advantage with regards to understanding results well as both these methods complement each other. This has been done by using secondary data from the PSPPD-II Economics household survey data in investigating the economic activities dominant in the Nyandeni area and also econometrically determining the main factors which explain these household economic activities. I got the data from my co-supervisor who is also part of the economics department. For regards to obtaining the primary data, I was still not sure how best I would do it; considering the time frame and financial constraints. At first, I had anticipated that I would conduct focus group

discussions with 10 officials and 15 community members from the Nyandeni district. I felt so determined with this idea and I compiled an interview schedule. I had planned that I would do the field work earlier this year after receiving my ethical certificate in February but my supervisors suggested that I finish all the chapters' prior data collection. I worked through all the chapters and completed them late September 2017. I attended a number of methodology workshops throughout the year to help mould my study. In October, I attended a post-panel presentation which ideally focused on each student's progress and challenges faced. The feedback from the panel assisted me on deciding on working with focus prompts interviews and the sample size. My supervisors organised a training session for me by Prof. Chinyamurindi, so that I would be well experienced when doing the field work. Everything went well. I decided to go to the field early November. With so much pressure of finishing and submitting my work before the holidays, I thought I should just focus on doing things thoroughly instead.

Chapters five and six

These chapters are separated in the nature of research layout as they contain the analyses, results and discussions from qualitative and quantitative methods. This was my first experience of using a mixed methods approach. Qualitative data was analysed using Stata software. Frequency distribution tables were conducted with regards to investigating household economic activities dominant in the Nyandeni area, with factors affecting the choice of these activities. The results indicated physical and social capital as most dominant. Multinomial logistic regression was applied in determining the main factors explaining household economic activities, also measuring the extent of influence the independent variables have on dependent variables. The analysis discovered that livelihood strategies (dependent variables) are mostly determined by physical capital (deprivation or access to assets), and economic active members in a household. The variables that were used include the deprivation score, trust score, household size, economic active members, social grouping members, contacted local leadership, asset access, saving, and loan and risk.

The Chi-square test of association was also used to discover whether there is a relationship between the variables. The focus prompts interviews were conducted to corroborate the credibility of the secondary data results as not much response was provided in the quantitative nature. It was a great experience and all the participants I interviewed had a lot to say regarding the impact of the road construction. Due to limited accessibility to qualitative

data analysis software, manual techniques were employed. The manual analysis was done thoroughly and was compatible with the volume of data generated. I scheduled a week for transcribing data and another for analysis. I covered all this within the scheduled time frame.

Chapter seven

This is the conclusion and recommendations chapter. Since I was diarising the important points throughout the process, I didn't experience much challenge in this section. From the lessons, the discoveries, things that I identified as areas that need to be worked on were amongst the notes I had in my diary. This exercise really made my work in this chapter a lot lighter.

Data collection progressions

This research has been a long, challenging yet a learning curve on my academic life. Sometimes it got so challenging that I never knew that I would pull through. Mixed methods approach has been the best decision on approaching this angle of study. At the beginning, I didn't have an idea but I was willing to go through all the sweat and all. I had anticipated that I would complete my work before year end but things didn't go that way. Field work was the main thing that dragged my work. I didn't have funding at some point but finally received some later in the year. I began with my data collection in the first week of November 2017 and took four days (7–10 November). It was not as easy an exercise as I had imagined. Nyandeni district is located in the rural part of the Eastern Cape. I had to walk around looking for a lodging place for the period of fieldwork. I only had one recorder, so I could only rely on myself for the recordings. I was told that it was not safe walking around in such an environment alone, so I hired an informant to also be some form of security. I began with my interviews and these were the challenges I encountered:

-Walking around the district looking for participants, catching public transport every now and then. Communities in the Nyandeni area are scattered, hence I relied on public transport. Most times I had to walk to reach the furthest part of the communities since I was told that there were community members displaced from the roadsides to far depths of the communities. Even on arriving there, some households would not be keen to participate and some would not open their homes even if they were around at the time. I finally got some participants in one area (Libode) and still had to visit other parts of Nyandeni such as Ngqeleni, Ntlaza and Gxulu. It was a challenge reaching the target with the 6 hours' time

frame that I had set but it all worked out in the end. I had anticipated that I would do the transcribing within 24 hours of data collection but I could not. On the first day, as I was about to return to my lodgings, I had a conversation with one of the people around the area. I was advertised to change my appearance so that people in the community would welcome me. The following day, I changed my appearance completely, from my hairstyle to dress code. Day 2 went well and I was warmly welcomed in different households. In summary, it was a great yet challenging experience.

On Day 3, I did the interviews with the youth. This group wasn't easy to reach, they were all over the place but I finally got hold of some. When I thought things were going well, one of the participants was on the phone receiving calls. I asked him if he wanted to continue and he said yes. We started over again for the second time and he kept on with the phone calls. I then asked that we dismiss the interview but he suggested that we meet after I was done with the rest of the interviews. On that day, I asked him that we meet and do the interview but he said he was no longer interested, and then withdrew.

Day 4, last day of fieldwork. The first day I arrived at the municipal offices to submit the ethical clearance certificate, I was told that I would not find many men that are working in this area. Those that worked there were not from that place and those from that place had migrated. I insisted that I would do it anyway. On the day, I discovered that economic active men were from the surrounding towns and very few from Nyandeni. I couldn't reach the target of 10, only got half of it, having to visit them at their workplaces since they only came home late and wouldn't be safe for me travelling on foot to their households at night. At the end, I managed to get the data that I needed and it was all worth it.

Appendix 2: Interview schedule

Nale Ndesi

The impact of road construction on the livelihoods of rural communities: A case of Nyandeni, Eastern Cape.

Interviewer: Introduction, highlighting the main purpose of conducting the research study to the interviewee. Interviews were one on one, visiting the participants on their homesteads/workplaces. The interviews took approximately 10–20 minutes per participant. The focus prompts interview questions were explained in their preferred language (isiXhosa).

- **Directed to the three groups excluding the economically active men**

Which language are you comfortable with?

How long have you lived in this community?

How many people in this household? Please list them

Do you all live together?

Is everyone currently present?

- **For economically active men**

Which language are you comfortable with?

How long have you lived in this community?

How many people in your household? Please list them

How many of them are economically active?

What is it that you do for a living?

1. **Due to the road construction in Nyandeni district, the community has experienced the following positive experiences/encounters.....**

- The idea here is to get the participant to identify three positive experiences/encounters. For example: a) better access to facilities; b) improved relationships with outside world and finally, c) better economic development.
- The researcher then probes the participant on each of the identified positive experiences/encounters by using Labov's structural analysis.

- a) Abstract – what was the situation before and now
- b) Orientation – Who/ how/what and when/where questions
- c) Complicating Action – Explain to me the difficulty leading to the positive
- d) Resolution – How does the road construction solve things?
- e) Evaluation & Coda – So what does this all mean – [sense-making]

2. Due to the road construction in Nyandeni district, the community has experienced the following negative experiences/encounters.....

- The idea here is to get the participant to identify three negative experiences/encounters. For example: a) displacement of households; b) environmental degradation and finally, c) trust issues between stakeholders.
- The researcher then probes the participant on each of the identified negative experiences/encounters by using Labov's structural analysis.

- a) Abstract – what was the situation before and now
- b) Orientation – Who/ how/what and when/where questions
- c) Complicating Action – Explain to me the difficulty leading to this situation
- d) Resolution– How does the road construction impact this?
- e) Evaluation & Coda– So what does this all mean

3. Due to the road construction in Nyandeni district, the community is still concerned about the following.....

4. In future, it would be best that(Things that could be done better prioritised)

Appendix 3: Ethical clearance certificate



University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE REC-270710-028-RA Level 01

Certificate Reference Number: MIS011SNDE01

Project title: **The impact of road construction on the livelihoods of rural communities: A case of Nyandeni, Libode.**

Nature of Project: Masters in Transport Economics

Principal Researcher: Nale Ndesi

Supervisor: Dr S Mishi

Co-supervisor: Prof M Simatele

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:

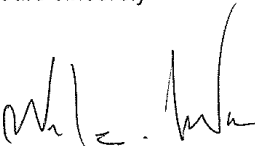
Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely


Professor Wilson Akpan
Acting Dean of Research

22 February 2017

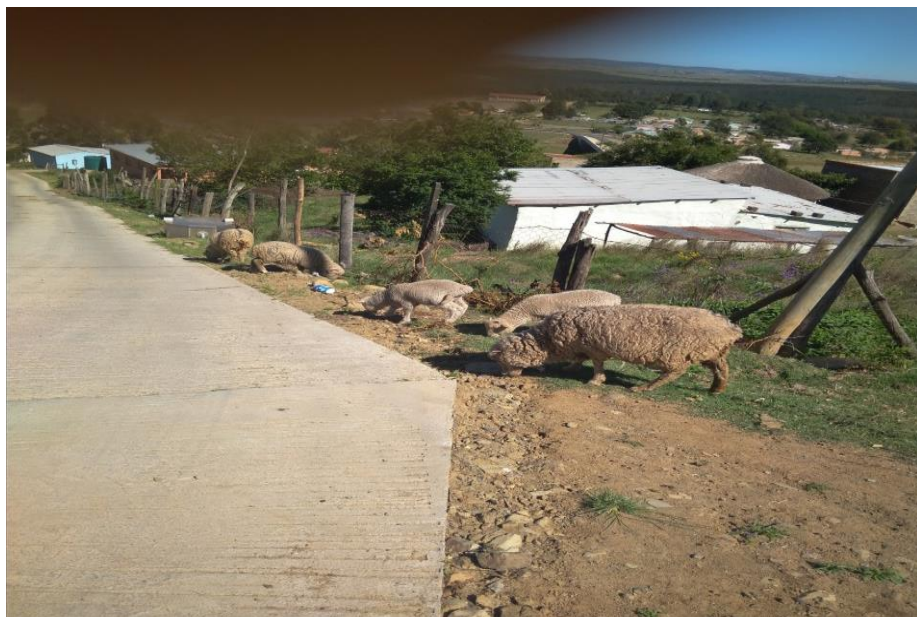
Appendix 5: Visual images of damages caused by the road construction as a result the blasting.

1. Collapsed grave sites and cracks on walls. Some of the graves.



2. Several walls in households have cracked.

3. Toilets have collapsed as a result of blasting that occurred as part of the road development.



4. Livestock exposed to accidents as a result of congested roads between the houses adjoining the R61 national road. Greenlands have been removed where livestock

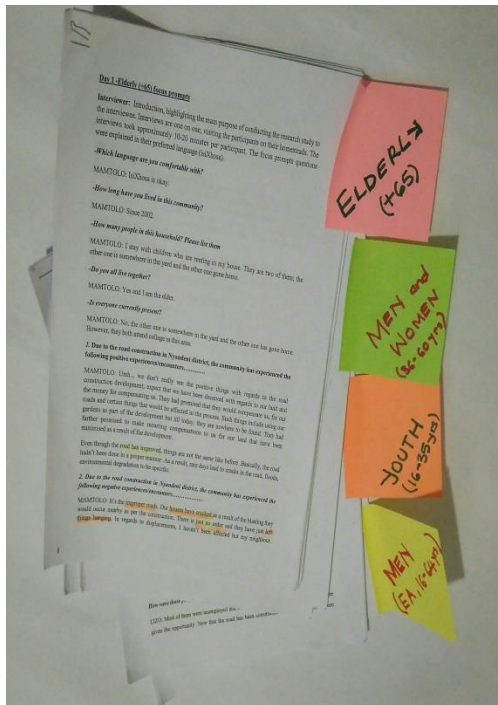
previously grazed. Now they roam around looking for greener pastures for their survival.



5. New yards too limited to continue with home activities such gardening and kraal for livestock for sustaining livelihood.

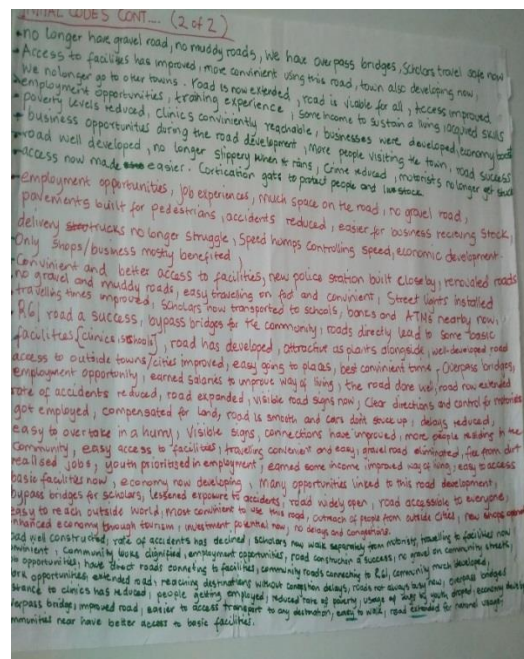
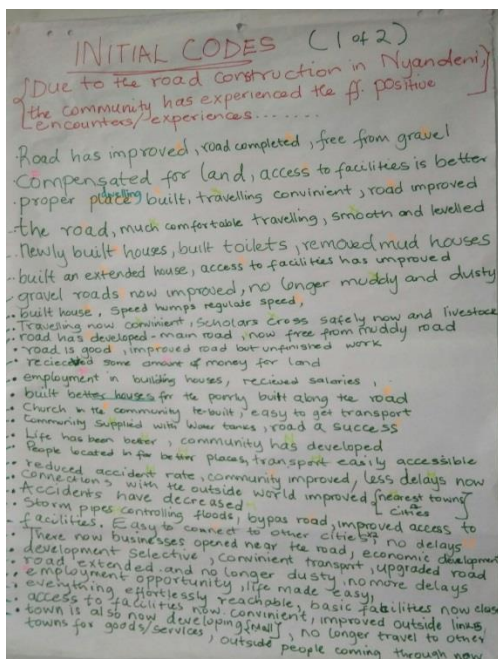
Appendix 4: Thematic analysis process

➤ Transcripts

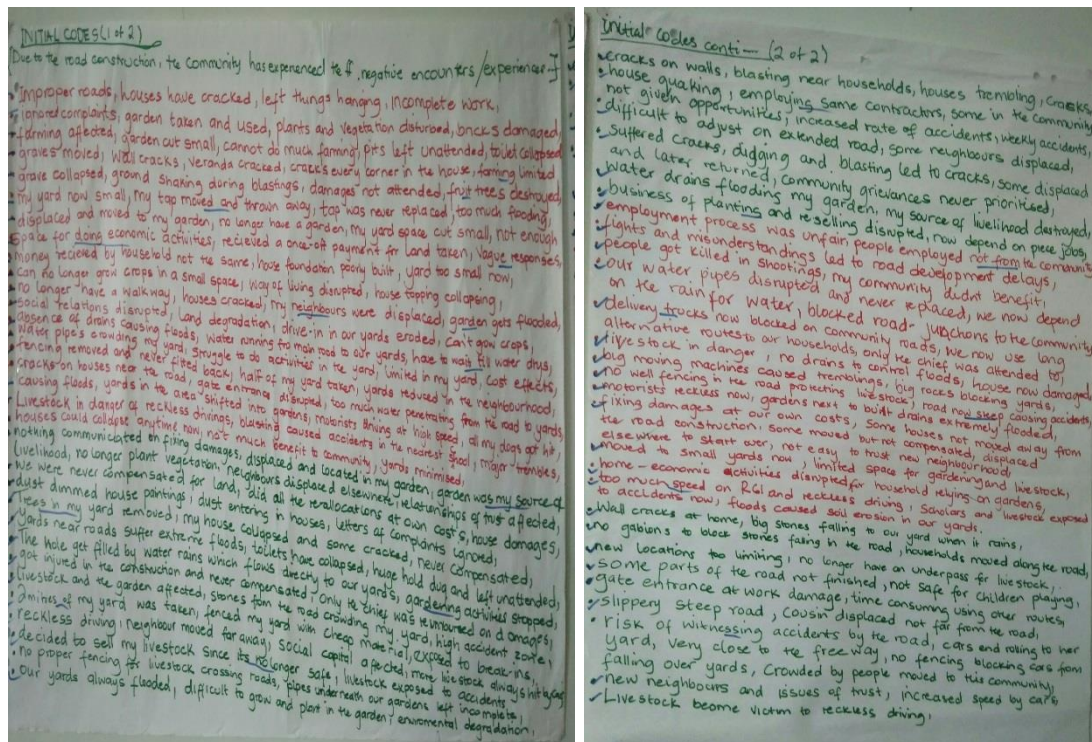


➤ Generating initial codes

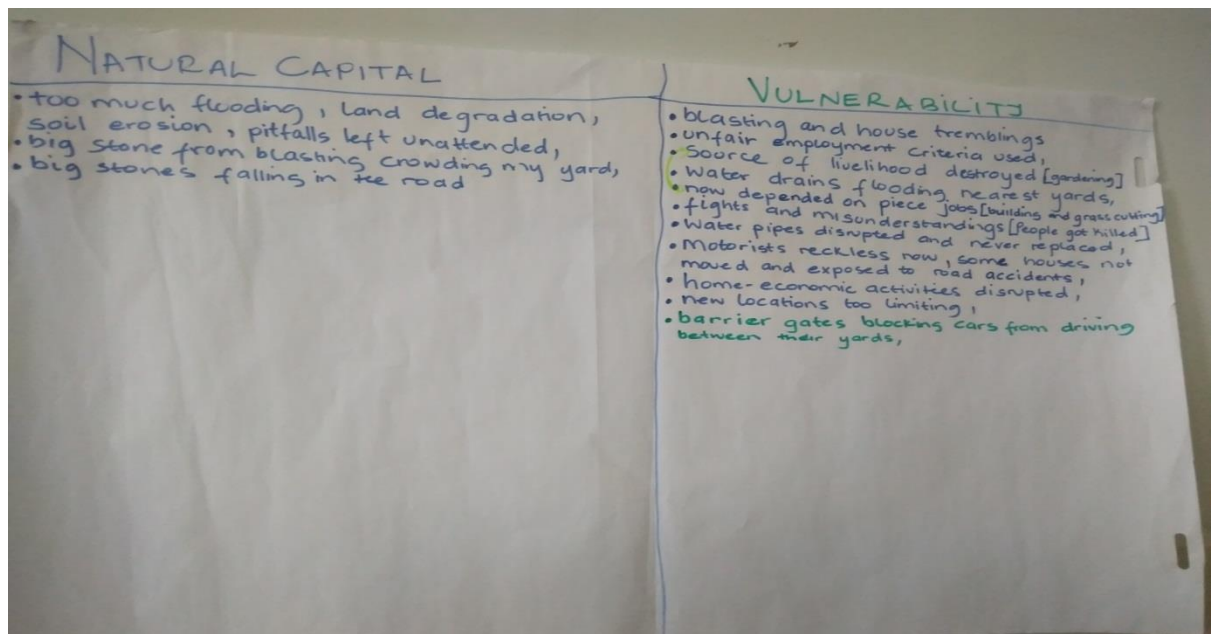
1. Due to the road construction in Nyandeni district, the community has experienced the following positive encounters/experiences.....



2. Due to the road construction in Nyandeni district, the community has experienced the following negative encounters/experiences...



➤ Searching for themes



FINANCIAL CAPITAL

- compensated for land, employed for building new houses and receiving salaries, businesses developed, business opportunities during the development, economic development
- investment potential, once-off payment for land,
- costs on fixing damages, relocation costs,
- some never compensated for ^{their} land,

HUMAN CAPITAL

- ~~built~~ toilets no longer muddy and dusty road, scholars crossing safely
- easy to get transport
- community supplied with water tanks,
- life has been better, reduced accidents,
- employment opportunities, training experience, acquired skills, poverty levels reduced, crime reduced, banks and ATMs close by now, improved living standards, ignored complaints, dust entering the house, exposed to breaking
- new road ~~is~~ slippery and steep,

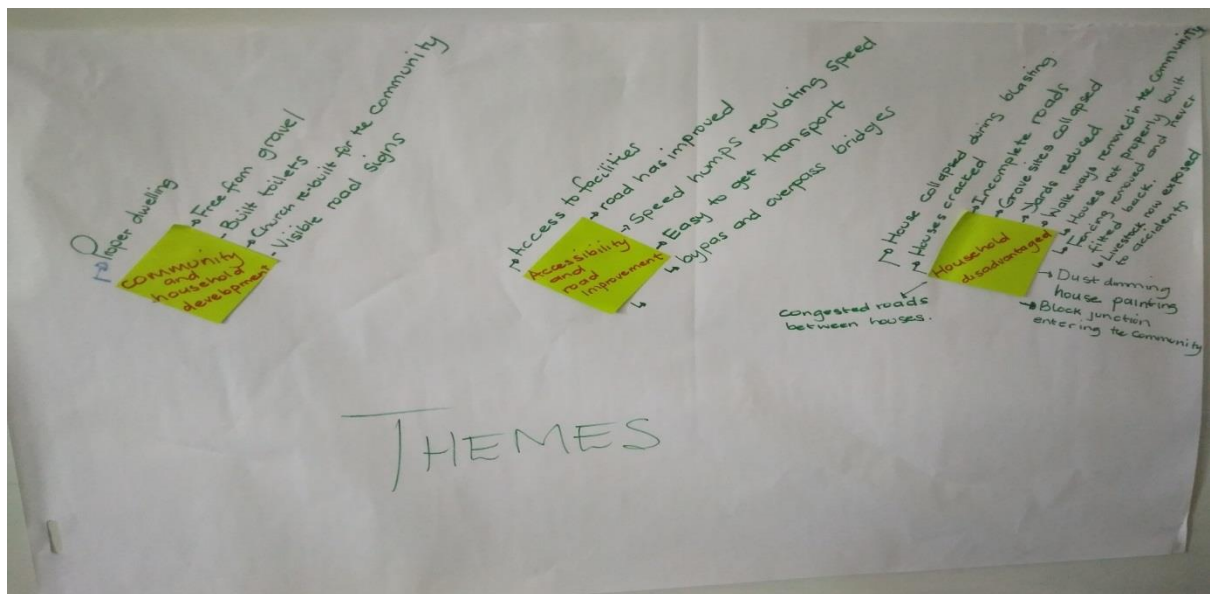
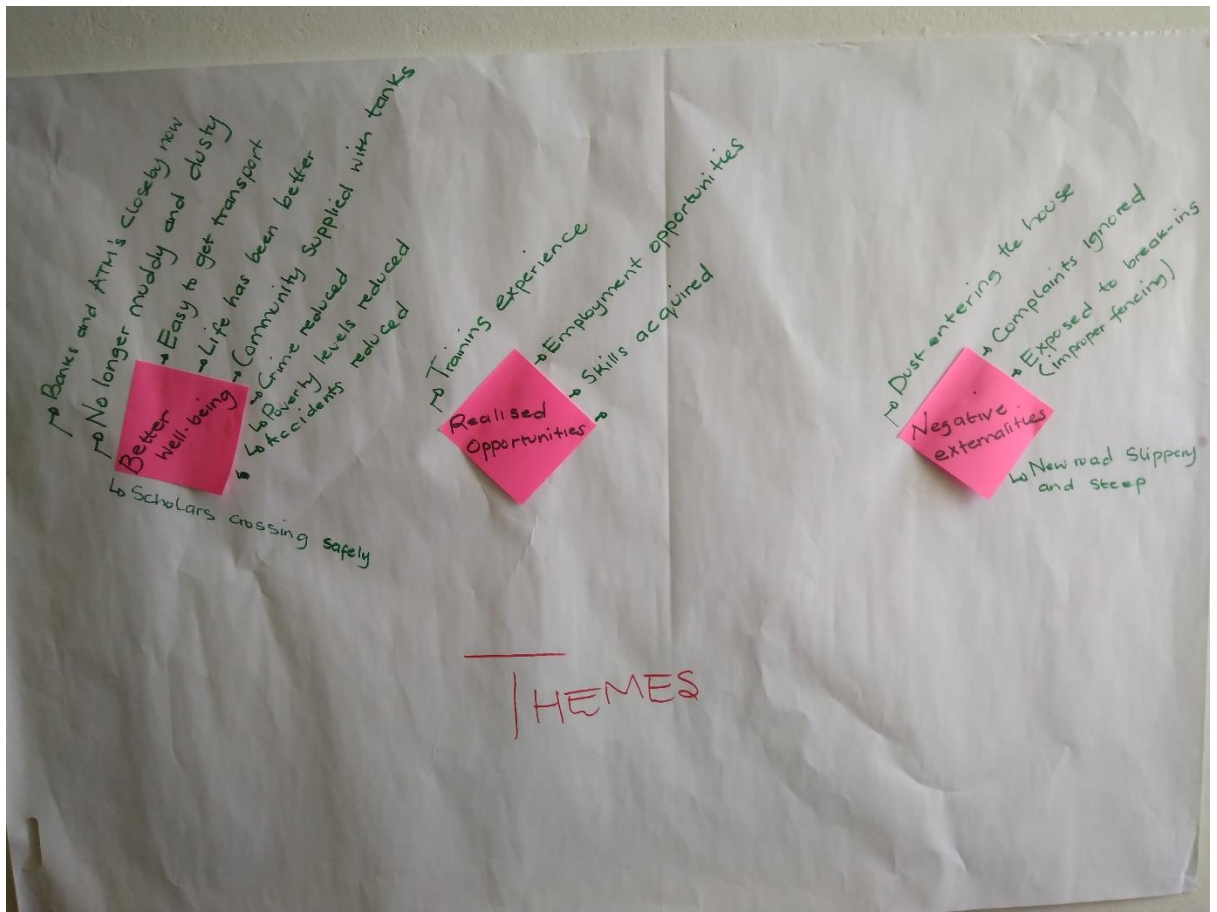
Physical Capital

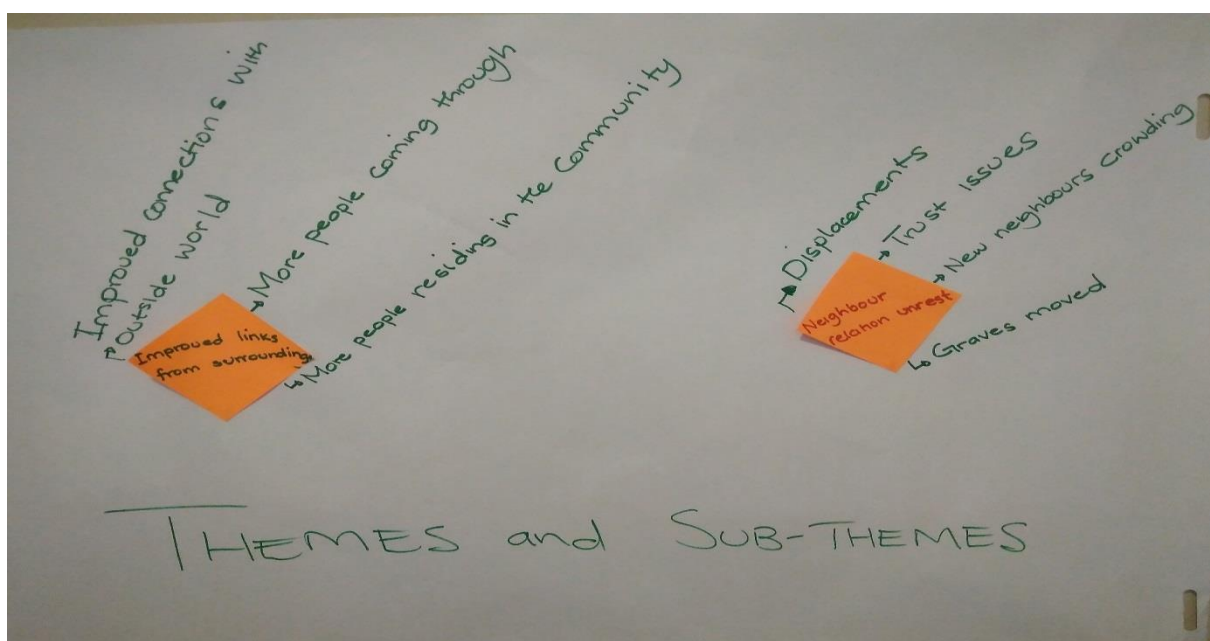
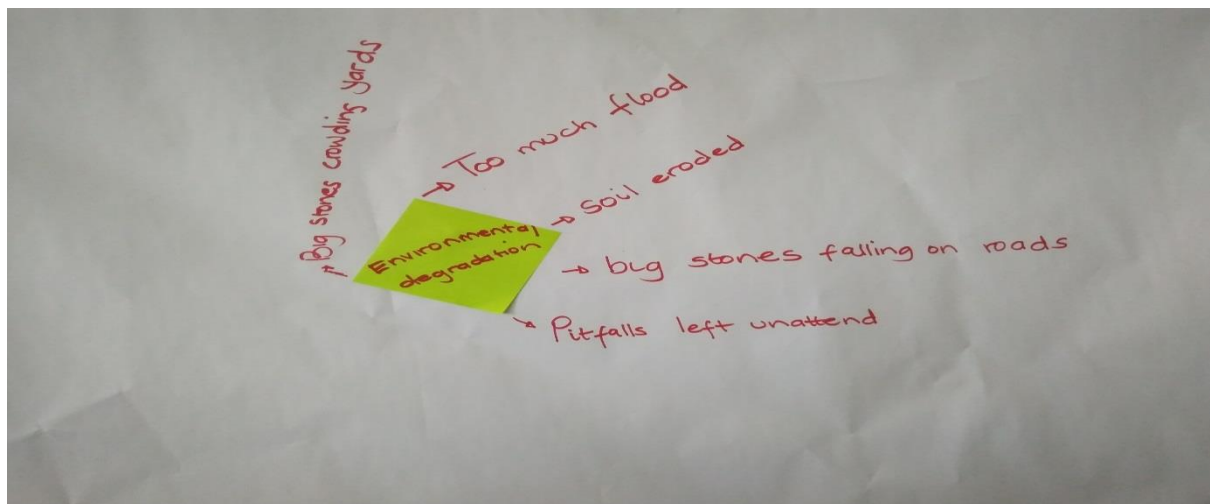
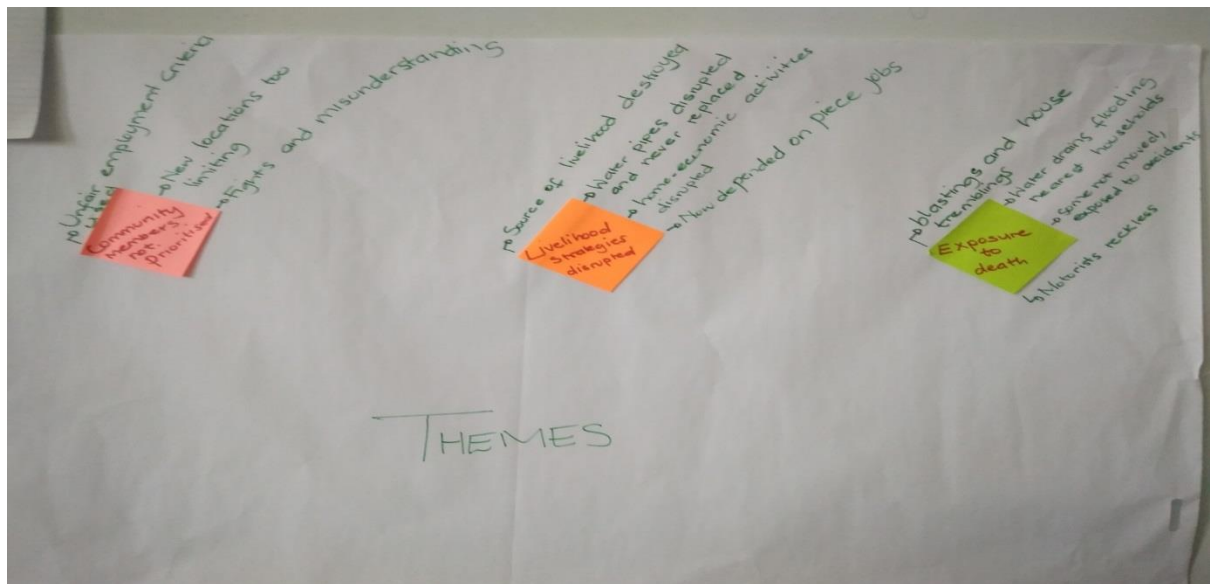
- Proper dwelling, road has improved,
- access to facilities improved, free from gravel,
- traveling convenient, built toilets, speed humps regulating speed, re-built church in the community,
- easy to get transport, community has developed, by-pass roads, town also developing,
- corrugation gates protecting livestock, street lights, overpass roads, visible signs
- houses have cracked, incomplete roads,
- plants and vegetation disturbed, garden cut small,
- grave collapsed, yards reduced, damages not attended to, improper house foundation, house topping collapsed, walkway removed in the community,
- fencing removed and never fixed back,
- livestock exposed to accidents, blastings during the development, dust draining house paintings,
- house collapsed, toilets collapsed, improper fencing,
- blocked junctions entering the community, no drains controlling floods, congested roads between houses in the community

Social Capital

- improved connections with outside world,
- more people coming through
- more people residing in the community,
- graves moved, displaced, relationships of trust disrupted, neighbours moved elsewhere,
- crowded by people moved to this community,
- new neighbours and issues of trust

➤ Reviewing themes





→ Compensated for land
→ Received job salaries

Property reimbursement

→ Investment potential
→ business opportunities during the development

Developed economy

→ Some households never compensated for their land
→ costs of fixing the damages
→ relocation costs

Households declined

once-off payment for our land

THEMES AND SUB-THEMES

Appendix 6: Response to road construction 'shock'

INITIAL CODES

[Due to the road construction in Nyanderi district, the community is still concerned about the following...]

- Concerned about cracks, whether houses will survive longer, fixing of damages
- Incomplete fencing, people and livestock safety from speed, pedestrian road, fix drive-ins, separate roads for scholars walking,
- Issue of improperly build houses, damaged pipes, removed taps, Unattended damages, collapsed doors on, built houses, Walkway in the community, the difficulties of degradation on gardens, the floods that we are experiencing, the damages, absence of drains,
- floods, the issue of cracks, the issue of damaged houses,
- delivery trucks struggling to enter gates, places that will be black spots,
- the absence of road signs on four-way stop in the community,
- Congested roads between the community, the reckless driving around the community, the bridges built could be suicide zones, high crimes on the bridge, overhead bridges left opened suffering cracks and not being reimbursed for relocations, the issue of doing the roofing at our costs, the issue of damages as per construction, selective reimbursement to certain households, community concerns/views were not considered, houses need to be fixed, the issue of taking the matter to courts, absence of overpass bridges for scholars,
- installed street lights that are not working, increased robberies on dark areas yet there are lights, wall cracks and damages by water pipes, incomplete work on some areas in the community,
- Street lights by the road that never worked, roads should be extended to deep parts of the community, still have dust and muddy roads,
- the issue of speed humps is a concern, speed and reckless driving is extreme, children could be hit by motorists while playing outside,
- issue of increased speed, scholars highly exposed to accidents,
- Overpass needed for the safety of scholars, damages still need attention,
- lights not working by the road, issue of speed between houses,
- fear for kids playing, a need for speed humps and road signs,
- issue of cracks, houses could collapse anytime now, the damages, protecting livestock on roads, road signs showing stray animals passing,
- barrier gates blocking cars from falling on nearby yards, construction should benefit community, too much cracks in houses, issue of high speed,
- areas with no overpass and robbers, speed humps and road signs a concern,
- issue of underpass culvert for livestock, visibility of road signs, too much speed on the main road, speed, too much accidents, V-drains a concern,
- high risk of children hit by cars on freeway, speed levels extremely insane,
- Safety of livestock a concern, negligence by households on their livestock,

INITIAL CODES

[In future, it would be best that... (Things that could be done better prioritised)]

- Approach community members before and after, ensure all members are satisfied, pedestrian roads in the community, have appropriate road in the community joining R 61, consider the community grievances
- bridge joining the separated neighbourhood, do work thoroughly,
- listen to community concerns, fix cracks, replace gates on affected yards, walkways for pedestrians, access roads between houses
- Proper roads for scholars, regulate speed, maintain agreements had with community leaders, drains directing water in one place,
- should complete every work/development, assess prior the development,
- prioritise community views and grievances, not avoid people,
- engage community members, assess and identify things that could be affected, issue of grave sites should be priority as well as livelihoods, and fix the damages as promised, firstly assess the state of houses in the community before the development, consult the owners of the yards prior any removals, Security should be priority and police patrols on the road, fair ~~criteria~~ criteria be used on employment issues, avoid employing same people right through the development, community grievances be prioritised,
- Unfair selection criteria for employment be avoided,
- Children should be prioritised on jobs by road developments,
- Water and internal roads, internal tar roads be priority,
- more employment in the community, consider community concerns, prioritised, if people would be engaged to know their ways of living, not to disturb their livelihoods, youth should be priority in community developments, reducing crime rates,
- not deceive the community in future, prior assessment on community livelihoods, means to protect community assets,
- avoid causing heartaches to households, community should be priority,
- things shouldn't be left hanging for everyone's safety,
- grievances should be prioritised, assess and avoid negative effects to society, prioritise the speed regulation, alert community members with all that will transpire so they prepare,
- speed humps be prioritised, prioritise developing the communities,
- Views of the community members be priority, get assistance on planning conflicts,
- assemble meetings to get direction from households, avoid unnecessary conflicts,
- Should aim for proper roads in future.

Appendix 7: Chi-square results

```
. tab walknight Livelihood_3cat, chi2 row col
```

```
+-----+
| Key |
+-----+
| frequency |
| row percentage |
| column percentage |
+-----+
```

Walkafter7 pm	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
Never	48	41	7	96
	50.00	42.71	7.29	100.00
	30.38	51.90	50.00	38.25
Often	33	9	2	44
	75.00	20.45	4.55	100.00
	20.89	11.39	14.29	17.53
Rarely	24	10	1	35
	68.57	28.57	2.86	100.00
	15.19	12.66	7.14	13.94
Sometimes	53	19	4	76
	69.74	25.00	5.26	100.00
	33.54	24.05	28.57	30.28
Total	158	79	14	251
	62.95	31.47	5.58	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(6) = 12.0248 Pr = 0.061

```
. tab bank Livelihood_3cat, chi2 row col
```

```
+-----+
| Key |
+-----+
| frequency |
| row percentage |
| column percentage |
+-----+
```

Bank account	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
1. No	131	76	14	221
	59.28	34.39	6.33	100.00
	81.37	93.83	100.00	86.33
2. Yes	30	5	0	35
	85.71	14.29	0.00	100.00
	18.63	6.17	0.00	13.67
Total	161	81	14	256
	62.89	31.64	5.47	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 9.4347 Pr = 0.009

```
. tab save Livelihood_3cat, chi2 row col
```

```

+-----+
| Key |
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| frequency |
| row percentage |
| column percentage |
+-----+

```

Savings	RECODE of Livelihood_strat. (Incomesource)			Total
	1	2	3	
No	114	71	12	197
	57.87	36.04	6.09	100.00
	71.70	91.03	92.31	78.80
Yes	45	7	1	53
	84.91	13.21	1.89	100.00
	28.30	8.97	7.69	21.20
Total	159	78	13	250
	63.60	31.20	5.20	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 13.1990 Pr = 0.001

```

. tab socialgrp Livelihood_3cat, chi2 row col

```

```

+-----+
| Key |
+-----+
| frequency |
| row percentage |
| column percentage |
+-----+

```

Belong to social grouping	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
No	41	19	3	63
	65.08	30.16	4.76	100.00
	25.95	23.75	21.43	25.00
Yes	117	61	11	189
	61.90	32.28	5.82	100.00
	74.05	76.25	78.57	75.00
Total	158	80	14	252
	62.70	31.75	5.56	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 0.2379 Pr = 0.888

```

. tab contacted Livelihood_3cat, chi2 row col

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```

+-----+
| Key |
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| frequency |
| row percentage |
| column percentage |
+-----+

```

Contacted community leader	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
No	139	55	11	205
	67.80	26.83	5.37	100.00
	91.45	79.71	91.67	87.98
Yes	13	14	1	28

	46.43	50.00	3.57	100.00
	8.55	20.29	8.33	12.02

Total	152	69	12	233
	65.24	29.61	5.15	100.00
	100.00	100.00	100.00	100.00

Pearson chi2 (2) = 6.3458 Pr = 0.042

. tab meeting Livelihood_3cat, chi2 row col

```

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| Key |
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| frequency |
| row percentage |
| column percentage |
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```

Attended community meeting	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
No	32	8	9	49
	65.31	16.33	18.37	100.00
	20.13	10.00	64.29	19.37
Yes	127	72	5	204
	62.25	35.29	2.45	100.00
	79.87	90.00	35.71	80.63
Total	159	80	14	253
	62.85	31.62	5.53	100.00
	100.00	100.00	100.00	100.00

Pearson chi2 (2) = 22.6417 Pr = 0.000

. tab club Livelihood_3cat, chi2 row col

```

+-----+
| Key |
+-----+
| frequency |
| row percentage |
| column percentage |
+-----+

```

Savings club	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
No	147	78	14	239
	61.51	32.64	5.86	100.00
	91.30	96.30	100.00	93.36
Yes	14	3	0	17
	82.35	17.65	0.00	100.00
	8.70	3.70	0.00	6.64
Total	161	81	14	256
	62.89	31.64	5.47	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.2195 Pr = 0.200

. tab loan Livelihood_3cat, chi2 row col

Key
frequency
row percentage
column percentage

Loans	RECODE of Livelihood_strat (Incomesource)			Total
	1	2	3	
No	122	60	14	196
	62.24	30.61	7.14	100.00
	77.71	77.92	100.00	79.03
Yes	35	17	0	52
	67.31	32.69	0.00	100.00
	22.29	22.08	0.00	20.97
Total	157	77	14	248
	63.31	31.05	5.65	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.9380 Pr = 0.140

Appendix 8: Economic activities in the Nyandeni municipality area

ECONOMIC ACTIVITIES	FREQUENCY
Farming	8
Piece jobs	9
Job	2
Child grant	1
Domestic worker	6
Traditional healing	1
Shebeen owner	1
Spaza shop	2
Construction worker	5
Welding	1
Driver	4
Teaching	7
Selling at a local school	2
Employed	17
Poultry project	3
Builder	2
Working	3
General assistant	1
Selling tins	1
COGTA Municipality	1
Painting	2
Nursing	1
Environmentalist	1
Lecturing	1
Cycling	2
Security guard	2
Disability grant	1
Taxi driver	2
Work at public works	3
Hair salon	1
Cleaner	1
Hair stylist	2
Selling earrings	1
Recycling business	2
Mechanic	1
Plumber	1
Selling clothes	2
Depend on parents	1
Electrician	1
Mine worker	1

Transporting goods with van	2
Selling fruit	3
Social grant	2
General at a hospital	1
Part time jobs	7
Remittances	2
Funeral parlour business	1
Working at OR Tambo municipality	1
Waitress	1
Trust community contributions	5
Social community support	7
Kitchen work	1
Barber shop	1
EPWP(public works)	2
Part time municipal worker	1
Caretaker	1
Health services	1
Caterer	1
Small business (Selling sweets and chips)	2
Employee at SASSA	1
Self employed	2
Contract worker	3
None	136
Total frequency	262

Appendix 9: Certificate of editing



CERTIFICATE OF EDITING

To whom this may concern

This is to certify that I have copy edited the full dissertation of

ZABAMBO NALE NDESI

Student Number: 201203294

**"THE IMPACT OF ROAD CONSTRUCTION ON THE LIVELIHOODS OF
RURAL COMMUNITIES: A CASE OF NYANDENI MUNICIPALITY
IN EASTERN CAPE, SOUTH AFRICA"**

submitted in fulfilment of the requirements for the degree of

Master of Commerce (Transport Economics)

in the Department of Economics

Faculty of Management and Commerce

at the
University of the Fort Hare

for spelling and grammatical errors

Date: December 2017

M A Erikson
BA (UKZN), BEd (Wits)
Full Member of Professional Editors' Guild
Member of ASAIB (Association of Southern African Indexers and Bibliographers)

Tel: 072 808 0153
Email: anne.erikson@gmail.com