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The funding of the Transnet project in Empangeni - Nkwalini

By

Luvuyo Citeko

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in Public Policy

March 2018

ABSTRACT

Infrastructure projects are implemented by different State Owned Enterprises in most countries around the world, in the African continent and in South Africa. State Owned Enterprises across the world fund infrastructure projects using different funding models. The funding theories that will be explored in this research paper are:

- Self-funding model;
- Public-Private Partnerships funding model;
- Government funding model; and
- Aid or donations funding model.

Transnet as a State Owned Enterprise embarks on many infrastructure projects with the view to drive development and stimulate economic activity. Transnet follows prescribed evaluation criteria that emphasise the profitability requirements for projects to be undertaken or funded. Those projects that have a greater return on investment, higher profitability or higher Net Present Value tend to get more support or funding from Transnet. This means that most projects are funded using a self-funding model.

Most projects that have a negative profitability index but which have potential to create jobs, boost local economies and create sustainable small to medium businesses in a substantial way tend to be overlooked because of the return on investment requirements. The Empangeni-Nkwalini branch line is a case in point. This project has been unable to obtain funding from Transnet due to its lack of profitability.

The basis of the study was to establish the most suitable funding model among the four models for the Empangeni-Nkwalini branch line.

The Rational Comprehensive Model was used to prescribe a new funding method for the Empangeni-Nkwalini project.

The research used the qualitative research method in responding to the research question, since the research that is conducted is exploratory in nature and a qualitative approach is best suited to this type of research.

Data that is analysed in order to gain an understanding of the phenomenon under investigation, in this case existing funding models, was collected through interviews and document assessments.

The findings of the research suggest that self-funding, Public-Private Partnership, and a Government funding model can all be suitable for Empangeni-Nkwalini project funding requirements, providing that certain conditions are met under each model. The findings also suggest that the Aid or Donations funding Model is not suitable for the Empangeni-Nkwalini project funding requirements.

DECLARATION

I declare that this report is my own, unaided work. It is submitted in fulfilment of the requirements of the Master's degree in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.



Luvuyo Citeko

March 2018

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Profitability model: A useful tool for ranking projects because it allows for the quantifying of the amount of value created per unit of investment.

Private financing: When a private firm is contracted to finance the project instead of government and the State Owned Enterprise.

Profitability Index (PI): The ratio of pay-off to investment of a proposed project. It is a useful tool for ranking projects because it allows the amount of value created per unit of investment to be quantified.

Revenue to Cost ratio: A measure of what it will cost an entity to operate a piece of infrastructure compared to the income that the infrastructure will generate.

Profitability: The rate at which business activities yield a profit, financial gain or return.

Net Present Value: The present value of the sum of money, in contrast with some future value it will have when it has been invested at compound interest.

Schedule 2 public entity: A public sector entity that must be financially sustainable without government support or allocation. These entities operate on the basis of the revenues and profits they generate.

Cash flow: The total amount of money being transferred into and out of a business, especially in relation to liquidity.

Internal rate of return: A metric used in capital budgeting to estimate the profitability of potential investments.

Tax revenues: The revenues collected from taxes on income and profits, social security contributions, taxes levied on goods and services, payroll taxes, taxes on the ownership and transfer of property, and other taxes that may apply.

Vertical fiscal imbalance: When Government raises revenues in excess of its spending responsibilities, while provincial governments have insufficient revenue from their own sources to finance spending responsibilities.

ABBREVIATIONS

SOE:	State Owned Enterprise
AICD:	Africa Infrastructure Country Diagnostic
OECD:	Organisation for Economic Cooperation and Development

CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION

Transnet as a State Owned Enterprise undertakes many projects in its drive to advance development in South Africa. It is therefore important to clarify what a State Owned Enterprise is and its specific role in development.

Zeckhauser, Horn, Murphy and Peltzman (1989) state that State Owned Enterprises (SOEs) are organisations that are often protected from competition by the state. These organisations may receive a subsidy in some form from the state. As government owned entities, many entities are relieved of many tax and regulatory obligations. In SOEs, political interference or involvement plays an important role in adding many responsibilities beyond simply the efficient production of goods and services.

Kowalski, Büge, Sztajerowska and Egeland (2013) state that SOEs are organisations that can act on a commercial basis but may also have non-commercial considerations in prioritising their initiatives. The state in certain instances grants specific advantages that can potentially hinder access to those industries. These advantages take many forms, such as direct subsidies, concessionary financing, state guarantees, preferential regulatory treatment and others.

Sappington and Sidak (2003) state that SOEs are organisations owned by the government instead of the private sector. SOEs compete directly with the private sector which is profit maximising in many markets. SOEs are usually expected by the state, who is a shareholder, to pursue goals that

are broader than merely profit maximisation. This means that SOEs may be less aggressive towards their private counterparts.

Toninelli (2000) argues that the SOE makes its decisions based on long-term considerations as opposed to short-term profit-making imperatives. What is clear is that SOEs are organisations that are generally preoccupied with more than just maximisation of profit. They are, however, operated on a commercial basis which implies that they have to generate enough revenue to continue as a going concern. They also tend to have extensive government support which manifests itself in various forms. These in other instances may be deemed uncompetitive.

The role of SOEs in development is explained by Toninelli (2000) as being the promotion of economic growth and social transformation in underdeveloped countries or regions. Further to that, the SOEs ensure modernisation in neglected sections of otherwise very developed economies and also stimulate growth in strategic sectors of the economy by initiating various initiatives. Toninelli (2000) further argues that SOEs must ensure that there is a cheap supply of raw materials that are necessary for growth.

SOEs have an important role to play in society around the world through ensuring that they become catalysts for economic growth; this needs to be balanced with the social transformation requirements which usually fall outside of the private sector mandate. More importantly, however, the SOE's need to invest in areas where the private sector might not be willing to invest in order to stimulate the economy.

1.2 BACKGROUND

Infrastructure projects are implemented by different SOEs in countries around the world, across the African continent and in South Africa. The

different methods that are used to fund infrastructure projects in different parts of the world provide an experience of what various SOEs might adopt as their funding approach. There are various international funding models that SOEs utilise to fund infrastructure projects. These funding models are comparable to funding models that are used in the African continent, in the South African Development Community (SADC), as well as in South Africa. There are various best funding approaches that are considered effective to implement infrastructure delivery globally.

Sahoo, Dash and Nataraj (2010) argue that in countries like India and China, infrastructure development is mainly driven by government and SOEs. In China, successful SOE project implementation is based on their approach of getting reasonable returns and profitability on the infrastructural projects that they embark on. China has been largely successful in developing infrastructure that enhances their competitiveness in general. What is clear from the Chinese experience is that their success in rolling out their infrastructure projects is as a result of embarking on projects that are financially sound and sustainable. The funding model that is mainly used by SOE in China to fund some of their successful infrastructure projects is a profitability model.

Barry (1994) highlights that historically infrastructure projects were privately financed in almost all regions of recent European settlement. This private financing was accompanied by government subsidies in one form or another. Private funding of infrastructure projects has been popular in Europe in the recent past. Similarly, in Africa and SADC there are also different funding models that seem to be favoured in these jurisdictions as regards infrastructure delivery. Africa, however, takes a different approach to funding developmental or infrastructure projects than its Asian and European counterparts.

Foster, Butterfield, Chen and Pushak (2009) argue that a number of emerging economies have started to play a significant role in funding infrastructural development in Africa. Their aggregated resource flow into Africa is now estimated to equal that of Africa's traditional funding partners or that of private investors. These new African funders include China, India and the Gulf states with China at the forefront. There are at least 35 African countries that engage with China on infrastructure development finance deals with the largest recipients being Nigeria, Ethiopia and Angola.

Foster et al. (2009) suggest that the Chinese approach to funding is different to that of traditional donors. The underlying principle is that of mutual benefit, reciprocity and complementarities that are bound by bilateral agreements between states. Unlike traditional finance, Chinese infrastructure finance is not channelled through a developmental agency but through Ex-Im Bank whose mission is to promote trade. The Ex-Im Bank is increasingly making use of the deal structure called "Angola Mode" or "Resource for Infrastructure Arrangement", where the repayments for the infrastructure loan are made in terms of natural resources, such as oil. This is mainly used where countries cannot raise adequate guarantees to underpin loans.

In South Africa, Transnet is one of the parastatals involved in infrastructural development programmes. In 2011, Transnet embarked on an ambitious strategy known as Market Demand Strategy. Transnet (2014) explained that it will invest more than R300 billion in infrastructure development with the aim of stimulating the economy as well as contributing to reducing the cost of doing business in South Africa. Transnet commenced this ambitious Market Demand Strategy and has executed several infrastructural projects. Transnet Group Capital (2014) explains that Transnet has developed a comprehensive prioritisation tool that is used to select the projects to be undertaken as part of the ambitious Market Demand Strategy. The investment decisions are made based on the results of the tool. The

regulatory, mandatory and health and safety projects are granted full funding from Transnet. The rest of the projects that require funding need to compete for the remainder of the budget, which is referred as the "discretionary spend".

Transnet Group Capital (2014) further explains that within the discretionary spend there are factors that influence whether a project gets funding or not. These are profitability index (PI) which accounts for 70% of the weighting, Jobs 10%, GDP impact 10%, and Supplier Development 10%. This generally means that the projects that score well on the PI tend to be given preference for funding. This can adversely impact on projects that do not have an immediate profitability benefit but which nonetheless present potential on the GDP front, Jobs, and Supplier Development. These are infrastructure projects that have a superior social impact potential as opposed to a positive Profitability Index (PI). A case in point is the Empangeni-Nkwalini branch line. The Department of Transport (2016) explains that the Empangeni-Nkwalini area is located in the City of Umhlathuze in KwaZulu-Natal, which has a growth rate of 1.45%. The establishment of a branch line such as Empangeni-Nkwalini will improve transport linkages, and communities will benefit greatly from the line through improving access to markets. The construction of a branch line is likely to improve the economic growth of these small towns whose GDP tends to lag far behind the national average. The towns where branch lines are found, such as Empangeni-Nkwalini, have very high unemployment rates and the construction or refurbishment of such branch lines provides improved transport linkages which help in stimulating growth, leading to the creation of direct and indirect employment for these communities.

According to the Department of Transport (2016), the Empangeni-Nkwalini branch line revenue for the financial year 2008/9 was R6,541 million while costs associated with railing these volumes in the same period was R8,348 million, which represents 78% revenue to cost ratio. This gap between

revenue and cost for the Empangeni-Nkwalini branch line therefore discourages Transnet from investing in such a project because of its profitability profile.

1.3 PROBLEM STATEMENT

In line with Transnet's Market Demand Strategy, the company has embarked on an aggressive infrastructural build programme estimated at more than R300 billion. Within this built programme, Transnet undertakes various infrastructure projects to deal with infrastructural legacy issues around maintenance. They are also utilising the infrastructural development route with the aim being to respond to the projected increase in market demand. In the process of rolling out the built programme, Transnet chooses a list of projects to be funded and executed.

Transnet follows prescribed evaluation criteria that emphasises profitability of projects to be undertaken or funded. Profitability means the rate at which business activities yield a profit, financial gain or return. Those projects that have a greater return on investment, higher profitability or higher Net Present Value, tend to get more support or funding from the approval committees regardless of their inadequacies in relation to the socio-economic impact in some instances. In many of these projects socio-economic impact is a secondary consideration. Project managers may only include socio-economic elements at the end of compilation of business cases to include in their justification for funding.

Most projects that have negative profitability index but present significant potential to create jobs, boost local economies and create small to medium businesses in a substantial way tend to be overlooked because of the return on investment issue. It is suggested that although they present potential to impact society in a positive way, they cannot be undertaken because they present a risk to the financial sustainability of the entity. The Empangeni-

Nkwalini branch line is one such case in point. This project has been unable to obtain funding from Transnet due to its deficiency on profitability requirements. The South African Government has also declined to fund this project because it falls within the jurisdiction of Transnet as an SOE. The project is thus overlooked despite its potential to impact positively on local economies. Such projects can be referred to as the "missing middle" infrastructure projects. They are perceived as being too rich to be funded by the state yet too poor to be funded by the Schedule 2 entity.

Many of these projects that are considered as non-viable tend to be located on the periphery of society. In the case of Transnet most investments are made into profitable corridors such as the Johannesburg to Durban corridor, while neglecting other areas that are not as busy. The implication of not funding these infrastructure projects is the emergence of non-viable local communities. As a result of non-investment in the socio-economic projects, especially in these more rural and/or remote areas, there is likely to be an increase in joblessness which contributes to crime and theft that affects the Schedule 2 institutions themselves where they operate in these communities.

1.4 RESEARCH OBJECTIVES

The aim of this research is to construct and recommend the appropriate funding model/s for the socio-economic infrastructure project in Empangeni-Nkwalini. The intention to do so emanates from the fact that the Empangeni-Nkwalini branch line project fails to attract the necessary funding from Transnet because of the shortcomings in its ability to generate revenue required to cover operational costs and cost of capital while creating value for Transnet.

1.5 RESEARCH QUESTION

The infrastructure projects that tend to be prioritised within Transnet are those with superior financial return potential. The infrastructure projects such as Empangeni-Nkwalini branch lines that have potential to impact communities positively from the economic perspective but have negative profitability index are neglected. The question that arises is thus:

> "What is the correct funding model for Empangeni –Nkwalini branch line project, which is not profitable but has positive social impact?"

The hypothesis was that the introduction of a government funding model for the Empangeni-Nkwalini branch line project will lead to increased economic activity, create many local jobs and boost local small businesses for local communities.

1.6 RESEARCH CONTEXT

This research examines available funding models and attempts to define the best fit funding model for the Empangeni-Nkwalini branch line project. It is therefore critical for the purposes of the research to differentiate between the funding model and the financing model. The paper will focus on the funding model and not the financing model. The difference between the funding model and the financing model that the funding model will consider who eventually needs to pay for the missing middle or socio-economic projects, which is different from the financing that may be required during the construction phase. Financing that may be required may be raised using several methods such as bonds, debt, or equity. However, when the asset has been built someone needs to pay for the money that was raised to build the asset. The eventual person that pays is the funder. It could be a customer, government or a grant. This research examines the question of who eventually pays rather than the financing of the project.

The research also is premised on the assumption that the SOE's play their intended role as envision by government when they are constituted. Dysfunctional SOE's that are mired in corruption and inability to execute their mandate as envisioned on their statement of incorporation are not within the scope of this paper.

The research advocates that SOE's are important instruments in driving economic activity and growth in society. This position does not however include the area of social transformation. The role that SOEs can play in driving social transformation must become the focus of future research studies.

There are many areas where the SOEs invest in order to stimulate the economy that might not be attractive to the private sector. The research does not look at all these areas where the private sector might not be willing invest in order to stimulate the economy. The focus will only be on the possibility of funding of the unprofitable infrastructure project within the jurisdiction of the SOE.

In the research Infrastructural built programme, infrastructural development, and market demand are used interchangeably. All these words should be understood as driving the same principle of embarking on an infrastructure project. The focus of the study is how these projects can be funded in this context the unprofitable ones.

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

The point of departure for this chapter will be to define literature review as well as to establish its significance in the research process. Rowley and Slack (2004) explains that all research needs to be informed by the existing body of knowledge in the area to be investigated or the subject area. The objective of conducting a literature review is to summarise the state of affairs in that particular subject field. Literature review needs to draw from and evaluate various sources, including academic and professional journal articles, books and web-based resources. Developing a literature review involves different functions such as taking notes, scanning, structuring the literature review, writing the literature review, and compiling a bibliography. Based on the outcome of the literature review it becomes possible to identify areas where there might be value in further research. Generally the concluding paragraph of the literature review leads directly to the research proposition.

Rowley and Slack (2004) argues that there is a process associated with literature review production. This process has four distinct steps:

- evaluating information sources;
- searching and locating information resources;
- developing conceptual frameworks and mind mapping; and
- Writing the literature review.

2.1.1 Evaluating information sources

A range of sources can be used to respond to the research question, although the evaluation of these may present challenges. Articles in

scholarly and professional journals should form a core of the literature review section. These articles are usually written by researchers and are designed to record and distil systematic research knowledge in the area. They are usually peer reviewed before publication. The use of books must be guided by whether it is relevant to the topic, the credibility of the author, the reputation of the publisher and reference to other related publishers. Web pages are not always similarly credible, and must in many instances be used as a data gathering tool for the research rather than input into the literature review.

2.1.2 Searching and locating information resources

There are a number of tools that assist in identification and location of documents, including library catalogues, search engines, and online databases.

2.1.3 Developing conceptual frameworks and mind-mapping

Concept mapping is an easy method to use in identifying key concepts in the documents or research area. The concept map gives a depiction or a picture of the area under study, and shows the different concepts in that area and how they relate to one another.

2.1.4 Writing the literature review

There are five different steps in the creation of the literature review. These are scanning the document, making notes and structuring the literature review, writing the literature review and building the bibliography. The literature review also has its significance for the research process. Rowley (2006) argues that literature reviews are important in:

- The process of identifying the problem statement or hypothesis;

- Identifying the knowledge area within which the research will make the contribution;
- Building the understanding of different theories underpinning the research area;
- Facilitating the building of the bibliography or consulted sources;
- Suggesting research methods; and
- Analysing and interpreting results.

2.2 THEORIES ON FUNDING

In the process of responding to the funding question on the Empangeni-Nkwalini branch line project, various literature sources were reviewed. In this section the different funding theories will be examined that are used in the public sector for funding infrastructural projects, both in South Africa and abroad, and the likely implications for the Empangeni-Nkwalini branch line assessed.

Exploring the different funding theories will provide an understanding of the propositions of each funding method. This will inform the use of each of the funding methods. The gaps in each funding model also need to be explored and compared with the Empangeni-Nkwalini project funding needs to establish compatibility. Conclusions will be drawn on the degree of compatibility of each funding model with the Empangeni-Nkwalini project funding requirements.

The funding theories that will be examined in order to assess compatibility with the funding requirements of the Empangeni-Nkwalini project are:

- Self-funding model;
- Public-Private Partnerships funding model;
- Government funding model; and
- Aid or donations funding model.

The Rational Comprehensive Model will be used to build a new funding method for the Empangeni-Nkwalini project. This new funding method will be based on the existing funding model. The research will be open to incorporating elements of other funding models wherever there is compatibility with the project funding need.

2.2.1 Self-funding method

This option is concerned with projects that generate enough profits from assets built to be self-funding. In the cash flow projections before the projects begin, the tariff charged to the users of the asset built need to be substantial enough to cover the operating expenditure, all other expenses as well as the cost of capital, and still generate healthy returns for both the organisation and the financiers. The suitability of the funding model will be assessed in relation to the Empangeni-Kwalini branch line project funding requirements and conclusions will be drawn that will inform the next steps.

Sahoo, Dash and Nataraj (2010) argue that in countries like India and China infrastructure development is mainly driven by government and SOEs. In China, successful project implementation by SOEs is based on their approach of getting reasonable returns and profitability on infrastructural projects that they embark on. China has been largely successful in developing infrastructure that enhances their competitiveness in general. What is clear from the Chinese experience is that their success in rolling out their infrastructure projects is as a result of embarking on projects that are financially sound and sustainable. The funding model that is used by the SOEs in China to fund some of their successful infrastructure projects is a profitability model.

The Australian Government Productivity Commission (2009) argues that the increasing trend in Australian State Owned Enterprises has been the increase in the debt to equity ratios as a result of the increasing need for

infrastructural development. As a trend, new infrastructure development in Australia has been funded through debt. The ability to charge the correct tariff or regulation that affects user charges largely determines the overall capacity of the State Owned Enterprise to service the debt. In the process of raising finance from the market based on the projected cash flows of each investment, the capital markets assess the financial performance and viability of the projects.

The shift in investment in infrastructure within the State Owned Enterprises in Australia seems to be biased towards raising debt on the basis of the tariff that will be charged to the users. This is anchored on the financial viability of the projects that are undertaken, in that they must have inherent positive cash flows to justify the investment.

Foster and Briceno-Garmendia (2008) argue that in Africa, past interventions have created an unsustainable infrastructural development situation. This is informed by the fact that the prices that are charged to recover the cost of investment are extremely low, rendering many infrastructural projects unsustainable. Usually when the infrastructural development is undertaken there is a funding gap because the price charged to render the services from the asset developed are way too low.

Foster and Briceno-Garmendia (2008) further argue that higher user charges for the newly built infrastructure can contribute to closing the funding gap that exists. In the Low Income Countries, however, the majority of the people cannot afford the cost recovery utility bill of $10 per month, making infrastructural development impossible where the user-pays principle is applied. This indicates that in the self-funding model if there are not enough positive cash flows in the investment or a tariff high enough to cover the cost of capital requirements, infrastructure projects are unlikely to be implemented.

Fay and Toman (2010) argue that embarking on infrastructure projects is expensive and requires substantial capital investment with the benefits being derived over time. Most of these projects are challenged by the inability or difficulty in recovering the cost of delivering the assets. In many of the countries that embark on infrastructure projects the cost of delivering these projects is very high, rendering them unviable.

Fay and Toman (2010) suggest that the different types and scales of infrastructure project constitute a key part of attaining the growth that reduces poverty and is sustainable. Infrastructure matters in as far as reducing poverty and driving economic growth. Although infrastructure is necessary for the functioning of a modern economy, the delivery of infrastructure may not necessarily lead to growth. There may be several limitations to infrastructure leading to growth, such as missing markets, which renders investment in infrastructure non-viable. The effects of infrastructure may also differ depending on the company's ability to take advantage of it as the economy changes.

Fay and Toman (2010) suggest that country-specific studies were conducted under the Africa Infrastructure Country Diagnostic (AICD) study. The aim of the study was to examine both the state of infrastructure and how best to address the challenges associated with provision of funding. The AICD study suggested that the infrastructure expenditure is higher than initially expected, compared to expected incomes rendering projects unviable.

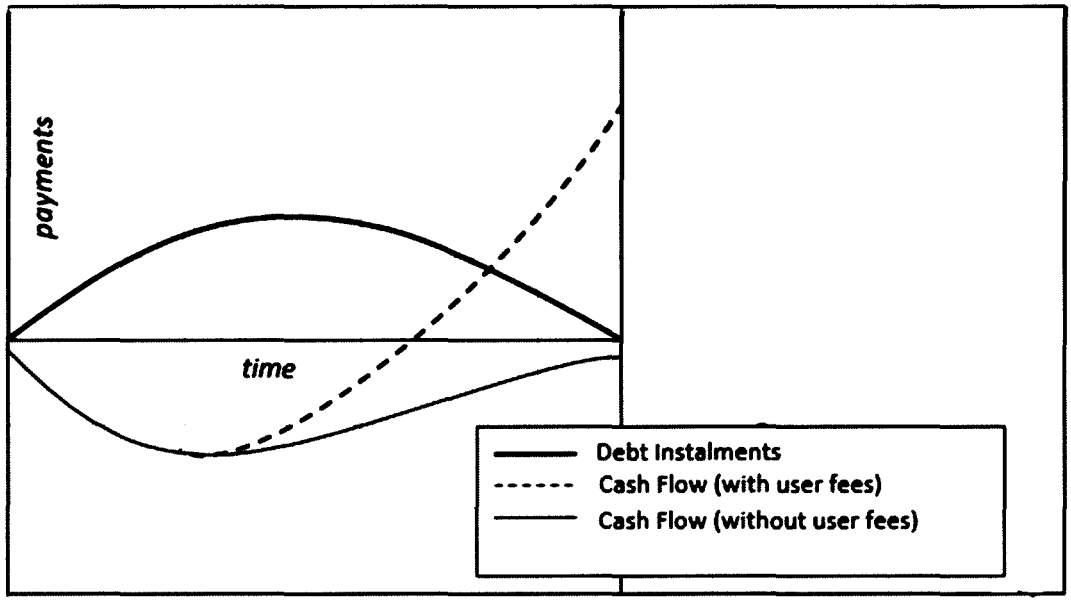
Fay and Toman (2010) pose the question of how the increasing infrastructure expenditure can funded. The funding can only come from two sources – the users or the taxpayers. The willingness of the users or taxpayers to accept the payment obligations determines the extent to which projects can be undertaken and the extent of financial viability of such projects.

Calitz and Fourie (2010) argue that in South Africa, the financing strategy for government entities implies the application of the ability to pay approach which establishes a link between the user of the infrastructure and the person of the specific entity that eventually pays for it. In almost all the economic infrastructure projects the cost of delivering the projects can arguably be recouped from the individual end users.

Calitz and Fourie (2010) argue that infrastructure projects undertaken by designated government agencies other than a normal government department, such as Transnet, must fund projects internally using loans and equity as sources of funding. User charges should take care of any debt raised to deliver the infrastructure projects as well as operational costs. Calitz and Fourie (2010) suggest that the cost of infrastructure is ultimately borne by the taxpayer, user or donor, and in instances where the benefit of the infrastructure falls onto a designated and identifiable group, the user charge to cover the cost of delivering the infrastructure must be applied.

Saglio (1992) points out that in dealing with either infrastructure funding or financing there should be an understanding that infrastructure usually offers a long-term and highly risky amortisation period, a long time lag between the beginning of the investment and the start of financial returns, high sunk costs and amount of invested money, and a high degree of uncertainty in the users' level of utilization during the active life of the infrastructure project. One of the key risks in the success of any infrastructure project is the level of utilisation of the newly built assets. The conundrum encountered by owners of infrastructure is depicted below in Figure 1.

Figure 1: Level of utilisation of new build assets



Source: Saglio, 1992

Saglio (1992) explains that the greatest hindrance to the infrastructure financing is in the first half of the cycle when the project does not generate any revenue and high financing costs are present. There are four ways of financing infrastructure: debt financing, non-user fees (including various non-dedicated taxes, grants, subsidies and transfers), user fees, and private financing.

Saglio (1992) explains that the sum of the internal revenues is greater in the United States than they are in France, demonstrating that user fees are more widely used in the United States. Economically user fees are a very sound solution to funding infrastructure to the extent that users pay directly for the cost incurred in bringing the asset to life. The outstanding question with regard to the user fees is determining their exact level. The user fees should reflect the cost of building and maintaining the asset.

Rajé (2017) argues that the barriers to financing of infrastructure projects in Zambia and neighbouring countries are related to the nature of the projects

available for investment, which often fail to meet the requirements of return on investment for investors. Some of the identified barriers to entry are lack of bankability of infrastructure projects, and absence of markets for the infrastructure assets.

Rajé (2017) further argues that there are interventions that could be explored in order for the infrastructure projects to be made more attractive to investors. One of these interventions is to ensure bankability of these infrastructure projects. Constraints to infrastructure development are divided into two aspects: one is upstream constraints and the other is downstream constraints. Key upstream constraints constitute both the ability and willingness to pay. Key downstream constraints include a limited understanding of bankability.

Gramlich (1994) argues that the economic approach to investment in infrastructure involves calculating all associated benefits and costs of the projects and then their rate of return. In instances where the effective real rate of return exceeds the real rate of return then it is worthwhile embarking on the project or undertaking the investment. The other alternative is that if the net present value of project benefits evaluated at the going real interest rate is positive then the investment is worth undertaking.

Gramlich (1994) provides a scenario where, for example, if the gas tax were devoted to general federal revenues and budget deficit reduction and the federal highway fund was abolished and the state was permitted to finance their own infrastructure projects with revenues from use charges, there would be many advantages such as generating new revenue that would enable the state to finance its own capital programmes while the grant allocation and other funds are used for other competing priorities.

This self-funding approach as projected by the literature has some limitations in terms of being the ideal funding strategy for the Empangeni-

Nkwalini branch line. The Department of Transport (2016) states the Empangeni-Nkwalini branch line in 2008/9 generated revenues of R6,541 million versus the cost of R8,348 million. The inability of the Empangeni-Nkwalini branch line to generate enough revenue to justify the investment means that the self-funding approach as suggested in the literature would not work as a funding tool. It is also difficult for Transnet to raise the funding for this project, either internally or externally, because of the deficiency in the rate of return in the investment. The revenue generated will not be able to cover all costs associated with bringing the asset to life. This project is also located in an area where the economic growth rate is around 1.45%. This by implication means that many people in this area do not have enough disposable income to afford high tariffs.

The self-funding model as suggested by the document or literature review is not a fit for the Empangeni-Nkwalini branch line project, as this project with current generated revenues is not profitable enough to warrant funding. There were, however, many views that emerged from the interviews that shared a different perspective on how the self-funding for the Empangeni-Nkwalini branch line needs to be approached. These will be explained in the findings section and their assertion tested against Empangeni-Nkwalini branch line project requirements and sustainability tests. All data was reviewed in totality during the interpretation and analysis of both document/literature review and interviews on the self-funding model to ascertain the suitability of this funding approach for the Empangeni-Nkwalini branch line.

2.2.2 Public-Private Partnerships funding model

This section explains the different types of co-operative arrangements between government or governmental entities and private sector in delivering infrastructural projects. The suitability of the funding model will be

identified in relation to the Empangeni-Kwalini branch line project funding requirements and conclusions will be drawn that will inform the next steps.

Ribeiro and Dantas (2006) argue that the New Zealand experience is important in attempting to understand how Public Private Partnerships (PPP) work to unlock infrastructure projects. Historically the investment in the New Zealand transport system was heavily dependent on government funding. Recent experiences in New Zealand indicate that investment from the National Land Transport Fund (NLTF) and territorial authorities is not enough to address changing transport demand.

Ribeiro and Dantas (2006) explain that government agencies such as the Ministry of Transport, Land Transport New Zealand (LTNZ) and Transit New Zealand have started exploring the option of Public Private Partnerships in an effort to bridge the funding gap. In 2002 the Ministry of Transport promulgated a Land Transport Management Bill, which will drive legislative changes to ensure the development of a balanced and flexible funding framework. The bill places several conditions on PPPs to ensure adequate management of risk to the state. There is clearly a move in New Zealand to involve the private sector more in the funding of infrastructure development.

Grimsey and Lewis (2002) argue that for the greater part of the post-war era, government has been at the centre of infrastructure provision. That position has, however, started to shift significantly, mainly driven by the need to reduce public debt while simultaneously striving to improve and expand public provision of services and facilities. This has required the public sector to explore the type of collaboration and agreement that can be entered into in order to share the burdens, risks and rewards. Part of this involves the public sector inviting the private sector entities to enter into long-term contractual arrangements.

Grimsey and Lewis (2002) explain that these arrangements take on various forms ranging from Build-Operate-Transfer (BOT) to Build-Operate-Own (BOO), and which incorporate some or all of the following characteristics:

- Public sector owned facilities or entities are transferred to the private sector entity with/without payment in return. This is usually given a time-frame within which the arrangement is effective;
- The private sector entity builds, renovates or expands the public sector owned facility;
- The public sector entity specifies the operating philosophy for the facility;
- Services are provided by the private sector entity for a predefined amount of time. This arrangement usually comes with restrictions on pricing and operating philosophy; and
- The private sector entity agrees to transfer the asset or infrastructure back to the public sector with/without payment at the end of the arrangement.

Grimsey and Lewis (2002) share a classical example of a BOT arrangement which is the 3rd Dartford Crossing of the River Thames that links two stretches of the M25 motorway circling London to be operated with almost guaranteed toll revenues by the vehicle company. This arrangement is intended to last for 20 years, following which the facility will revert to the United Kingdom government. Grimsey and Lewis (2002) also provide a case study in Australia with the project known as the Sydney Harbour Tunnel as well as the City Link Project in Melbourne which are known to have had BOT arrangements.

According to Grimsey and Lewis (2002), in the BOO arrangement, the private sector will usually finance, build, own and operate the facility indefinitely. An example for an arrangement of this nature is found in the water treatment plants in South Australia. All these facilities are financed, designed, built and operated by the private sector entity. The public sector

supplies raw water into the private entity that processes the raw water into filtered water. This filtered water is then returned into the public sector which then distributes it to the consumers. However, PPP is essentially project financing which is generally characterised by the establishment of a highly geared special purpose company as a project vehicle. This vehicle is reliant on direct revenues to pay for operating costs and cover the debt financing while giving the desired return on invested capital. While there are exceptional cases similar to the Hong Kong Harbour Tunnel, which started making profits four years after the project was completed, these arrangements typically last for prolonged periods of time and require time to generate a profit.

Although governments have an appetite for PPPs as the means of sharing the load of delivering infrastructure projects, they are also wary of the risks associated with these arrangements. Among other things, the risks associated with PPP infrastructure projects emanate from the inherent complexities of these arrangements, financing, taxation, technical aspects, and sub-agreements involved in setting up and managing these arrangements. The risks vary depending on the phase of the project while risks remain even post-construction. Therefore, PPP are viable only if a reliable and validated long term revenue stream can be verified and established.

Grimsey and Lewis (2002) explain that among the risks present throughout the duration of the project is the revenue materialisation risk. The risk of the predicted volumes not materialising is the greatest risk to the commercially viability of any project. There are several other risks that present a threat to the materialisation of the PPP infrastructure projects, including:

- Technical risk which is associated with engineering and design failures;
- Construction risks;
- Operating risks associated with escalating operating costs;

- Financial risks arising from inadequate hedging of revenue streams;
- Force Majeure risk, associated with war and all other acts of God;
- Regulatory or political risks;
- Environmental risk; and
- Project failure due to a combination of the above.

The successful rollout of PPP infrastructure projects requires expert analysis of all the risks and then the development of contractual arrangements that allocate risk burden appropriately. With some PPP, however, the revenue and market risk are small to non-existent. An example is that of the revenue for a toll bridge which is likely to be more guaranteed than oilfields. The critical question is whether revenue streams can cover operating costs, service the debt finance and provide adequate returns. What is highlighted is that those that have guaranteed revenue and markets are better placed to benefit from the PPP than those that do not.

There is also a view regarding Public Private Partnerships that explores the contradictory results regarding the effectiveness and the value for money of these arrangements. The focus is on the reflection on whether the Public Private Partnerships meet expectations or whether they fail to match the promises advanced by their proponents.

Graeme and Greve (2009) in an attempt to provide an accurate reflection emphasises that the area of the Public Private Partnership that the analysis will focus on is that of long-term infrastructure contracts. As part of the analysis, a wide range of stakeholders will be acknowledged and a review of some of the global experiences considered. At the heart of the analysis is the desire to establish if the policy promises made when initiating and entering into these arrangements are indeed met in terms of value for money (VfM).

It is therefore appropriate that before discussing the evaluation of the Value for Money within the Public Private Partnerships environment, that the different types as a subject of analysis are outlined. Graeme and Greve (2009) demonstrates that there are several types of Public-Private Partnership arrangements that will be explored as part of the analysis. The five different Public-Private Partnership families are:

- Institutional co-operation for joint production and risk sharing, e.g. the Netherlands Port Authority.
- Long-term infrastructure contracts (LTICs), which emphasise tight specification of outputs in long-term legal contracts, e.g. UK Private Finance Initiative projects.
- Public policy networks (in which loose stakeholder relationships are emphasised).
- Civil society and community development.
- Urban renewal and downtown economic development (and where in the United States a portfolio of local economic development and urban re-growth measures are pursued).

Graeme and Greve (2009) emphasise that these five selected Public Private Partnership arrangements cover a wide spectrum of governance types and are more than just what is known as Private Finance Initiatives (PFIs). The Value for Money assessment in the Public-Private Partnership arrangements will focus on the LTIC and establish whether they meet the expectations created by proponents. While the Public-Private Partnerships arrangements are defined, what is clear is that there is generally extensive finance at stake. The report for the LTIC arrangements or type alone in the past 15 years in the Europe regions has seen more than a thousand contracts at a capital value of around $200 billion.

Graeme and Greve (2009) further argue that the Public Private Partnerships arrangements that are LTIC in nature have huge macroeconomic and systematic importance and impact in Europe, with the United Kingdom

accounting for 76,2%, Spain 8,6% of the projects and Portugal 2,3% of the projects. These projects involve deals totalling between $ 15,746 million and $ 28,768 million annually since 2000.

According to Graeme and Greve (2009), LTIC is a very large group on its own within the Public-Private Partnerships family. LTICs generally cover design, construction, financing, maintenance and in other instances managing operations of the public infrastructure by the private entity for the duration of the agreed contract. These arrangements vary from BOOT (Build, Own, Operate, and Transfer) to DBFO (Design, Build, Finance, and Operate). These represent some of the arrangements available within the LTIC Public Private Partnerships arena. In the process of evaluating the value created or the success of the LTICs, there are three sources that need to be looked at, which vary from policy rhetoric, legal contracts and most importantly historical outcomes experience. Furthermore, it is emphasised that what was important in driving the need to enter into the Public-Private Partnership arrangements was to reduce the government debt levels. The general government understanding in entering into these arrangements is that there is the promise of private finance for providing infrastructure without increasing the public sector debt. Linked to that was the promise that these arrangements will reduce public sector budgets. This is, however, generally a misplaced expectation because like a domestic credit card or household bond arrangement, it does not reduce the pressure on the family budget because all money owed must ultimately be repaid. This may be in small annualised amounts or one large lump sum. In whatever form, what is owed must eventually be repaid.

Graeme and Greve (2009) argue that the main driver for the adoption of the Public-Private Partnership arrangement was the promise that this delivery mechanism provides better value for money for the taxpayers. Table 1 below tests the veracity of these promises based on a range of international examples of Public-Private Partnership arrangements.

Table 1: Selected PPP evaluations 1990s – 2000s

Study	Sample/Cases	Country	Type of publication	Better VfM?	Comments/Conclusions
Bloomfield *et al.* (1998)	Massachusetts correctional facility	United States	Case study	No	7.4% more expensive through P3 lease purchasing. Inflated sales pitches camouflaged real costs and risks to the public, and the project was 'wasteful and risky'.
Arthur Andersen & LSE Enterprise (2000)	29 business cases analysed	United Kingdom	Initial evaluation	Yes	17% cost savings estimated against the PSC. Risk transfer accounted for 61% of forecast savings.
Savas (2000, p. 240)	General observations	United States	Literature review	Yes	"The private sector through PPPs builds more quickly and more cost effectively than governments usually can..."
National Audit Office (2000)	7 business cases from NAO (2000)	United Kingdom	Business cases	Yes	10–20% cost savings estimated.
Walker and Walker (2000, p. 204)	General observations of Australian cases	Australia	Literature review	-	PPP infrastructure financing deals seen as 'misleading accounting trickery' with eroded accountability to Parliament and the public. Private project consortium real rates of return were up to 10 times those returns expected for the public.

Teisman and Klijn (2001)	General observations	4 EU countries	Review of strengths and weaknesses	-	PPPs have strengths and weaknesses.
DoT (2002)	250 London Underground projects (1997–2000)	United Kingdom	Unknown	-	Cost over-runs averaging 20% were found.
Mott Macdonald (2002)	39 traditional projects and 11 PFI projects selected	United Kingdom	Multiple cases reviewed	Yes	Traditional 'public' infrastructure provision arrangements were on-time and on-budget 30% and 27% of the time, but PFI-type partnerships were on-time and on-budget 76% and 78% of the time, respectively.
Pollock *et al.* (2002)	3 NHS hospitals and 8 trusts	United Kingdom	Review and re-analysis	No	The PFI justification is a 'sleight of hand'.
Pollitt (2002)	10 major PFI cases	United Kingdom	Review of National Audit Office cases	Yes	The best deal was probably obtained in every case, and good value for money was probably achieved in 8 of the 10 cases.
Audit Commission (2003)	10 traditional and 8 PFI schools were compared	Scotland	Audit report	No	'We found no evidence that PFI projects delivered schools more quickly than projects funded in more conventional ways'. "The public sector comparator has lost the confidence of many people..."
Greve (2003)	Case study of Farum Municipality	Denmark	Case analysis	No	PPP assessed as 'the most spectacular scandal in the history of Danish Public Administration'.

					It resulted in raised taxes for the citizens of Farum, higher debt for citizens and a former mayor currently on trial in the courts.
Fitzgerald (2004)	8 PPP cases from Victoria	Australia	Report to government	Uncertain	The superiority of the economic partnership mode over traditional delivery mechanisms was dependent on the discount rate adopted in the analysis. Opposite conclusions were reached when using an 8.65% discount rate at one extreme (where the PPP mechanism was 9% cheaper than traditional delivery) compared to an evaluation adopting a 5.7% discount rate (where the PPP mechanism was 6% more expensive).
Edwards *et al.* (2004)	8 cases from roads and 13 hospital case studies	United Kingdom	Case reviews and interviews	No	Contracts reviewed 3 years in. 'PFI is an expensive way of financing and delivering public services...' The chief beneficiaries are the providers of finance and some of . . . the private sector service providers . . .'
Ghobadian *et al.* (2004b, p. 300)	General observations	United Kingdom	Literature review	–	'We have no firm evidence that the current PFIs would deliver on their long-term objectives . . .'
Grimsey and Lewis (2004, pp. 81, 245)	Selected global observations across several sectors	Several countries	Literature review	Yes	Preliminary evidence does seem to indicate strongly that PPPs offer one solution to the public procurement problem . . .' There is not one "model" of a PPP . . .'

Pollitt (2005)	General observations of UK cases plus 5 cases	United Kingdom	Literature review	Yes	It seems difficult to avoid a positive overall assessment'.
Shaoul (2005)	General observations of UK cases	United Kingdom	Literature review	No	PFI has turned out to be very expensive with a lack of accountability. Suspects that PFI policies 'enrich the few at the expense of the majority and for which no democratic mandate can be secured'.
Boardman *et al.* (2005, p. 186)	5 North America cases covering roads, waste management and water desalination	Canada and United States	Case reviews	No	Unless contracts both compensate the private sector for risks and then ensure that they actually bear it, 'P3s will not improve allocative efficiency'.
Hodge (2005, p. 327)	General observations of UK cases plus 3 cases	Australia	Literature review	Uncertain	There have been no rigorous and transparent evaluations of all Australian PPPs. The few available assessments suggest mixed performance to date. Government has moved away from its traditional stewardship role to a louder policy advocacy role, and now faces multiple conflicts of interest (as advocate, developer, steward, elected representative, regulator, contract signatory and planner).
Auditor-General of New South	Construction of 19 schools in New South Wales	Australia	Audit report	Yes	Between 7% and 23% cheaper.

Wales (2006)					Auditor saw as 'persuasive' the business case for these two PFI contracts.
Pollock *et al.* (2007)	Re-analysis of Mott Macdonald and other reports	United Kingdom	Academic paper	No	There is no evidence to support the Treasury cost and time overrun claims of improved efficiency in PFI' . . . [estimates being quoted are] 'not evidence based but biased to favor PFI . . .' Only one study compares PFI procurement performance, and 'all claims based on [this] are misleading'.
Allen Consulting Group (2007)	Sample of 21 PPPs and 33 traditional projects	Australia	Consulting report	Yes	PPPs reported as being an 11% cheaper alternative to traditional projects. Research project funded by Australia's infrastructure suppliers.
Blanc-Brude *et al.* (2006)	227 new road sections across 15 EU countries, of which 65 were PPPs	European Union	31 regression analyses	Not tested	*Ex-ante* construction costs of PPPs were 24% higher than traditional procurement. This is of a similar magnitude to the traditional cost over-runs. Whether PPPs deliver lower overall life-cycle costs remains Unknown.
Leviakangas (2007, p. 211)	A Finnish toll-road case study	Finland	Financial models	No	The hypothesis that private finance enabled welfare gains to be achieved was not confirmed.

Source: Graeme & Greve, 2009

Based on these various assessments of the value for money of the LTCIs Public Private Partnerships arrangements, Graeme and Greve (2009) argues that there does not appear to be clear evidence as to their effectiveness, and where it exists it seems to be weak. This is directly opposite to what the advocates of Public-Private Partnership arrangements suggest. They further argue that the most optimistic view of Value for Money in the findings is that it is mixed. There is a wide range between supporting and the opposing view on whether there is indeed value in Public-Private Partnership arrangements.

There is also a view that challenges the legitimacy of the assertion and belief by some in the public sector that Public-Private Partnerships enhance public interest. This view critiques the main fiscal and economic rationales that drive or lead to Public-Private Partnerships in the United Kingdom. This view compares the interest rates that are received by the public sector compared to those that are received by the private sector and shows the associated implications, and observes that the private financing of public infrastructure projects is greatly flawed.

It is clear that within the PPP landscape there are various permutations and options that can be used depending on infrastructural project requirements. Hellowell and Pollock (2010) suggest that the United Kingdom government has involved the private sector in financing and building of infrastructure projects and related services since 1992 through the Design-Build-Finance-Operate model. Many large public sector projects in the United Kingdom, including roads, public sector transport, and defence have been delivered through these partnerships. As of April 2008, 466 Public-Private Partnership schemes had been signed in the United Knigdom, totalling £51.5 billion.

Hellowell and Pollock (2010) argue that in the United Kingdom, the preference for Public-Private Partnerships is premised on the belief that the private sector investment and service delivery models are superior to those

in the public sector. This ideological belief is often combined with the view that Public-Private Partnerships allow for delivery of high levels of capital investment into the social and economic infrastructure while maintaining a tight fiscal stance. The British government has over time argued that Public-Private Partnerships enhance the public interest through the provision of additional resources for investment in infrastructure which is superior to public procurement. Hellowell and Pollock (2010) argue, however, that this view is fundamentally flawed and contends that the investment through PPPs cannot on its own lead to fiscal savings.

Hellowell and Pollock (2010) further observe that in the United Kingdom by 1997 Public-Private Partnerships were a priority, viewed by the political leadership of the time as a 'third way' to public infrastructure investment. At the heart of this is the belief by the public administrators that under the Private Finance Initiative the upfront cost of the project does not show in the national account or balance sheet. This appears to allow for high levels of public infrastructure investment while maintaining a good fiscal balance. This was influenced by a drive to keep the debt levels low, while also keeping personal incomes taxes low, and the option of using the Private Finance Initiative became attractive. However, the merits of the argument that the Private Finance Initiative increases the capacity of the government to spend on more public infrastructure projects have been called into question by organisations such as the United Kingdom's Institute for Fiscal Studies. The argument is advanced that simply because the privately financed infrastructure projects are invisible to the national debt because they are not on the balance sheet is merely an engineering of national accounting standards. The reality is that the ultimate impact of the investment is the same, whether it is made through public or private mechanisms.

Hellowell and Pollock (2010) argue that the Private Finance Initiative on infrastructure projects requires the commitment of future resources in the

same way that conventional lending requires resources presently. The cost efficiency of the Private Finance Initiative for infrastructure projects also seems weak at best. This assertion is not plausible because public finance is always cheaper than private finance and the likelihood is that in almost all cases, governments will be able to pay since they are unlikely to become insolvent in the way that a private company. Governments are usually able to borrow at very competitive rates and Hellowell and Pollock (2010) explain that the internal rate of return for a typical private sector project is 8% to 10% a year which is approximately 2% to 4% higher than a public sector authority would have paid if they had borrowed the money themselves.

In the context of the popularity of the PPP as a funding or infrastructure project delivery mechanism, there are dissenting voices emerging that question the basis on which these arrangements are being entered into. Based on the document or literature review, PPPs appear to have several shortcomings in relation to funding projects such as the Empangeni-Nkwalini branch line. It is clear from the literature review that PPPs are merely a financing tool and such financing arrangements are dependent on the direct revenues to pay for operating costs and cover the debt of financing while giving the desired return on invested capital.

The Empangeni-Nkwalini branch line as seen in the self-funding model is unable to generate sufficient revenue to cover all related costs to deliver the asset. This by implication means that Public Private Partnerships cannot finance unviable infrastructure projects. The difference between this and self-funding is that with the self-funding model, payment is made immediately while with PPPs, the repayments may be delayed. Delayed payments on finance raised by the private partner does not mean that the SOE is released from payments being required because in all instances, the repayments for the debt eventually become due.

There were, however, some views that emerged from the interviews which provided a different perspective on how Public-Private Partnerships for the Empangeni-Nkwalini branch line need to be approached. These will be explained in the findings and their assertion tested against Empangeni-Nkwalini branch line project requirements and sustainability test. All data will be reviewed in the interpretation and analysis of both the literature review and interviews on PPPs to assess the suitability of this funding approach for the Empangeni-Nkwalini branch line.

2.2.3 Government funding model

This section discusses the funding of infrastructure projects by government, whether through budget allocation, resources for infrastructure or through various subsidies. The applicability of the funding model in relation to the Empangeni-Kwalini branch line project funding requirements and conclusions will be assessed.

Chong and Poole (2013) state that China, India, Australia and the United Kingdom's public financing of infrastructure projects remains significant with the United Kingdom accounting for one-third and China even more. Public finance can take several forms, ranging from general appropriation for infrastructure projects financed via tax revenue or government debt, revenue bonds tied to various infrastructure, or investment by State Owned Enterprises including national development banks. In many countries the funding of infrastructure projects through appropriation processes is common. Budget appropriation has the advantage of transparency and public scrutiny as opposed to other forms of public funding. Given the low cost of debt to government as compared to private sector, financing infrastructure projects using public finance could be the most cost-effective way to deliver projects.

Many countries engage in different forms of quasi-government financing. Financing is provided by State Owned Enterprises which are legally independent entities partially owned and overseen by government. Some of these SOEs have a responsibility to build infrastructure assets and fund their infrastructure through several sources which include payment from government for non-commercial services that they are directed to provide. While SOEs play a critical role in funding infrastructure projects, what is evident is that government also intervenes from time to time depending on the need (Chong & Poole, 2013).

The Australian Government's Productivity Commission (2009) argues that in Australia, budget appropriations remain the largest source for public infrastructure development. While infrastructural investment is financed through retained earnings, budget appropriation or debt, there has been a trend of using the appropriations. The Commission argues that the application of the appropriation process has undergone major changes in many countries in the recent past. Nonetheless, it remains the major source of funding for public infrastructure investment in the Australian states and territories. The sources used to fund the budget appropriations include public debt and tax revenues. The Australian government has traditionally provided earmarked funds to infrastructure projects that have a national strategic importance, some of which are located with SOEs. Such funds transfers improve the welfare of citizens and address vertical fiscal imbalance. They may respond to equity concerns and close funding gaps where some SOEs have inadequate revenues to meet their obligations. The SOEs in Australia appear to have a good co-operative relationship with the State in delivering infrastructure, especially in areas where the former struggles to deliver these projects on their own.

In South Africa, the Department of Transport (2016, p. 25) notes that,

> "From the fiscal perspective, road transport receives subsidies (SANRAL, for example, has two primary sources of income).

> Operations and maintenance of non-tolled roads (84.2% of the total national road network) are funded from allocations made by the National Treasury while toll roads (15.8% of the total national road network) are funded from borrowings on capital markets and paid back through toll revenue. However, in the rail sector, Transnet does not receive the same capital allocations for maintenance and investment. This means that full cost of using road infrastructure is borne by South African taxpayers, rather than the direct users of the roads themselves. This means that, when comparing road and rail alternatives for transport, users of rail services pay a price that represents the full cost for this service, while on road, a significant portion of its costs are not represented in the price of transporting the goods (i.e. there is a large subsidy that is allocated transporting goods on road). This creates both a burden for the fiscus to carry, but also skews the competition in favour of road over rail transport".

This demonstrates a partnership between State Owned Enterprises and government in delivering infrastructure. There is also an option for the State to enter into an arrangement with other states such as China where they exchange resources for infrastructure. Foster et al. (2009) argue that a number of emerging economies have started to play a significant role in funding infrastructural development in Africa. Their aggregated resource flow into Africa is now estimated to equal that of the traditional funding partners or that of private investors. These new African funders include China, India and the Gulf States with China at the forefront. There are at least 35 African countries that engage with China on infrastructure development finance deals with the largest recipients Nigeria, Ethiopia and Angola.

Foster et al. (2009) further suggest that the Chinese approach to funding is different to that of traditional donors. The underlying principle is that of mutual benefit, reciprocity and complementarity on the basis of bilateral

agreements between states. Unlike traditional finance, Chinese Infrastructure Finance is not channelled through a developmental agency but through Ex-Im Bank whose mission is to promote trade. The Ex-Im Bank is increasingly making use of the deal structure called "Angola Mode" or "Resource for Infrastructure Arrangement", where the repayments for the infrastructure loan are made in natural resources such as oil. This is mainly used where countries cannot raise adequate guarantees to underpin the loan.

The area of resources for infrastructure poses a challenge in the South African context, in that the mining model in South Africa is based on issuing of mining licences to the private sector. The government does not do the mining itself, except in a limited way, as this is done by the private sector, which pays the state several taxes and royalties that are then added in the fiscal pool that is used already for service delivery obligations including infrastructure.

Saglio (1992) argues that during the French Motorway Programme, although initially this programme relied on user fees, at a later stage the five parastatals that were involved funded the project substantially, but it was with the active support of the French government. In particular this support included government aid that came in the form of financial underwriting. The existence of this particular aid made the financing of the French highway programme different from traditional financing approaches, in that loans were not guaranteed by the expected revenues from the project but from the government. Furthermore, the French Motorway Programme has been widely accepted as successful, largely because it provided French territory with an expanded network of highways at a time when tax money alone would not have been sufficient to finance it.

Saglio (1992) suggests that although PPPs have been hailed in the recent past as the solution to the shortage of funds, the example of the TGV Est.

financing demonstrates that government transfers may in some instance offer a better solution. The TGV project was selected, *inter alia,* for its social and economic rates of return that were above 25%. The TGV second project was subsidised up to 30% by government in order to make the project viable. Furthermore, government grants can be differentiated into three categories. One kind is not attached to any particular purpose. The second is attached to a particular sector or programme (social care, interstate highway). The third is for a specific project (trust funds). Fletcher (2010) argues that main road projects show poor cost recovery when, for instance, they are compared to telecommunications projects. The associated low financial rate of return on such projects contrasts with the social or economic rates of return that are widely considered to be very high. In instances where these projects show very high social returns but very low financial returns, it is expected that the national government will provide a grant for these projects.

Okonjo-Iweala and Osafo-Kwaako (2007) explain that in Nigeria there was particular attention given to pro-poor expenditure within the budgets that were needed to improve Nigeria's Millennium Developmental Goals indicators. Annual savings from debt servicing totalling US$ 1 billion was channelled to various poverty reduction programmes and monitored through the Virtual Poverty Fund mechanism. Furthermore, in the 2001 financial year, as an example, direct government support to SOEs amounted to US$ 323 million (0.68% of GDP) with about one half of the total support allocated to oil refineries and the telecommunications sector.

Table 2: Government support to State Owned Enterprises (by sector) for 2001

	Investment Grants	Operational Subsidy	TOTAL
		(in millions of naira)	
Steel mills	1,711.4	1,040.0	2,751.4

Coal companies	283.6	20.0	303.6
Oil refineries	6,998.0	599.6	7,597.6
Mines (solid minerals)	4,919.8	46.7	4,966.5
NEPA, power sector	3,858.4	431.1	4,289.5
Chemicals	504.0	5.0	509.0
Railways	283.6	595.1	878.7
Ports	500.0	218.9	718.9
Airports	1,625.6	629.9	2,255.5
Telecoms	8,300.0	3,100.9	11,400.9
Sugar	506.0	6.0	512.0
TOTAL	29,490.4	6,693.2	36,183.6
Total GDP			
As % of GDP	0.55	0.13	0.68

Source: Office of the Accountant General of the Federation of Nigeria

Bruzelius and Flyvberg (2002) observe that the types of projects that are examined are those that are high investment infrastructure projects, that have a long lifespan of around 50 years, that have high levels of uncertainty with regard to demand forecast, associate good property (not public in the sense of non-exclusion and free-riding but the substantial role of the state) and provide considerable indirect benefits to society. In addition, with regard to project risks there is a need to clarify early in the process which parts need to be allocated to private investors, investors or the state. The risks are thus disaggregated into:

- Cost risk (construction, operation and maintenance);
- Demand risk (traffic forecast and revenue);
- Financial market risk (future interest rates); and
- Political risk (regulation).

Bruzelius and Flyvberg (2002) contend that there could potentially be no private consortium or entity that can assume full risk for the project that has a long project lifespan. In these instances it becomes a viable option that the state provides some support to ensure sustainability of the project. The fact that most of these decisions on infrastructure projects are taken without the involvement of ordinary citizens who in most cases have to bear the risks of these investments is an unfortunate factor.

Bruzelius and Flyvberg (2002) explain that if the government decides that the mode of implementation and operation of the project is the State Owned Enterprise and that the facility must be financed by public monies or with funds backed by foreign guarantees, government then takes on the role of enabling production of goods of services for the society. In the conventional approach government plays a range of roles, some of which may be conflicting. The question that needs to be asked is whether government can act effectively as both the promoter of the projects and as a guardian of public interest issues such as protecting the taxpayers from unnecessary financial risk. Their view is that there is definitely a conflict of interest for government in such a context, in that they play a role as a promoter of projects and as custodian of the public interest.

Szamosszegi and Kyle (2011) argue that the Chinese government uses State Owned Enterprises to foster structural change in the Chinese economy. China affords its SOEs a more prominent role of driving the country's most important economic goals. The Chinese government has long used lower tax rates to reward entities that undertake infrastructure investment in areas where market incentives alone would not support the identified investment initiative. Another form of benefit conferred on SOEs and their subsidiaries are the direct funds through grants or capital injections. These government grants to the SOEs are treated as "other revenue" in the income statement.

Szamosszegi and Kyle (2011) note that the Chinese government also provides SOEs with preferential access to capital and production inputs. Although Chinese SOEs may raise capital in the United States and many other market economy capital markets, those same SOEs continue to receive support from the central government, thus continuing to benefit from subsidies and other preferential options, although control of these entities still largely lies with the state.

Lin and Cai (1998) suggest that judging by the capital scarcity nature of the Chinese economy, State Owned Enterprises cannot survive if they have to pay market-related rates and compete in the open market. Before the reforms were introduced, both their investments and working capital came from interest-free appropriations. Furthermore, the state should be responsible only for the SOE losses that arise from the policy burden. This is complicated by the absence of credible data. It is often hard for the state to distinguish between policy-induced losses and avoidable operational losses. In this case, there often arises a vicious circle of subsidies and strong political intervention in the SOEs. For as long as policy burdens remain, even if the State Owned Enterprise system is privatised, the state cannot distance itself from the policy-induced losses.

For the reform of State Owned Enterprises to be effective, it becomes necessary that the SOE policy burdens are removed and a more equitable operating context provided. This would mean that without the policy burdens, the state is no longer accountable for failures of the SOEs and can impose hard budget constraints on them. However, such a shift would not necessarily ensure that SOEs would improve their levels of performance.

Florio and Vignetti (2003) state that as a starting point the focus will be on variability of financial and economic rates of return and how to integrate this information in the co-financing mechanisms. According to the European Union regulations, infrastructural and productive investments may be

financed by one or more of the community financial tools which would be mainly grants in the form of Structured Funds or Cohesion Funds. The Commission that is responsible for appraising projects that are identified for co-financing will require the following information:

- Cost benefit analysis;
- Risks analysis;
- Evaluation of the environmental impact; and
- Assessment of impact on equal opportunities and employment.

Florio and Vignetti (2003) further contend that given the diversity of the projects that are presented to the commissions for co-financing, both in terms of budget and sector, the final results of cost benefit analysis may vary extensively. This presents a risk in that it can affect the consistency of co-financing decisions and project comparability. There are various issues that can lead to lack of consistency in co-financing project appraisal when conducting cost benefit, and these include:

- Time horizon (estimation of the life of the project);
- Residual value at the end of the year;
- Determination of the total cost of investment (depreciation, replacement cost, contingency);
- Financial discount rate;
- Social discount rate;
- Calculation of the performance indicators; and
- Determination of the co-financing rate.

Pushak and Foster (2011) explain that Sierra Leone established a Road Fund in 1992 to ensure road maintenance and rehabilitation of public roads throughout the country. Since 2009 the government of Sierra Leone has made a significant impact in improving the legislation governing the Road Fund and ensuring that the Road Fund is independent of the Sierra Leone Roads Authority. The Road Fund has spent about $15 million annually on road maintenance up to 2004. The capital spend, combined with $8.5 million

of road investments channelled through government (in the years 2007 to 2009) brought the total public capital flowing to the road network to an annual average of $9 million.

Klein (1997) argues that the cost of capital in countries where there is sound and predictable regulatory policy is treated differently. While it is true that most infrastructural projects are subjected to a number of severe risks, there is less need for guarantees in jurisdictions where there is a well-developed policy framework. Most investors are willing to invest at low cost of capital in jurisdictions where there is stability in fiscal regulation. In instances where the cost of capital is very high and any attempt to attract finance is challenging, government support may stimulate capital flow at even reasonable rates. This has implications in that it reduces government's overall capacity to borrow to fund other competing priorities. Even in these instances it is possible that the cost of government support can be considered in the cost benefit analysis of the project. The principle underlying the comparison must be whether the benefits associated with the support of the government are worth the cost. The decision to grant the government support should be based on an explicit cost benefit analysis for the project to receive government support. Included in that assessment should be the assessment of the likely cost of the investment to the taxpayers and the impact of alternative forms of government funding.

Klein (1997) contends that government support stretches to include scenarios where government support ventures also include the private sector. Whenever infrastructure projects need government support to attract the private sector, there are several prescribed ways in which that can happen. It can take the form of a guarantee by the state or it could be a cash subsidy towards a certain project. A further option is that government can invest debt or equity together with or alongside the private investor. The other form of government support could be that it provides complementary investments to the identified project. One such example of this could be

where the government builds a feeder road leading to the private port project. The case of complementary investments can be thought of as simply an in-kind subsidy. In practice the private debt or equity investors may ask for a mix of government support encompassing some or all types of support already mentioned.

According to Klein (1997), in the example of building a toll road, the private investor may ask for government to provide: i) a guarantee to maintain an agreed user charge or tariff policy as well as currency convertibility; ii) a requirement that the government provides a guarantee to refinance to lengthen credit maturity; or iii) a subordinated debt which reduces the need for senior debt but maintains profitability of equity. There are arguments advanced that projects provide special social benefits justifying support for the government in different forms. There are often valid reasons to provide one form of government support to the projects and private finance may not be forthcoming in sufficient quantum without it. The caution is that, however important the need, there must be a thorough assessment of the type of support that is appropriate from the government (and society's) point of view.

Klein (1997) observes that any form of assessment of the appropriateness of government support should be established, and involves the following steps. First, the rationale for government support must be clearly established. Second, the possible appropriate instrument of support must be clearly determined. Third, the incentive effect of each support measure must be established – how it affects demand and cost must be assessed and measured. Finally, for each of the support instruments, the net present cost to government can be computed and compared to similar benefits. After all these steps have been implemented, the appropriate decision about the form and terms of government support may be made.

Klein (1997) further contends that there are cases where the social benefit exceeds the private benefit, in that the private willingness to pay may be less than the social benefit due to the type of benefit generated by the project which may not accrue to the consumers that can be charged. An example of this may be seen where, if safe drinking water is introduced, it reduces the infection rate to the people who are not consumers of the water system. This may be worth subsidizing. The project may also benefit people that government wants to subsidize for reasons of equity, as Klein (1997) explains: "In principle when the thinking for the government support arises from the difference between effective private willingness to pay and social benefits it should take the form of subsidies supplementing the price consumers are willing to pay for the service".

Kalyuzhnova and Nygaard (2011) argue that in the absence of the well-functioning private financial sector, government can substitute for the actions of the private sector by introducing dedicated financial supportive tools. These instruments have provided the governments of both Russia and Kazakhstan alternatives to direct ownership in their pursuit of national economic priorities. The governments in both countries introduced dedicated financial support for industrial development and investments which allows both governments to pursue initiatives that are aligned to national priorities. Furthermore, the period 2000 to 2007 could be characterised as that of rapid economic growth while at the same time oil prices allowed both governments to build significant foreign reserves. This accumulation of reserves allowed for more active state participation and involvement.

According to Kalyuzhnova and Nygaard (2011), more recently there has been an argument made that state intervention has created dynamic imperfect competition leading to a collective process of national rent seeking. This results in a complex conundrum leading to shallow industrialisation and inefficient monopolies that contribute to retarded

economic growth. However, state intervention has worked well in Korea because the state was willing to withdraw support towards entities that no longer performed satisfactorily, leading to the removal of existing state rents.

Kalyuzhnova and Nygaard (2011) argue that the creation of the state support vehicle must be seen as government's response to investment barriers. Ilori (2004) argues that it is now commonly agreed that in order to overcome rigidities inherent in unaffordability, the state should play a more central role in infrastructure investment and cannot afford to play a spectator role. The problems of unaffordability are of a magnitude and scale that they cannot be confined to the free interplay of economic forces. State intervention is therefore non-negotiable in ensuring economic development. In the Nigerian example, there was a need for rapid socio-economic reform to enable development of the broader economy.

Ilori (2004) further argues that in the early days of general development, investments were made to promote externalities; that is, investment in economic and social overheads like power, transport, and education. The private sector was not in the position to participate in these initiatives because the inherent risks combined with required investment were too large while expected profits were low. A further limiting factor regarding private sector investment is that the benefits of investment in infrastructure were realisable only over a long period of time.

Ilori (2004) contends that government should proactively direct more financial support to public infrastructure initiatives from the oil revenue. Sihlongonyane (2003) argues that the local economic development initiatives in Swaziland were undertaken by the state to promote employment as well as encourage investment by local Swazi citizens. Sikwela and Mushunje (2013) argues that the reduction of market participation by smallholder farmers especially in the more secluded areas

makes it difficult for them to graduate into commercial farming that would contribute to a reduction in economic development. Smallholder farmers in South Africa have received little support since the transfer of farms since the transition to democratic government in 1994. The reality is that most farmers still face several problems in accessing better paying markets. Sikwela and Mushunje (2013) further argue that there has been a growth in budgets that are aimed at providing financial support to black and disadvantaged farmers in the form of grants from government and loans from banks and private parastatals for infrastructure to enable improved access to markets. One reason put forward for the failure has been that most national programmes earmarked for small farmers fall short because they were not designed to make an impact to the extent required to make an impact at the socio-economic level of the farmers.

Agriculture is the backbone of most rural areas in Africa. Depending on the extent of advancement on the economic front in a particular country, agriculture contributes to overall economic growth by creating jobs, and supplying labour and raw materials to other developing sectors of the economy. Despite these significant contributions rural areas remain the most marginalised and are characterised by poverty, food insecurity, unemployment, inequality and lack of important socio-economic services. This is in a context where "the state sponsored schemes have generally focused on addressing the issue of resource gaps such as improving access to land and credit and developing infrastructure" (Sikwela & Mushunje, 2013).

Obadan (2001) argues that the poor are predominantly found in the rural areas and are mainly engaged in agriculture. The National Poverty Eradication Programme introduced in Nigeria in 2001 is a programme that focuses on providing strategies for eradication of absolute poverty in Nigeria, in conjunction with the National Poverty Eradication Council (NAPEC) which co-ordinates poverty reduction activities of all relevant

ministries, parastatals and state agencies. It has a mandate to ensure that all poverty reduction activities are centrally planned to ensure policy continuity and sustainability. Furthermore, while economic growth is crucial in reducing poverty, it is not enough on its own to deal with poverty reduction. Growth should be accompanied by a deliberate policy of redistribution and equity which is promoted by participation. Economic growth is important in producing additional resources for government to use in social programmes aimed at reducing poverty. Obadan (2001) suggests that considering the extent of poverty in Nigeria a targeted intervention approach is required.

The literature review suggests that there is an opportunity for government involvement in funding, at least in relation to non-commercial services that the State Owned Enterprises are expected to offer. The data reviewed indicates that some form of government funding support is possible, and that the most viable model appears to be a co-funding model for infrastructure projects such as the Empangeni-Nkwalini branch line. There were some views that came from the interviews that shared additional insights on how co-funding can work for the Empangeni-Nkwalini branch line that will be tested against the project and sustainability requirements. All data will be reviewed in totality during the interpretation and analysis of literature review and interviews to ascertain the suitability of this funding approach.

2.2.4 Aid or Donations funding model

The role that grants or donations play in the infrastructural development space and the suitability of this funding model will be explored in relation to the Empangeni-Kwalini branch line project funding requirements. Koenig and Keifer (2005) argue that for some time, request for aid in infrastructure funding has been denied due to the general interest principle. This is due to the fact that most of the infrastructure projects tend to benefit one interest

group or another and not the general public as required by the donors. The general interest principle requires that for the aid to be granted there are conditions of access that need to be met. The first condition is that the infrastructure is not provided by the state. The second one is that the infrastructure must not favour certain groups over others. The third one is that it must be equally accessible to all without discrimination. Finally, the prices charged must always be reasonable. There is also aid from several local and global aid agencies that provide funding support for infrastructure projects directed to the greater public good.

Addison, Mavrotas and McGillivray (2005) argue that despite the overwhelming evidence that aid generally works, trends in aid suggest that it has fallen for much of the recent period with serious implications for development, growth and poverty reduction. The role of aid in development and its effectiveness is constantly interrogated, while in the United States there is a growing discourse that aid has wholly failed to contribute to human development in a meaningful way.

Kragelund (2008) argues that the influence of China and India on Africa as a result of distributing aid continues to be enormous. Aid has always been an important foreign policy tool for China, starting as early as 1949 in the form of food and medicine. This later shifted from giving food to providing aid for turnkey projects. In all geographical areas where China provides aid it has maintained an important role in the country's foreign policy.

Hewitt and Kydd (1986) argue that Malawi's resources post-independence were so modest that the country depended on foreign support. A lot of aid could be channelled largely into new projects with little consideration for recurrent cost implications. The Malawi government was, however, in conflict with donors at different times on spending priorities. Many donor interventions in Malawi were generally successful, especially in the transport sector. With limited infrastructure at independence, Malawi has

attained a comprehensive national road network that was funded by aid. Malawi uses its own resources for maintenance of the road network although in other areas of transportation such as rail, aid has been utilised. Hewitt and Kydd (1986) further contend that Malawi's strategy in dealing with donors and ensuring that they contribute to critical sectoral programmes has been very effective. The leading donor influence on Malawian policy in eh 1980s was the World Bank, which initiated a programme of structural adjustment lending in 1981.

Fletcher (2010) argues that in many poor countries, the greater part of funding for infrastructure comes from third party donors in the form of multilateral organisations and states. One example is the pledge by the government of China to build a third bridge in Bamako, the capital of Mali. There are many similar projects in the African continent. Fletcher (2010) explains that although there are many infrastructure projects that have been delivered in Africa through donor funding, there are three ongoing issues associated with such funding. The first issue is that of aid fungibility as well as the inability of donors to influence the recipient government's choice of investment projects to fund specific projects and not others. The second issue is usually the style of aid delivery and some of the attached conditions that must be accepted. The third concern is the identity of the donor and value given to donors based on the perceived risk.

Fletcher (2010) further suggests that there is nothing such as genuine philanthropy because there are always unwritten expectations and conditions attached to any aid or donation. Many critiques of the prevailing aid and donation in Mali, for example, and many emerging economies has been that the prevailing aid will substitute or dilute the Organisation for Economic Cooperation and Development (OECD) aid and in so doing risk undermining the good governance requirements usually attached to the OECD aid. These donors exhibit different characteristics and therefore it may seem reasonable to assume that low income countries will be inclined

to accept aid that has less value from international donors than a middle income country would.

Fletcher (2010) contends that infrastructure projects with low cost recovery characteristics such as road networks and bridges are likely to be funded through aid and donations because low cost recovery discourages governments from taking out repayable loans. The different styles of aid and donations may come with very high transaction costs that must be borne by the recipient government when accepting aid. In many instances the acceptance of the donations by the recipient government comes with bilateral obligations to either the donor or the recipient, whether implicit or explicit.

Collier (2005) argues that there is widespread criticism of aid and its associated expansion in Africa. Such criticism can generally be grouped into two orientations. The first is the criticism which is more radical and views aid as the main cause of Africa's problems. This view believes that aid intensifies Africa's problems rather than resolving them, and in academic circles goes back to Bauer. This view has wide acceptance in the United States and the United Kingdom. The other view which is a softer one but equally debilitating sees aid as useful but subject to diminishing returns. Collier (2005) argues that the current boom in natural resource prices is delivering significant increases in resources transfer to Africa. During the early 2000s there was a boom in natural resource prices in Africa although the prognosis on the growth data as a result of the boom was discouraging. The expectation was that the bonanza should have contributed to growth of even other sectors of African economies. This expected growth did not materialise. Economies performed the same in terms of growth before and after the bonanza. The radical critics of aid will not be surprised by the failure of the windfall or oil bonanza to induce growth, and will attribute this failure to aid. This will be informed by the thinking that both are the same and are both sovereign rents that generate dysfunctional rent seeking behaviour.

Collier (2005) argues that "aid is provided in four purposive ways: technical assistance, projects, packages linked to conditions on past or prospective government behaviour, and debt relief". The transfer of revenue comes with both expertise and conditions in varying degrees. Governments in developing countries often complain about delivery of aid. Governments criticize conditionality in that it undermines government's autonomy and government priorities.

Moyo (2009) argues that money from rich countries to mostly poor African countries has trapped these countries in the cycle of corruption, slower economic growth and extreme levels of poverty. Discontinuing aid from rich countries to poorer African countries will be far more beneficial. Giving aid to Africa remains a central developmental approach of the modern era. Many governments are judged by how much they give in aid, and calls for aid are growing louder with many advocates pushing for the doubling of aid to roughly $50 billion of donations that goes to Africa each year. Yet there is overwhelming evidence that shows that aid to Africa has made the continent poorer and undermined growth rates.

Moyo (2009) further contends that there are instances where aid is necessary, as in 2004 when there was a tsunami in Asia. Scholarships provided through aid have helped send girls to school, but on the other hand, when they graduate they remain unable to find meaningful employment due to the lack of economic growth. This sort of aid is good for short-term relief but cannot be a platform for long-term sustainable growth. Over the past sixty years, at least $1 trillion in development aid has been transferred to poorer countries yet real per capita income is lower than it was in the 1970s and more than 50% of the population continues to survive on less than US$1 a day. Even after an aggressive debt relief campaign in the 1990s, African countries still pay close to $20 billion in debt repayments

each year, a clear reminder that aid is not free. In order to keep the system functioning, debt is repaid at the expense of education and health.

Moyo (2009) notes that one of the main criticisms of aid is its links to rampant corruption. A former president of Malawi was charged with embezzling aid money worth $12 million. The constant flow of money is the ideal way to keep inefficient or simply corrupt governments in power. Cabral (2007) argues that rather than worrying about volumes of funding, governments and donors should be concerned about returns on funding. There seems to be very little discussion about returns on aid. Before addressing an issue of the call for increased aid, an analytical basis is needed that will provide a solid understanding of spending, its composition, its links to service provision and performance, factors that might constrain its relevance, efficiency and effectiveness.

There are a number of limitations that come with aid and donations in the infrastructure development as it relates to the Empangeni-Nkwalini branch line project. The first issue is that when projects are identified for funding by donors, the general interest principle must be applicable. However, in this case it will not be applicable because the main beneficiaries will be the farmers in the area. The general population might benefit as the by-product of farmers being able to move more volumes at lower prices. While this may contribute to additional jobs being created, the direct beneficiaries will remain the farmers.

There is also an issue of policy influence that is generally attached to these donations or aid arrangements that is unlikely to work in a sovereign country like South Africa. Furthermore, donations and grants as a funding model are reducing generally. On the basis of the information provided, donations or grants as a funding model for infrastructure projects such as the Empangeni-Nkwalini branch line are unlikely to work well.

There were however some views that emanated from the interviews that shared additional insights on how the Aid and Donations model can work for the Empangeni-Nkwalini branch line and these will be explained in the findings and the suitability of such a model will be discussed.

2.3 CONCEPTUAL FRAMEWORK

In the context of all the different funding models that have been explored, it is clear on the basis of the literature review that most of the models, with the exception of one, are not suitable for the Empangeni-Nkwalini branch line project, at least as stand-alone funding models. In identifying the best fit funding model that will ensure the branch line project is undertaken, selecting the correct model to frame the funding question at hand is a critical necessity.

The Rational Comprehensive Model which falls into an area of Policy Analysis process whose aim is to test between different available options with the view of selecting one or more options that is the best fit for the problem at hand.

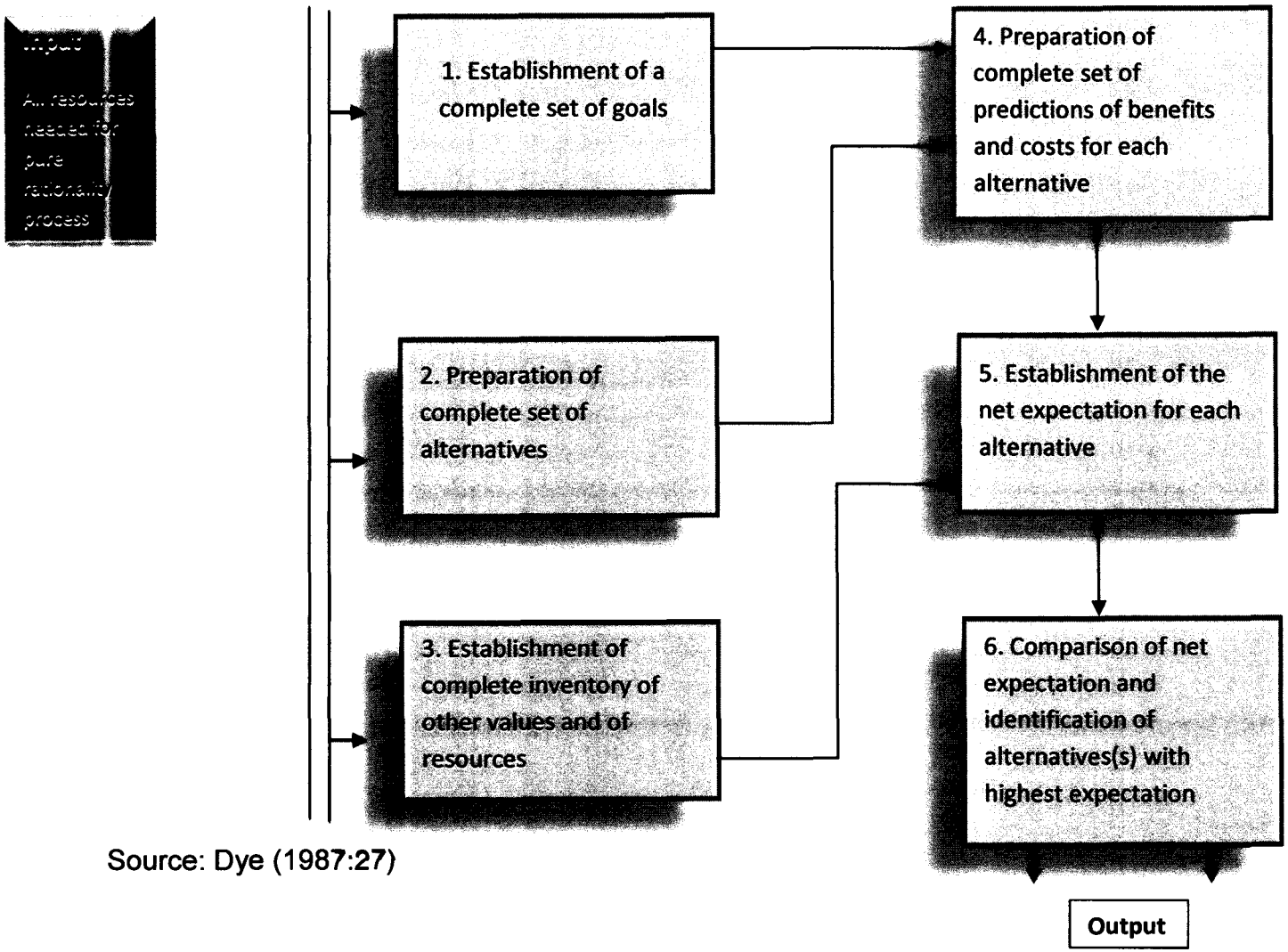
The Rational Comprehensive Model allows the researcher to explore different existing funding models and also allow the researcher to establish why the existing funding models do not respond effectively to the funding requirements of the current socio-economic projects. The model must ensure that a new funding model can be derived from the elements of the existing funding models, while also leveraging any viable components around funding of similar projects.

What is obvious from the literature reviewed is that most of the socio-economic projects do not get funding because they lack the appropriate revenue levels required to generate profits. It is for this reason as well that Transnet fails to fund projects such as the Empangeni-Nkwalini branch line

and thereby exacerbates the social and economic challenges of rural and peri-urban communities in South Africa. However, most of the funding models are unable to respond adequately to the funding requirements of the Empangeni-Nkwalini branch line project in their current form. In an attempt to develop a funding model more suited to this project, the Rational Comprehensive Model will be utilised as a tool to establish the correct funding approach for the Empangeni-Nkwalini branch line. The Rational Comprehensive Model will consider both literature review and interview outcomes.

According to de Coning and Cloete (2011), the Rational Comprehensive Model is a six-step model that subjects ideas, policies, methods, and approaches to rigorous rationality until the best-fit solution to a problem is found. The aim of the model is to assist with the question of what needs to be done. This model generally focuses on analysis of approaches for determining the most appropriate policy option.

Figure: Rational Comprehensive Model



Source: Dye (1987:27)

The first step of the model is the establishment of the goal or objective for which the analysis is undertaken. The model emphasises the setting of goals or objectives from the outset so that the analysis is guided by the parameters of what is intended to be achieved. In the case of this research, the objective is to identify the funding model that is best suited for Empangeni-Nkwalini branch line project. The objective is premised on the inability of existing funding models in their current structure to respond adequately to the specific funding requirements of the Empangeni-Nkwalini branch line project.

The second step in the model deals with the identification of available options or alternatives to deal with the problem statement. This step requires the researcher to be fully informed via the literature review and interview outcomes of the current discourse and information. As many funding permutations as possible should be considered in a list of options. The four options to be considered in this step are Self-funding, Public-Private Partnerships, Government funding, and donation or aid.

The third step of the model addresses the aspect of ensuring that all the options are decoded and understood in the context of the problem statement. Funding alternatives as identified in the literature will be investigated as part of the research.

The fourth step provides a complete set of hypotheses as to the most viable approaches for branch line funding, drawing on the literature review and the interviews.

The fifth step establishes the overall benefit from each of the options and the potential of each option for the branch line funding requirements.

Step six requires a final comparison to be made between each option's overall suitability to the Empangeni-Nkwalini branch line funding

requirements and a decision made on the most ideal option or options. The funding model or combined models that respond most effectively to the funding requirements must be selected. The model should be appropriate for the purposes of what the research wants to accomplish, providing enough flexibility to build a funding model that is specific to the Empangeni-Nkwalini branch line

2.4 CONCLUSION

There are several funding models for different types of infrastructural projects. The popular funding model seems to be a cost recovery based model, where capital is raised from various sources and repaid through the tariff or revenues generated. Based on the literature review this model seems to accommodate projects with a strong commercial case and excludes those such as the Empangeni-Nkwalini branch line. It relies on the project being profitable. This model is usually not applied to projects that are unlikely to become profitable. Further review and analysis of interview responses will expand on the findings.

The other funding model is a Government funding model between government and the entity involved. There seem to be opportunities for government to close the funding gap for the Empangeni-Nkwalini branch line and this presents an opportunity in the funding model. Interviewees also provided insights into how the co-funding can work for the Empangeni-Nkwalini branch line.

There are Public-Private Partnerships where the funds are sourced from participating players in order to bring the project into existence. The profit expectation from the private sector makes this particular option less viable and thus unattractive to private sector participation. That is the view that emanates from the literature review. There are, however, some views from the interviewees that PPPs can work for branch line funding.

The last model is grants from different institutions. This seems to present challenges in terms of the general interest principle that will not be complied with in the Empangeni-Nkwalini project. The expectation of policy influence by donors might provide a disincentive to consider this option.

What is clear from the literature is that although there are various funding models available for rolling out infrastructure projects, there does not seem to be one tailored specifically for the Empangeni-Nkwalini branch line. The risk in not having the funding for the branch line is that the local communities will not have access to sustainable economic opportunities and will remain socio-economically disadvantaged.

This research explores the existing funding model to assess if there are opportunities to leverage in order to develop the most suitable funding model for the branch line. The proposed funding model should be able to fund socio-economic projects especially in rural areas in a way that will contribute to increased economic activity and general development in those areas.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 INTRODUCTION

The quantitative research approach will be explained in detail as well as the qualitative research approach. The ideal research approach for responding to the research question will be selected. The criteria to select data that is relevant to the research question will also be explained and will assist in eliminating funding models that are not suited to the Empangeni-Nkwalini branch line project.

The data collection instruments that are available to assist in conducting the research will be explored and those best suited for the purposes of this particular research will be identified, with reasons provided for the selection of particular data collection tools. The implementation of the research method will also be explained.

The approach to the process of analysing data will be explored. This approach must assist in identifying trends and patterns in the data and enable the researcher to extract meaning that may culminate in research findings. The method for the presentation of the collected data will be explained, and the process of ensuring that the data is valid and reliable will be covered.

3.2 APPROACHES TO THE RESEARCH

The first area of focus will be to introduce the fundamental concepts of quantitative research as a research methodology as compared with qualitative research. Sukamolson (2007) argues that quantitative research is a numerical representation of the phenomenon and manipulation of an

observed entity with the intention being to describe the characteristics of that entity or phenomenon. Cohen (1980) as cited in Sukamolson (2007) observes that quantitative research is defined as social research that uses empirical methods and statements. The empirical statements endeavour to state what "is" instead of what "ought" to be. These empirical statements are usually expressed in numerical terms. Another attribute in quantitative research is that empirical evaluations are applied. This seeks to establish the degree to which a phenomenon fulfils or does not fulfil certain criteria.

Creswell (1994) as cited in Sukamolson (2007) contends that quantitative research is about collecting numerical data and analysing it using mathematically based methods in order to explain a phenomenon. In looking at this closely, the first element is explaining a phenomenon. This is an important element of the research regardless of whether it is quantitative or qualitative. When research is conducted the researcher intends to explain something. The uniqueness of quantitative research is found in the next step. In quantitative research numerical data is collected. In qualitative research the data is not usually numerical. In quantitative research the numerical data collected is then analysed using various mathematically based methods, especially statistics.

Sukamolson (2007) explains sample questions that could be asked in a quantitative research:

- How many students learning Experiential English get an A in the first semester?
- What percentage of the students learning Experiential English have negative attitudes towards the course?

Sukamolson (2007) argues that much of the data used in the quantitative research needs to be collected through instruments such as questionnaires. Quantitative research can be used quite broadly and consists of four

different types, namely survey research, correlation research, experimental research, and casual comparative research.

Sukamolson (2007) describes quantitative research as a realist's view of the world. This takes the view that all the research does is to uncover an existing reality. The truth is assumed to be out there and the work of the researcher is to find it. The expectation is that the researcher is always objective. There is, however, a view that a researcher is part of the reality they are investigating and it is impossible for them to be objective when they interpret the results. Although there is some risk of bias, most researchers agree that this is the best method to use when objective reality is required. The positivists argue that although research can never be certain, there should be an attempt to promote confidence in the results. In other words, how much trust can be placed in the results? Sukamolson (2007) also shares when it is ideal or appropriate to use the quantitative research method by exploring different types of questions that quantitative research is suited to answer, such as:

- If students have a choice, how many choose Mathematics as a subject? How many teachers would like to teach Mathematics instead of English? In such a case qualitative research would not work because it will provide a non-numerical answer.
- Are numbers of students in the university rising or falling?
- How many students like the new curriculum?

Sukamolson (2007) also outlines areas where quantitative research is not suited for use, including the following:

- The first area where quantitative research would not work is where the researcher wants to explore the problem in depth. Quantitative research is too shallow to explore a concept or a problem in depth.
- Quantitative research is not suited to developing theories.
- When issues to be studied are complex, an in-depth qualitative study is more useful than a quantitative study. This is because there is a

limit to how many variables can be looked at in any one quantitative study, and partly because in quantitative research it is the researcher who defines the variables to be studied. In qualitative research unexpected variables may emerge.

- While quantitative methods are better suited to examining cause and effect, qualitative methods are more suited to looking at the meaning of particular events or circumstances.

Qualitative research takes a different perspective to that of quantitative research. Polkinghorne (2005) argues that qualitative research is an enquiry that is aimed at describing and clarifying human experience as it happens in people's lives. Qualitative data is primarily collected through the form of data and language rather than numbers.

Morgan and Smircich (1980) argue that unlike the ontological assumption made in the quantitative research that the world is concrete and there is objective reality in the process of the researcher interacting with social reality, the qualitative approach contends that humans do not just react to the social world but are part of the creation process of reality. In the qualitative process, reality is subjective and varied as seen and interpreted by participants in the study. Morgan and Smircich (1980) further argue that the world in the qualitative research space is an open-ended process that is the opposite of a narrow empirical snapshot of an isolated phenomenon at fixed points in time which does not interrogate the nature of that which is measured.

Sukamolson (2007) argues that unlike quantitative research where the researcher is seen to be independent, in the qualitative space the researcher interacts with what is being researched. This close interaction of the researcher with what is being researched in most instances leads to bias. In qualitative research the researchers are subjectivists. This phenomenon of subjectivity speaks to the role of human subjectivity in the

process of creating social reality. In the view of qualitative researchers, reality is not an entity that is out there to be objectively evaluated, but is at least partly constructed by people. The qualitative researchers do not believe that there is an objective reality to be observed simply because humans form part of the reality that is being assessed and it is thus impossible to escape bias. Qualitative researchers believe that the process of observing reality changes it. This in essence means that the truth can only be subjective and not objective as the realists or positivist claim. Furthermore, qualitative research uses language that is informal, evolving and has a personal voice to it. The methodological assumptions in the qualitative research are based on inductive processes, mutual and simultaneous shaping of facts, is context-based, patterns and theories developed for understanding as well as being accurate and reliable through verification.

Sukamolson (2007) notes that there are several research methods used in the qualitative research space, namely participant observation, case studies, interviews, document assessments, and ethnographic research. These are quite different and are used by researchers with various worldviews. Qualitative research can be used only under certain circumstances, which are:

- It is fitting to use qualitative research if the researcher intends developing a theory or hypothesis.
- Qualitative research is useful if the researcher intends to examine the phenomenon or explore a problem in-depth.
- It is suited where issues under investigation are complex and in-depth.
- It is suited to finding meanings of particular events or situations.

Sukamolson (2007) explains when it is not ideal to use qualitative research, which include the following:

- Qualitative is not suited when a researcher wants a quantitative answer. An example is if the researcher is looking for a number of students that choose mathematics in a particular year.
- It is not suited for estimating the size of the audience segment. Qualitative will be able to discern the nature of each audience.
- It is not good in quantifying opinions, attitudes and behaviours, such as measuring consumer attitudes regarding a campaign.

The research will use the qualitative research method in responding to the research question. The reason for using the qualitative approach is because the research that will be conducted is exploratory in nature and qualitative is well suited. One of the key expected outcomes of the research is the recommendation of the new funding model for the Empangeni-Nkwalini branch line project. As established in the previous section, qualitative research is useful in instances where the researcher intends to develop a new theory or concept. At the core of the problem statement is the need to develop a funding model that will resolve the funding issue for the branch line project.

As part of this research, the intention is to obtain an in-depth understanding of the existing funding model and its ability or inability to fund the Empangeni-Nkwalini branch line project. Qualitative research as alluded to in the previous section is useful in instances where the researcher intends to gain an in-depth understanding of the phenomenon under investigation. It is for this reason that qualitative research will be used in the process of exploring different funding models.

Attempting to identify a funding model that is suited to the Empangeni-Nkwalini branch line project will be a complex process, as navigation through each funding model is done to establish compatibility. Qualitative research is better suited for enquiry and investigation of complex issues.

3.3 DATA COLLECTION

There is a need to define the criteria that will be used to identify data that responds to the research question and that which does not. Not all available data will respond to the research question. The criteria will assist in eliminating data that does not respond to the research question, thereby focusing the research and ensuring that only relevant data is used. The criteria used will have the following attributes:

- Funding models for infrastructure projects;
- Funding social and unprofitable projects;
- Economic impact of social projects on local communities and broader economy; and
- Social impact of social projects on local community e.g. jobs.

The initial focus of the data collection process will be to identify available funding models for infrastructure projects. The collected data should allow the researcher to interrogate different funding models and assess each model's compatibility with the Empangeni-Nkwalini branch line project requirements. Subsequent to collecting data that outlines characteristics of each funding model, the researcher must collect data that tests the ability of each funding model to respond to the funding requirements of the unprofitable social projects such as the branch line project.

As part of the search criteria, the data that outlines the economic benefits of funding social projects will be used so as to ensure that the data to be mined is focused on the research question.

Finally, to ensure that the data collected answers the research question and that unnecessary data is not collected, the search will focus on the social and economic impact of social projects on local community and the broader economy. This is the data that shows how projects that are unprofitable but

have a positive social and economic impact on local communities, the broader economy and jobs creation is collected.

All the search criteria combined should provide data that will enable the researcher to form conclusions that answer the research question and explain how to fund unprofitable social projects in a way that has positive social and economic results.

In the qualitative research method there are several tools that can be utilised to collect data that will be analysed in order to gain an understanding of the phenomenon under investigation, in this case existing funding models. Sukamolson (2007) argues that there are several research methods that can be used in the qualitative research space, such as interviews, document assessments, and participant observation, which vary widely and are used by researchers with quite different worldviews.

The interviews are a popular tool among researchers because of their flexibility in allowing the researcher to frame questions in a way that assists in understanding the subject under review. Becker, Bryman and Ferguson (2012) argues that interviews have a wide appeal for qualitative data collection among researchers because of the flexibility, although they tend to be time-consuming. The other popular method that is usually used to collect data is document analysis. This method is known as secondary data analysis. Bryman (2012) argues that this method has certain associated benefits such as lower associated cost and time compared to other research methods, the good quality data that can be obtained and that it allows more time for analysis. This method gives the researcher the ability to do a broad range of analysis that may not be possible in relation to the interview process.

Bowen (2009) argues that the previous studies provide source data to any research which requires the researcher to rely on description and

interpretation rather than relying only on raw data. Bowen (2009) argues that during document analysis the researcher needs to apply an analytical procedure which is about finding, selecting, appraising or making sense and synthesising data contained in the document. Labuschagne, as cited by Bowen (2009) observes that in document analysis the process of organising data quotes, passages and excepts must be organised into major themes and categories through content analysis.

The other method of collecting qualitative data is through observation. Mulhall (2002) argues that observation as a research discipline is used in both structured and unstructured ways. The aim is to record physical and verbal behaviour and deduce conclusions on that which is under study. There are several issues, however, with observation as a research tool, such as the role of the researcher that is sometimes blurred, as well as concerns regarding the consent of those observed. There may also be challenges in relation to access.

The research will use document analysis and interviews–both structured and unstructured–as data collection tools. Structured interviews will follow the questionnaire format, where the respondent answers the questions posed by the interviewer and there is no follow-up. The unstructured interview will not have a questionnaire and both the interviewer and the interviewee pursue the topic without being guided by the set questions. The choice of document analysis as a primary tool is based on the aim to undertake a broad range of analysis. The document analysis should provide adequate depth and breadth regarding the topic under review to enable a formulation of the new funding model.

This data collection method will provide adequate time to analyse the data in the process of investigating the different funding models. The interviews will be used as a data collection tool to test the conclusions and assumptions made in the document analysis. The interviews should also reflect

information, if any, that is not necessarily elaborated on in the document analysis. The choice of the interviews is based on the flexibility they provide to the researcher to frame questions in a way that assists in understanding the subject under review. The types of questions asked in the interview are more open-ended in order to encourage interviewee perceptions and viewpoints to emerge strongly. These views can then be compared with ideas derived from the document analysis exercise to form a view.

Table 2 below lists the participants in the interview process for the Empangeni-Nkwalini branch line project. This will constitute the sample size.

Table 2: List of Participants

Designation of interviewee	**Organisation**	**Business Area**
1x Project Manager (Branch Lines)	Transnet	Operations
1 x Strategy & Business Planning	Transnet	Business Support
1 x Chief Engineer – Capital Programme	Transnet	Operations
3 x Community member	Community	N/A
4 x Capital Portfolio Expert	Transnet	Business Support
1 x Transport Economist	Department of Public Enterprise	Transport Enterprises

Eleven questionnaires were distributed, of which seven were completed and returned while four were not returned. There were eleven sets of notes taken during the discussions. All eleven interviewees agreed to an open discussion where notes were captured. One interviewee declined on the day of the interview citing the sensitivity of the topic, and was then excluded from both the questionnaire completion and the discussion. The views expressed

in both questionnaire and discussion were in-depth enough to assist in formulating a view.

The participants were selected based on their understanding of funding approaches, operational requirements, project management/ execution, project planning, state requirements from SOEs, financing vehicles, economic dynamics, or community needs.

Observation will be overlooked because it is not suited for this type of research. It is difficult to observe a funding model as it is not a behaviour but a concept or a theory that can only be analysed and interrogated.

3.4 APPROACH TO DATA ANALYSIS

The data, once collected, will need to be analysed to establish relationships, views, convictions, regarding the research question. General inductive enquiry is useful in analysing qualitative data. Thomas (2006, p. 1) argues that "Inductive analysis refers to approaches that primarily use detailed readings of raw data to derive concepts, themes or a model through interpretations made from the raw data by an evaluator or researcher".

This approach will be used as it will assist in identifying relationships between funding models and the Empangeni-Nkwalini branch line project funding requirements, and enable the researcher to organise data into themes and categories which culminate in research findings. These research findings should assist in providing an approach to funding that will produce long-term positive results for the branch line and similar projects.

Bryman (2012) argues that there are several tools that assist in enhancing the quality of data analysis. Theoretical sampling focuses on ensuring that the parameters in terms of the data that will be interrogated are established. These may change as certain discoveries are made in the process of data

interrogation. The approach of the research will be to place boundaries on what data the paper will focus on from the outset.

Grbich (2012) argues that an effective tool in analysing the data is coding. This refers to page-by-page and line-by-line analysis of the data in order to identify concepts and categories which can be broken down and be reconfigured into codes. The paper will rely heavily on coding to establish existing linkages and relationships in the data. Bryman (2012) argues that constant comparison which in essence focuses on maintaining strong connections between data and conceptualisation should be used. This enables the researcher to compare codes in the analysis and provides an important tool that will be used in interrogating the data to ensure that relationships are thoroughly understood.

3.5 DATA RELIABILITY AND VALIDITY

Golafshani (2003) argues that the use of data reliability and validity is commonly associated with quantitative research and is also being considered in the qualitative research space. The reliability and validity are traditionally associated with the positivist perspective but are now being redefined for use in the naturalistic approach. The reliability and validity are being redefined in order to reflect different ways in which the truth can be established or verified. Joppe (2000) as cited by Golafshani (2003) argues that reliability in quantitative research is "the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable" (p. 1). Reliability in the context of quantitative research means replicability and repeatability of results.

Joppe (2000) as cited by Golafshani (2003, p. 1) explains that validity in the context of quantitative research is that "validity determines whether the

research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit 'the bull's eye' of your research object? Researchers generally determine validity by asking a series of questions and will often look for the answers in the research of others". In this process the researchers actively cause or affect the interplay between construct and data in order to validate their investigation, usually by the application of a test or other process.

In quantitative research there are essentially two conclusions that can be derived from the notions of reliability and validity. The first is whether the results are replicable. The second is whether the research is measuring the right things. Reliability and validity is viewed differently with regard to the qualitative research space as compared to quantitative research space.

Golafshani (2003) argues that the orientation of reliability test in the qualitative research space is related to the quality rather than replicability. The good qualitative study must assist the reader in understanding the underlying issue being investigated and must promote greater understanding. The concept of reliability is considered irrelevant in the qualitative research.

Golafshani (2003) observes that reliability only makes sense in the qualitative space if it is understood to mean credibility, dependability and transferability as measures of quality. The term validity is defined by a wide array of terms in qualitative studies. It is not a single and universal term but rather a wide range of terms focusing on the intention of the study or project. Many researchers have defined their own parameters of what validity means and it is best explained by terms like trustworthiness, quality and rigor.

Golafshani (2003) argues that one of the more effective ways to measure validity of the qualitative research is in the generalizability of the study or results. Generalisability of the study also improves the trustworthiness of the research. In the context of qualitative research, reliability and validity are measured using credibility, dependability, transferability and generalisability. The qualitative research approach will be followed in interacting and evaluating data around different funding models. It is therefore important that the reliability and validity of the process is guaranteed. There is a four-step process that will be followed to ensure reliability and validity in the process of shaping the most appropriate funding model for the Empangeni-Nkwalini branch line project.

Credible authors on different funding models will be studied and used in the research process. This will provide data on different funding models that is of a high quality standard and is tested. It has been established that one of the ways to test for reliability in the qualitative space is credibility and dependability. Using credible authors is one of the ways to ensure that the research is credible and dependable. Independent review will also be used to ensure that the quality and the nature of data used is of the right quality and relevant to the research so as to improve the trustworthiness of the research. The supervisor will review the research to ensure that the quality and data used is of suitable quality and is relevant to the topic under investigation. Finally, the supervisor will provide a quality check as to whether the research findings and recommendations effectively address the funding problem in relation to the Empangeni-Nkwalini branch line.

One important criterion used in the qualitative research to assess validity is the generalisability of the research. This means the extent to which the solutions recommended for the Empangeni-Nkwalini branch line projects are applicable in similar projects. The solution will be tested as to its applicability in similar projects.

CHAPTER FOUR
RESEARCH FINDINGS

4.1 INTRODUCTION

In chapter three the research design and methodology was discussed, and it was explained that the research will utilise a qualitative research method in responding to the research question. The intention is to have an in-depth understanding of the existing funding models in order to gain an understanding of their respective ability or inability to fund the Empangeni-Nkwalini branch line project.

Data was collected using document analysis as the primary source of information. Interviews were used to test the information that was collected from the document analysis using both structured and unstructured methods and the findings are presented in this chapter. The chapter moves from collection of data to outlining what the study has found within the different funding models explored, as well as findings from both the primary source of data in the form of document analysis as well as the supplementary source of data in the form of interviews and discussions. The findings are presented in the context of the Empangeni-Nkwalini branch line project requirements and the research question, and will clarify the suitability of each funding model in relation to the funding needs of the Empangeni-Nkwalini branch line project.

Several documents were assessed against the project funding requirements and in this section those findings will be presented or each funding model. Several interviews and discussions were held with different people to establish their views on the ideal funding approach for the branch line project.

The first section of each funding model will deal with the findings that emanated from document analysis which is the primary source. In this section findings will be broken down into sub-sections that deal with specific funding models. In the first sub-section it will be established what the findings are within the Self-funding model as it relates to the project. The second sub-section will present findings within the Public-Private Partnership funding model as it relates to the project. The third sub-section will establish findings within the Government funding model as it relates to the project. The fourth sub-section will present findings within the Aid and Donation funding model as it relates to the branch line project.

The second section will add findings that emanate from interviews and discussions, broken down into sub-sections that deal with specific funding models. In the instances where findings do not fit into one funding model there will be a separate sub-section dealing with that. In the first sub-section within the interviews and discussions it will be established what the findings are within the Self-funding model as it relates to the branch line project. The second sub-section will establish the findings within the Public-Private Partnership funding model, while the third sub-section will establish what the findings are within the Government funding model. The fourth sub-section will establish what the findings are within the Aid and Donation funding model as it relates to the Empangeni-Nkwalini branch line project. The fifth sub-section within the interviews and discussions will establish what the findings are that do not fit into one particular funding model for the branch line project.

This section presents the data that emanated from the documentation that was analysed. The research findings emerging from the qualitative document analysis are outlined in each category and sub-category.

4.2 SELF–FUNDING MODEL

The document review findings of the self-funding model and it suitability for the Empangeni-Nkwalini branch line project funding requirements are presented, split into different key focus areas. There were differing views on where this particular funding model can work. Various scholars were interrogated and reviewed on the self-funding model in the literature review section which presents the different views. The document findings resemble different attributes of the self-funding model and its relationship to projects such as the Empangeni-Nkwalini branch line. The main findings are discussed below.

4.2.1 Rate of return

In countries such as China, the SOEs rely for their successful implementation of projects on the approach of getting reasonable returns and profitability on infrastructural projects that they embark on, as a positive rate of return is necessary for success on project rollout.

The findings indicate that barriers to financing of infrastructure projects in places like Zambia and other regional countries are related to the nature of the projects available for investment, which often fail to meet the requirements of return on investment for investors. Some of the critical barriers to entry that have been identified are lack of bankability of infrastructure projects, and absence of markets for the infrastructure assets.

Findings indicate that there are interventions that could be explored in order to make infrastructure projects more attractive to investors. One of these is to ensure the bankability of infrastructure projects. The economic approach to investment in infrastructure must involve calculating all associated benefits and cost of the projects and then their rate of return. This must be done to establish whether to embark on the project or not. Where the

effective real rate of return exceeds the real rate of return then it is worthwhile embarking on the project or undertaking the investment. Further to the previous finding is that the alternative is that if the net present value of project benefits evaluated at the going real interest rate is positive then the investment is worth undertaking.

The findings will be interpreted and analysed in the next section to establish their suitability for the Empangeni-Nkwalini branch line funding requirements.

4.2.2 Funding through debt

The research of various scholars indicates that new infrastructure development in places like Australia has been funded through debt. Ability to charge the correct tariff or regulations that affect user charges largely determines the overall capacity of the State Owned Enterprise to service the debt. In infrastructure funding or financing there should be an understanding that infrastructure usually offers a long term and highly risky amortisation period, a very long time lag between the beginning of the investment and the start of financial returns, high sunk costs and amount of invested money generally through debt, and a high uncertainty in the users' level of utilization during the active life of the infrastructure project.

4.2.3 User charges

The findings indicate that higher user charges for the newly built infrastructure assist in closing the funding gap that exists. The extent to which users appear willing to accept the payment obligations determines the extent to which the project is likely to be viable and the extent of the project's financial viability.

The findings indicate that generally the application of the ability to pay approach seeks to establish a link between the user of the infrastructure and the person or the specific entity that eventually pays for it. The findings also show that the infrastructure projects undertaken by designated government agencies other than normal government departments must fund projects internally utilising user charges to address any debt raised to deliver the infrastructure projects as well as operational costs.

The findings thus demonstrate that one of the key risks in the success of any infrastructure project is the level of utilisation and charging the correct tariff for the newly built assets. The findings further demonstrate that impeding the infrastructure financing is more likely in the second half when the project does not generate any revenue but then has to deal with high financing costs. From the economic perspective, user fees are a sound solution to funding infrastructure to the extent that users pay directly for the cost incurred in bringing the asset to life. There is, however, a challenge in determining the fair and appropriate user fee as the user fee should reflect the true value of building and maintaining the asset.

Finally, the findings demonstrate that there are upstream and downstream constraints to infrastructural development. The upstream constraints constitute both the ability and willingness to pay while downstream constraint is the limited understanding of bankability.

4.2.4 Cost recovery

The findings indicate that in the Low Income Countries the majority of the people cannot afford a cost recovery utility bill of $10 per month, making infrastructural development impossible from a user-pay perspective. Embarking on infrastructure projects is generally very expensive and usually requires substantial upfront capital with benefits that are recovered over time. The findings indicate that most of the projects are plagued by inability

or difficulty in recovering the cost of delivering the assets. In many of the countries that embark on infrastructure projects, the cost of delivering these projects is disproportionately high, rendering them unviable.

4.2.5 Markets

The findings indicate that while infrastructure is necessary for the functioning of modern economies, the delivery of infrastructure may not necessarily lead to growth. There may be several limitations to infrastructure leading to growth such as missing markets to render the investment in infrastructure viable.

The findings in relation to the use of a self-funding model are presented below, split into different key focus areas. There were many different views on where this particular funding model can work. Various interviewee responses were interrogated and reviewed. The interview findings indicate different attributes in the self-funding model and its relationship to projects such as the Empangeni-Nkwalini branch line.

4.2.6 Sources of funding

The findings show that the socio-economic projects can be funded by Transnet from its own balance sheet. This can be done mainly by using old material from the mainline or heavy haul lines instead of buying new material.

The findings show that Government can be a finance partner by raising debt on behalf of Transnet in instances where the state can obtain a cheaper interest rate. This is not equal to the state funding the capital gap but is a mere raising of funds on behalf of Transnet. Transnet will have to repay the loan.

The findings show that making returns that are marginally above break-even should be considered adequate, and the remainder of the profits must be redirected to economic projects. The findings indicate that self-funding is the best approach to delivering projects for Transnet. In self-funding, however, it is important that profitability is maintained and allocation to socio-economic projects happens after break-even point. Transnet could also consider allocating a portion of net profit after tax to socio-economic projects using a designated trust account vehicle.

The findings show that Government could have requested Transnet to declare a dividend yearly and use that dividend to support socio-economic projects, so that instead of Transnet paying an annual dividend, designated funds are given to fund social projects.

4.2.7 Non-revenue generating projects

The findings indicate that while most socio-economic projects are not viable, Transnet has highly profitable lines that can be used for potential cross-subsidization.

4.2.8 Funding criteria

The findings indicate that part of the funding justification for the socio-economic project should include a plan to eventually induce markets that will make the project financially viable. The findings indicate that an open-ended socio-economic programme is not viable and start and end dates need to be in place, whereafter it needs to be an independent programme with no government support.

All findings (document and interviews) as they relate to the self-funding model discussed in the next section will be interpreted and analysed to

establish their benefit and suitability in relation to the Empangeni-Nkwalini branch line funding requirements.

4.3 PUBLIC-PRIVATE PARTNERSHIP FUNDING MODEL

In discussing the document review findings of the Public-Private Partnerships model and it suitability for the Empangeni-Nkwalini branch line project funding requirements, there are different key focus areas. There were many different views on where this particular funding model can work. Various scholars were interrogated and reviewed on the PPP model in the literature review section. The document findings reveal different attributes in terms of the PPP model and its relationship to projects such as the Empangeni-Nkwalini branch line.

4.3.1 Insufficient public funds

The findings indicate that traditionally governments have been at the centre of infrastructure provision. Recent experiences in New Zealand, amongst others, reveals that investment from the National Land Transport Fund (NLTF) and territorial authorities which are all some sort of government funding are not enough to address all the country's infrastructure needs. The findings also show that although PPPs are seen by most governments as an ideal tool to supplement insufficient funds, there may be requirements of a change in regulatory framework that comes with these partnerships to ensure adequate management of risk to the state.

Findings reveal that while governments have an appetite for PPPs as the means of sharing the responsibility of delivering infrastructure projects, they remain wary of risks associated with these partnership arrangements.

4.3.2 Shifting to private sector

The findings indicate that different transport competencies in countries such as New Zealand have started exploring the option of Public-Private Partnerships in an effort to bridge the funding gap.

4.3.3 Partnership options and types

The findings demonstrate that partnership arrangements take on various forms ranging from Build-Operate-Transfer (BOT) to Build-Operate-Own (BOO). Findings further show that these arrangements take on various forms which incorporate some or all the following characteristics:

- The private sector entity build, renovates or expand the public sector owned facility
- The public sector entity specifies the operating philosophy for the facility
- Services are provided by private sector entity for a predefined amount of time. This arrangement usually comes with restrictions on pricing and operating philosophy; and
- The private sector entity agrees into transferring the asset or infrastructure back to public sector with/without payment at the end of the arrangement.

There are five different Public-Private Partnership families or types:

- Institutional co-operation for joint production and risk sharing, e.g. Netherlands Port Authority.
- Long-term infrastructure contracts (LTICs), which emphasise tight Specification of outputs in long-term legal contracts, such as UK Private Finance Initiative projects.
- Public policy networks (in which loose stakeholder relationships are emphasised).
- Civil society and community development.

- Urban renewal and downtown economic development (and where in the United States a portfolio of local economic development and urban re-growth measures are pursued).

The five selected Public-Private Partnership arrangements cover a wide spectrum of governance types and are more than just what is known as Private Finance Initiatives (PFIs). LTICs generally cover design, construction, financing, maintenance and in other instances managing operations of the public infrastructure by the private entity for the duration of the agreed contract. These arrangements vary from BOOT (Build-Own-Operate-Transfer) to DBFO (Design-Build-Finance-Operate). These represent some of the arrangements available within the LTIC Public-Private Partnerships arena. The success of the LTICs is derived from three sources. These vary from policy rhetoric, legal contracts and most importantly historical outcomes experience.

4.3.4 Viability of partnerships

The findings show that partnership arrangements typically last for prolonged periods of time and therefore take time to generate profits. This generally has a significant impact on the viability of the infrastructure project. The findings further demonstrate that PPPs are only viable if a reliable and perhaps validated, long-term revenue stream can be verified and established.

Findings reveal that the risk present throughout the duration of the project is the revenue materialisation risk. Public-Private Partnership infrastructure projects require expert analysis of all the risks in order to develop contractual arrangements that allocate the risk burden appropriately. In some PPPs the revenue and market risk are very small to non-existent, increasing the likelihood of success for these partnerships. Findings indicate

that in a successful PPP, revenue streams should be able to cover operating cost, service the debt finance and provide adequate returns.

4.3.5 Value for Money (VfM) of partnerships

Findings indicate contradictory results regarding the effectiveness and the value for money of the Public-Private Partnership arrangements. The value for money assessment shows that there is a mixture of negative and positive results and little clear evidence as to their effectiveness. This is in contrast to what the advocates of PPPs call for. The most optimistic view regarding Value for Money from the findings is that it is mixed.

4.3.6 Impact of partnerships on government or parastatal debt

The findings indicate that traditionally governments have been at the centre of infrastructure provision. This position has started to shift significantly, mainly driven by the need to reduce public debt while simultaneously striving to improve and expand public provision of services and facilities. The move towards using private funding has necessitated that the public sector explores the type of collaboration and agreements that can be entered into in order to share the burdens, risks and rewards. Furthermore, the key driver for entering into PPPs is to reduce the government debt levels, in that the private finance provides infrastructure without increasing public sector debt.

The findings suggest that although debt levels in the PPPs are low, the debt is ultimately repaid but in small annualised amounts or in other instances in lump sums.

4.3.7 Usefulness of partnerships

The findings indicate that in countries such as the United Knigdom, the preference for PPPs is premised on the belief that the private sector investment and service delivery models are superior to those in the public sector. This ideological belief is often combined with the view that the PPPs allow for delivery of high levels of capital investment into the social and economic infrastructure while maintaining a tight fiscal stance. However, there is some indication that the ideology or belief that the private sector investment and service delivery models are superior to those in the public sector is fundamentally flawed.

4.3.8 Partnerships as a middle road

Findings reveal that in countries such as the United Kingdom, by 1997 Public Private Partnerships were a priority, viewed by the political leadership of the time as a 'third way' to public infrastructure investment. The public administrators under the Private Finance Initiative supported the fact that the upfront cost of the project would not be listed in the national accounts or balance sheets. This allowed for high levels of public infrastructure investment while maintaining a good fiscal balance, helping to keep debts low, while also keeping personal income taxes low. The option of using the Private Finance Initiative was thus attractive.

The argument that the Private Finance Initiative increases the capacity of the government to spend on more public infrastructure projects has been called into question by organisations such as the United Kingdom's Institute for Fiscal Studies. The fact that privately financed infrastructure projects are invisible to the national debt because of its off-balance sheet status does not imply that the commitment to repay the debt becomes invalid. The Private Finance Initiative on infrastructure projects requires the commitment

of the future resources in the same way that conventional lending requires current resources.

4.3.9 Cost of public finance

Findings suggest that public finance is always cheaper than private finance and governments will most likely be in a position to pay their debts, since they are unlikely to become insolvent in the way a private company can. Stable governments are thus able to borrow at very competitive rates. The internal rate of return for a typical private sector project is 8% to 10% a year which is up to 4% higher than public sector authorities would have paid if they had borrowed the money themselves.

4.3.10 Partnerships as a special purpose vehicle

Findings reveal that the Public-Private Partnership is essentially project financing which is generally characterised by the establishment of a highly geared special purpose company as a project vehicle. This vehicle is reliant on direct revenues to pay for operating costs and cover the debt financing while giving the desired return on invested capital.

In the following section the research will focus on the interview results and review findings of the Public-Private Partnership funding model and its suitability for the Empangeni-Nkwalini branch line project funding requirements. The interview findings resemble different attributes in terms of the PPP model and its relationship to projects such as the branch line.

4.3.11 Partnership approach

Findings suggest that Transnet although an SOE needs to brand itself as an independent entity that is admired by its customers and the South African business community. Transnet should therefore partner with its customers

and the industry to fund socio-economic projects to utilise socio-economic and corporate social investment (CIS) budgets and jointly support such initiatives. Private sector companies in different sectors have different socio-economic targets that they have to meet and this presents an opportunity for Transnet to identify and partner with these organizations on a wide range of social projects.

There are funds available in the private sector where the target is not financial but qualitative. Funding of the socio-economic projects must come from more than one funding approach and it could also be a combination. Private Sector Participation must be explored when the project has the potential of being financially viable over time. Furthermore, farmers and any business owners that will ultimately benefit from the socio-economic project should be requested to provide partial funding for the rehabilitation of the line in partnership with Transnet.

4.3.12 Benefits of partnerships

Findings indicate that the benefit of partnering with the private sector is that, in the light of the limited capital outlay, they can bring skills, experience and capital, as well as tested operational philosophies.

4.3.13 Capital justification

The findings show that in the justification for socio-economic projects all indictors must be shown even if the NPV is negative and must be presented to the private sector because there exists an opportunity that these may be funded through the CSI or some other private sector dedicated fund.

4.4 GOVERNMENT FUNDING MODEL

In this section the research will focus on the document review findings of the Government funding model and its suitability for the Empangeni-Nkwalini branch line project funding requirements. The key findings are discussed below.

4.4.1 Types of government funding

Findings show that public finance takes several forms ranging from general appropriation for infrastructure projects financed via tax revenue or government debt, venue bonds tied to various infrastructure, or investment by State Owned Enterprises including national development banks. In many countries the funding of infrastructure projects through appropriation processes is a common funding method. In countries such as Australia budget appropriations remain the biggest source for public infrastructure development. Budget appropriation has the advantage of transparency and public scrutiny as opposed to other forms of public funding. Application of the appropriation process has undergone major changes in many countries in the past decade.

Given the low cost of debt to government as compared to the public sector, financing infrastructure projects using public finance could be the most cost-effective way to deliver projects. Many countries engage in many different forms of quasi-government financing and financing for infrastructure may also be provided by SOEs which are legally independent entities, partially or fully owned and overseen by government. They have a responsibility to build infrastructure assets for society and development and fund their infrastructure through several sources, including public debt and tax revenues.

In Australia the government provides funds to infrastructure projects that have a national strategic importance including to SOEs with the aim of improving citizen well-being and addressing vertical fiscal imbalance.

4.4.2 Role of the State in infrastructure delivery

Findings suggest that there is no private consortium or entity that can take on the full risk for the projects that have a long project lifespan. In these instances it becomes a viable option that the state provides some support to ensure sustainability of the project. The conventional approach is that government plays a range of roles, some of which may be conflicting since they promote the projects but must also protect the public interest.

In China the SOEs are expected to promote the state's economic goals. Tax incentives reward entities that undertake infrastructure investment in areas where market incentives alone would not support the investment initiative. Another form of benefit conferred to the SOEs and their subsidiaries are direct funds through grants or capital injections.

It is often hard for the state to distinguish between policy induced losses and avoidable operational losses. There is often a vicious circle of subsidies and political intervention in the SOEs which makes it difficult to distinguish between policy induced losses and avoidable operational losses. The state remains accountable for policy induced losses. The state should play a more central role in infrastructure investment.

4.4.3 Supplementing user fees

Findings reveal that the French Motorway Programme relied on user fees initially and later obtained funding from the French government via parastatals. It is seen as being successful and has added value to the French transport system. This could not have been done using only tax

income. Although public private partnerships have been celebrated in the recent past as the solution to the shortage of funds the example of the TGV Est. financing demonstrates that government transfers may in some instance offer a better solution. High levels of unaffordability should promote government intervention and not leave such funding to market forces.

4.4.4 Types of government grants

The findings demonstrate that Government grants have three categories: independent, aimed at a particular sector, and earmarked for a specific project. In Nigeria funds were monitored through the Virtual Poverty Fund mechanism. Findings show that Government support stretches to include scenarios where government supports ventures that also include the private sector.

There are different ways for government to provide support to attract the private sector including a guarantee by the state or it could be a cash subsidy towards a certain project. Government can invest debt or equity together with or alongside the private investor. Government support could be to provide the complementary investments to the earmarked project.

4.4.5 Suitability of government funding

Findings show that there are projects with low financial rate of return while at the same time they have social or economic rates of return that are widely considered to be high. In instances where the cost of capital is very high and any attempt to attract finance very difficult, government support may stimulate capital flow at reasonable rates but might reduce government overall capacity to borrow to fund competing priorities. The cost of government support should be considered in the cost benefit analysis of the project and an assessment of the appropriateness of government support should be done following specific identified steps.

Findings show that there are cases where the social benefit exceeds the private benefit. Where the private willingness to pay may be less than social benefit due to the type of benefit generated by the project, the consumers can be charged. Any difference between effective private willingness to pay and social benefits should take the form of subsidies supplementing the price consumers are willing to pay for the service. In the absence of a well-functioning private financial sector, government can substitute for the actions of the private sector by introducing dedicated financial supportive tools.

4.4.6 Risks associated with funding

Findings demonstrate that there is a need to clarify project risks in the early stages of the project lifecycle so that they are allocated to private investors, investors or the state accordingly. State intervention has created a dynamic imperfect competition leading to a collective process of national rent seeking. This creates a complex conundrum leading to shallow industrialisation, inefficient monopolies and greater unemployment. However, State intervention has worked in South Korea and where entities perform poorly this leads to the removal of existing state rentals.

4.4.7 Selection criteria

Findings show that the Commission that is responsible for appraising projects that are earmarked for co-financing will request a cost benefit analysis; risks analysis; evaluation of the environmental impact; and the assessment of impact on equal opportunities and employment.

Many diverse projects that are presented to the commissions for co-financing vary in format and this presents a risk in that there may not be proper comparisons possible. The lack of consistency in co-financing

project appraisals can negatively impact on the selection process. Factors to consider in cost-benefit comparisons include life of project, residual value, total cost including depreciation, financial discount and social discount rates, co-financing rate, and performance indicators.

4.4.8 Sustainability

Sierra Leone established a Road Fund in 1992 to ensure road maintenance and rehabilitation of public roads throughout the country and since then has improved the legislation governing the Road Fund, ensuring that the Road Fund is separated from the Sierra Leone Roads Authority. The cost of capital in countries where there is sound and predictable regulatory policy is more conducive to development, as there is less need for guarantees in jurisdictions where there is a well-developed policy framework. Most investors are willing to invest at low cost of capital in jurisdictions where there is stability in regulation.

4.5 IMPACT OF FINDINGS ON EMPANGENI-NKWALINI BRANCH LINE

4.5.1 Impact of lack of funding for social projects

Findings show that agriculture contributes to overall economic growth by creating jobs, and supplying labour and raw materials to other developing sectors of the economy. Despite these significant contributions, rural areas are the most marginalised and are characterised by poverty, food insecurity, unemployment, inequality and lack of important socio-economic services. Economic growth is crucial in reducing poverty, but more is needed to reduce poverty. This requires a deliberate policy of redistribution and equity which is promoted by participation.

The interview findings present different attributes in terms of the Government funding model and its relationship to projects such as the

Empangeni-Nkwalini branch line. The key interview findings are discussed below.

4.5.2 Role of government in social projects

Findings reveal that Government can subsidise the funding gap in socio-economic projects. The government subsidy for socio-economic projects should have defined timelines and should not be indefinite with Transnet having the responsibility of maintaining viability after the subsidy period. Markets should be encouraged to make the project financially viable. There should not be an open-ended socio-economic programme but rather an independent programme and a transition period.

4.5.3 Role of local, district municipalities and other government agencies in delivering projects

Findings show that the expenditure from the municipalities can be used to convert the branch lines to revenue centres that can create economic opportunities for locals and facilitate a road to rail migration and boost tourism. There is a need to establish partnerships with municipalities, district municipalities, provincial and national governments with the view to using branch lines to unlock economic activity and opportunities in their respective jurisdictions. Many agencies and SOEs have funds that could be leveraged through state-to-state partnerships. Rebates from Transnet should be provided and ring-fenced for socio-economic projects. However, the uMhlathuze Municipality sets aside the budget for the operation and maintenance of the railway.

4.5.4 Aid or donations model

The research will review findings of the Aid or Donations model and its suitability for the Empangeni-Nkwalini branch line project funding requirements. The key findings are discussed below.

Findings indicate that Aid in infrastructure funding has been denied due to the general interest principle. In aid funding, projects are evaluated on their ability to meet the general interest principle because most infrastructure projects tend to benefit one interest group or another and not the general public as donors require. The general interest principle requires that for the aid to be granted there are specific conditions of access that need to be met which are that infrastructure is not provided by the state; it must not favour certain groups over others; it must be equally accessible to all without discrimination; and it should be affordable.

4.5.5 Aid or donation relevance

The findings suggest that there has been a shift to a discourse which suggests that aid has not been very successful in achieving developmental changes and improvements.

4.5.6 Aid or donation relationship to development

Many donor interventions in certain countries were successful. One such example is the transport sector in Malawi. They have also used aid in other areas of the economy such as rail. Malawi's strategy in dealing with the donors and ensuring that they contribute to critical sectoral programmes has been very effective.

4.5.7 Aid or donation policy impact

Findings suggest that China and India's influence on Africa as a result of distributing aid continues to be significant. Aid has always been an important foreign policy tool for China and in all geographical areas where China provides aid it has exerted a strong influence on the country's foreign policy. In the 1980s the leading donor influence on Malawian policy was the World Bank.

4.5.8 Planning process in Aid or Donation sponsored projects

Findings reveal that Malawi's resources post-independence were so modest that the country depended largely on foreign support. However, the Malawian government has experienced some tensions with donors at different times on differing views about the country's spending priorities.

4.5.9 Conditions on aid or donations

The findings indicate that although there are many infrastructure projects that have been delivered in Africa through donor funding, there are three issues of concern that remain and are associated with such funding:aid fungibility and the inability of donors to influence the recipient government's choice of investment projects; type of aid delivery and the attached conditions; and donor identity and value given to donors based on the perceived risk. Philanthropy carries an element of self-interest as there are always expectations and conditions attached to any aid or donation. Yet those infrastructure projects with low cost recovery expectations such as road networks and bridges are likely to be funded through aid and donations.

4.5.10 Impact of aid or donation on governance

Findings show that the prevailing aid can dilute the good governance requirements that are in place globally, and are overseen by organisations such as the Organisation for Economic Cooperation and Development (OECD). Utilising a range of aid streams carries the risk of undermining the good governance requirements usually attached to the OECD aid.

4.5.11 Aid or donations in low income countries

The findings indicate that in many poor countries the greater part of funding for infrastructure comes from third party donors in the form of multilateral organisations and states.

4.5.12 Transactional costs in aid or donations

Findings indicate that different styles of aid and donations may come with high transaction costs that must be carried by the recipient government when accepting aid.

4.5.13 Aid or donation impact on Africa

The findings indicate that there is wide criticism for aid and its associated expansion in Africa and falls into two orientations: where aid is viewed as being the main cause of problems in Africa rather than providing solutions; and where aid is seen as being useful but subject to diminishing returns. Governments criticize conditionality in that it undermines government's autonomy. Furthermore, African countries continue to be undermined by massive levels of debt repayments incurred as a result of aid arrangements, which reduces budget available to meet identified country priorities such as improved access to health and education.

4.5.14 Role of aid or donation in economic growth

Findings indicate that fiscal flows from rich countries to mostly poor African countries has trapped these countries in a cycle of corruption, slower economic growth and ongoing high levels of poverty. Discontinuing aid could be far more beneficial, other than in cases of natural disasters and emergencies as it does not promote platforms for long-term growth.

4.6 APPLICATION OF THE AID / DONATIONS MODEL

The interview findings on the Aid or Donations model and its suitability for the Empangeni-Nkwalini branch line project funding requirements is presented below.

4.6.1 Role of foreign governments

Findings indicate that with regard to Aid and Donations, Transnet is able to persuade foreign governments to donate pre-owned rolling stock for social projects or donations for training facilities.

4.6.2 Risk associated with aid and donations

The findings indicate that funding in the form of financial aid, grants or donations is limited and where funds are available, benefactors are more likely to invest in humanitarian projects such as feeding or health schemes for the poor rather than investing in infrastructure projects. Aid carries a high level of risk in terms of longevity.

There were additional findings from the questionnaires and discussions that did not necessarily fit within a single funding model but touch more than one funding model. These will be discussed under benefits/impact of social projects to local communities, project sustainability and general findings.

4.6.3 Impact on the local community

Job creation:

Funding of socio-economic projects creates employment for the local communities where the projects are undertaken. There are projects that Transnet funds because of positive NPV but on examination, these are revealed as being detrimental to the environment, and do not create additional jobs. Some projects have a negative NPV but significant potential for new jobs and business. There are also unintended consequences of the decision not to fund socio-economic projects such as job losses, creating ghost towns, impoverished communities and social problems where branch lines were previously located.

Local economic activity:

Socio-economic projects bring stimulation of trade because locals will sell things like water to the workers in the projects. Socio-economic projects can also promote the establishment by local residents of different small businesses or small-scale farming.

Skills development:

There are several benefits to the communities as a result of embarking on socio-economic projects, including skills development.

Community safety:

Removing trucks from the road will lead to reduced accidents and improved long-term road maintenance.

4.6.4 Project sustainability

Transnet should engage with socio-economic projects in a way that ensures that there are opportunities to eventually make the projects profitable and

sustainable. The same discipline that is utilized to deliver on profit-making activities should be applied to delivering on socio-economic projects. The number of socio-economic projects that Transnet embarks on must be managed so that there is no risk to the balance sheet. There are cases where some branch lines started off as unprofitable but as tonnages on those lines increased the revenue also increased, and they became profitable. Relevant indicators must be developed that can quantify success in social projects, similar to what is done for financially viable projects, and premised on a low cost operating structure. Good stakeholder management is key to delivering successfully on socio-economic projects. Communities should be consulted in the planning of these projects. The capital portfolio of Transnet should be balanced between the financially viable projects and economic projects in a way that ensures the overall sustainability of the company.

4.6.5 General findings

Socio economic project classification:

Not all branch lines qualify to be classified as socio-economic initiatives and not all non-profitable projects can be classified as socio-economic projects. Clear definitions are necessary and comprehensive evaluation criteria needed in filtering and determining what qualifies to be a socio-economic project. This process should include post-implementation reviews. The findings indicate that Transnet must develop a qualitative measure for quantifying non-financial benefits and measuring benefit and risk.

Evaluation criteria for socio-economic projects:

Transnet needs to develop comprehensive evaluation criteria that will focus on the financial aspects as well as the economic aspects and all associated downstream benefits to society and the economy. The model must consider the total cost/benefit of the project and not focus narrowly on the financial viability. Some projects are misleading in that they have high Net Present

Value (NPV) but provide low economic returns. Transnet needs to establish priority criteria for socio-economic projects to enable ranking and funding of projects.

CHAPTER FIVE
INTERPRETATION AND ANALYSIS

5.1 INTRODUCTION

In the previous chapter the findings regarding the suitability of various funding models for the Empangeni-Nkwalini branch line funding requirements were presented, based on data collected from various documents as well as interviews. This chapter will interpret and analyse the findings in relation to the research question.

The first section will interpret and analyse the self-funding model and establish its ability to respond to the Empangeni-Nkwalini branch line funding requirements, drawing firstly on document review and then on the interviews and discussions. The second section will interpret and analyse the Public-Private Partnership model and its ability to respond to the Empangeni-Nkwalini branch line funding requirements. The third section will interpret and analyse the Government funding model findings and ability to respond to the Empangeni-Nkwalini branch line funding requirements. The fourth section will interpret and analyse the findings in relation to the Aid and Donations model and its ability to respond to the Empangeni-Nkwalini branch line funding requirements. The fifth section will interpret and analyse the interviews and discussion findings that relate to more than one funding model to establish their ability to respond to the Empangeni-Nkwalini branch line funding requirements.

5.2 SELF-FUNDING MODEL

Interpretation and analysis from document review

Projects that are executed under the self-funding model are only successful under certain conditions. One of these conditions is that in order to ensure

that projects are implemented successfully, adequate returns to cover the cost of delivering the project and still make profits for the shareholders need to be assured. Projects that do not satisfy the profitability measure or are not bankable are not suited for funding under this model. The critical input into guaranteeing the returns is to charge the tariff or user charge that is high enough to cover costs and generate profits.

What is clear is that when considering the Empangeni-Nkwalini branch line features, this project cannot be funded using this model because of its inferior profitability. Revenues for the financial year 2008/9 were R6,541 million while costs associated with railing these volumes in the same period were R8,348 million. This represent 78% revenue to cost ratio and such a high gap will discourage Transnet from investing in this project.

Most of the infrastructure projects under this model are funded at least partially through debt. The condition of success is also the ability to raise debt in order to roll out the infrastructure. In order to raise debt there must be a demonstration of the ability to repay which is based on healthy profits.

The Empangeni-Nkwalini branch line fails to generate enough revenue to cover costs, which will remove any possibility of the project being undertaken. The revenue that is lower than cost could be a direct product of low tariffs charged to the consumers which would prevent the project from raising needed debt to deliver the project. Lower tariffs associated with this project mean that this funding model is not suited for the Empangeni-Nkwalini branch line funding requirements.

Interpretation and analysis from interviews and discussions

Funding of projects such as the Empangeni-Nkwalini branch line can be funded by Transnet even if they are not profitable. The funding must, however, be accompanied by the lower cost to operate approach which will reduce the cost component and render the project bankable over time.

Government can also be a finance partner by raising debt on behalf of Transnet as the state will get a better rate than Transnet. This is not state funding but collateral to ensure implementation of a project. Raising debt with the implementation of the low-cost operation to ensure profitability will eventually ensure profitability that can repay the debt.

Transnet can fund projects such as the Empangeni-Nkwalini branch line from their income statement by ensuring that profits that are at a certain point above break-even are redistributed to the social projects so that even where projects are unprofitable they can be funded from profits as long as they have an economic and social impact. This model must ensure the overall sustainability of Transnet in that distribution should not be done where profits are below, equal to or marginally above break-even.

Transnet can declare a dividend every year that profits are realised that can be ring-fenced for social and economic projects. This dividend will be kept in the fund for social and economic projects. Although Transnet can fund these projects, it should nonetheless develop a plan to eventually induce markets that will render such projects viable so as to avoid open-ended support for these projects.

5.3 PUBLIC-PRIVATE PARTNERSHIP FUNDING MODEL

Interpretation and analysis from document review

Most consideration is given to this particular funding model when the funding capacity of the state or the SOE is limited as well as in instances where they need the risk and load of delivering the project to be shared. There are also different arrangements within this particular funding model and each is ideal under certain conditions, depending on the risk appetite of each player. There are also different sub-sets of this type of funding. It seems that the most applicable approach in the case of the Empangeni-Nkwalini branch line would be Long-Term Infrastructure Contracts (LTICs),

which emphasise tight specification of outputs in long-term legal contracts. This particular funding model is only viable if a reliable and validated long-term revenue stream can be verified and established. This presents a challenge for Empangeni-Nkwalini branch line project because the projects fail to generate enough revenue based on the available volumes to cover all necessary costs. The success of this particular funding model is dependent on the ability of the project to generate enough revenue to cover cost of debt and other related costs and post a profit, which this project fails to do.

Obtaining Value For Money in this funding model is not an obvious guarantee. There is no evidence that if the Empangeni-Nkwalini branch line project is funded through a PPP that it will create value for money for Transnet. When governments or SOEs endeavour to reduce the debt burden on their balance sheet, they use debt from the private sector. This implies that the public sector can build an asset without increasing the debt. Although the debt is kept low for the public sector, the responsibility to eventually pay for what is owed does not disappear as there is a cost attached to the debt. Revenue generated is thus not sufficient to cover the debt as this is an unprofitable line.

There appears to be little merit to the argument that private sector investment and service delivery are superior to the public sector. Public-Private Partnerships are essentially project financing characterised by forming a highly geared special purpose vehicle that relies on direct revenues to pay for operating costs and cover debt financing while providing returns. It is not a funding mechanism because financing must still eventually be paid for through healthy revenues. This will not be suitable for the Empangeni-Nkwalini branch line because of inferior revenues on this line.

Interpretation and analysis from interviews and discussions

Transnet can partner with customers to tap into their CSI budgets which might not require that projects are profitable before they are funded. Customers have non-financial targets that they have to meet in relation to social imperatives. This could provide support for the branch line project. Another form of partnership is where those businesses that will benefit from the line should be required to contribute to the revitalisation and maintenance of the line.

5.4 GOVERNMENT FUNDING MODEL

Interpretation and analysis from document review

There are several ways that a government funds public infrastructure and appropriation is the most commonly used method. The reason for this preference is because of the advantage of transparency and public scrutiny relative to other forms of public funding. Using public finance could be the most cost-effective way to deliver projects. SOEs may receive payments from government for non-commercial services or projects with a low financial rate of return while at the same time possessing a social or economic rate of return that they are expected or directed to provide. Some governments have traditionally provided dedicated funds to infrastructure projects that have national strategic importance. These may respond to equity concerns and close funding gaps where some SOEs have inadequate revenues to meet their obligations. This aligns with the funding requirements of the Empangeni-Nkwalini branch line as a project that could be strategic for government in terms of social upliftment. There could also be assistance to government in providing greater social equity benefits that are strategic for social development.

Many African countries and governments use their resources for infrastructure in arrangements where African governments give away resources in exchange for infrastructure based on the underlying principle of mutual benefit, reciprocity and complementarities that are bound by

bilateral agreements between states. However, there are usually high costs attached to such arrangements and an impact on the sovereignty of the recipient African countries in terms of foreign policy. This particular approach will not work because South Africa prides itself on its sovereignty and will not allow other countries to influence its foreign policy in the pursuit of infrastructure exchange. The other challenge is that the area of resources for infrastructure also poses a challenge in the South African context, in that the mining model in South Africa is based on issuing of mining licences to the private sector.

The role of government may encounter conflict of interest as it is a promoter of the project on the one hand and the custodian of public interests on the other hand. In the case of the Empangeni-Nkwalini branch line the state can play a role in promoting public interest through supporting a project that will lead to jobs, stimulate local business and boost skills development. Government can use instruments such as tax to encourage SOEs to undertake infrastructure investment in areas where market incentives alone would not support the identified investment initiative. The Empangeni-Nkwalini branch line is a strong case in point where the market incentive not sufficient to encourage the private sector to invest. Tax incentives can be used to encourage Transnet to invest in the Empangeni-Nkwalini branch line project.

Due to a cycle of subsidies and political intervention in SOEs, there can be difficulty in distinguishing between policy induced losses and avoidable operational losses. The losses incurred in relation to the Empangeni-Nkwalini branch line project must be as a result of deficient revenues and not because of avoidable operational losses. A validation process must be in place to verify whether the losses are as a result of lower tariffs and low volumes or as a result of inefficiencies which contributed to higher costs being incurred. To overcome rigidities inherent in unaffordability, the state must play a more central role in infrastructure investment where the private

sector is reluctant to invest because of low profits. The Empangeni-Nkwalini branch line project is a good example of a project with low profits that is unlikely to be funded by either Transnet or the private sector because of low profits. In such cases, government is expected to play a central role as it has been doing previously in an effort to promote development.

While PPPs are seen as a viable solution to the shortage of funds for infrastructure, government transfers may in some instance offer a better solution. High levels of unaffordability should encourage government intervention that can counter to some extent the impact of the market forces. Where SOEs cannot afford to deliver socio-economic projects such as the Empangeni-Nkwalini branch line, the state needs to intervene.

There are three ways in which government can provide funding. It could be attached to a particular sector or programme, which is appropriate in the case of the Empangeni-Nkwalini branch line because the funding can be directed to a particular project or group of similar projects. Government support can be extended to include scenarios where government support involves the private sector in that it is the government that attracts the private sector through things like guarantees or subsidies towards a project. This means that government can invite the private sector to develop the Empangeni-Nkwalini branch line and close any funding gap through a subsidy. The applicability of government support should be assessed under the socio-economic banner even if they do not qualify. Where state intervention has worked is where the state was willing to withdraw support towards entities that no longer performed satisfactorily, thereby contributing to the removal of existing state rents.

Interpretation and analysis from interviews and discussions

The government should and must fund socio-economic projects. This should be done in a sustainable manner, in that projects although unprofitable must provide a detailed plan and timeline to attain future

profitability so that they are not a continued drain on the fiscus. Local municipalities such as uMhlathuze Municipality where the Empangeni-Nkwalini branch line is located can also contribute to the funding needs of socio-economic projects through various budget allocations. This could also be done by other state agencies that have budget allocations for socio-economic projects. A further option is the fuel rebates that are due to Transnet that could be ring-fenced for social projects.

5.5 AID OR DONATIONS MODEL

Interpretation and analysis from document review

For the aid intervention to work in project development, a general interest principle needs to be met as a pre-condition. In the development of the Empangeni-Nkwalini branch line project, however, it is not possible to meet this pre-condition due to the fact that the benefits that will accrue from the project will benefit certain sections of society more than others. The farmers will be the biggest beneficiaries although other sections of society will benefit from jobs and skills. There is also no guarantee that the prices will always be kept low in the Empangeni-Nkwalini branch line project.

There is a view that aid has been a failure in Africa in accomplishing or driving development, trapping poor African countries in a cycle of corruption, slower economic growth and extreme levels of poverty. Aid is thus not suited to the Empangeni-Nkwalini branch line project because although it is a socio-economic project, the intention is to drive economic activity through linking businesses in the area to the main economic activity hubs.

While there are areas where aid has contributed to the development of infrastructure there has always been a risk or presence of foreign policy interference by the donors. This interference presents a challenge for the provision of aid as a funding method for the branch line project because South Africa is a sovereign state. There are other conditions that come with

aid that limit the flexibility of project implementation. This means that donors can choose their own projects to fund and not those that the recipients might prefer. This means there is no guarantee that the Empangeni-Nkwalini branch line would be chosen to be supported. The conditions also imply that aid is not necessarily free and may also serve to undermine good governance, which will negatively impact on issues of planning and prioritisation.

Interpretation and analysis from interviews and discussions

There is an opportunity at Transnet for aid to be provided, in reality these opportunities are not extensive and come with a high cost. There is also a strong focus on humanitarian interventions rather than developmental or social infrastructure.

5.6 BENEFITS OR IMPACT FOR LOCAL COMMUNITY

Interpretation and analysis from interviews and discussions

Based on review of the four funding models, there are various benefits that could emanate from funding a project such as the Empangeni-Nkwalini branch line. This will contribute to job creation, improved community safety and skills development for the local communities. The continued lack of jobs, skills development opportunities and community safety carry a high social cost for both the communities and government. Developing the Empangeni-Nkwalini branch line will lead to increased local economic activity and improved quality of life for the people in the area. This demonstrates the need for such a project for the overall improvement of the lives of the local communities.

5.7 PROJECT SUSTAINABILITY

Interpretation and analysis from interviews and discussions

For the funding of the Empangeni-Nkwalini branch line project to be sustainable, clear project plans and timelines are required that explain how the project can over time be converted into profitability through identifying markets that can be induced and created. This must be combined with specific application to the Empangeni-Nkwalini branch line project in the same way that it would be applied to normal profitable projects, as well as ensuring that the number of socio-economic projects executed is manageable and sustainable.

5.8 GENERAL FINDINGS

Interpretation and analysis from interviews and discussions

Observations from the general findings suggest that in order for the funding support to be channelled to the deserving socio-economic projects, projects earmarked for funding under the auspices of social projects such as the Empangeni-Nkwalini branch line project need to be subjected to rigorous evaluation criteria that will determine that they are indeed legitimate socio-economic projects. The evaluation criteria must consider both the financial as well as the economic aspects of the project.

CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

In the previous chapter the findings were interpreted and analysed in relation to the research question. In this chapter the conclusions drawn from each of the funding models around the suitability to fund the Empangeni-Nkwalini branch line project will be presented. Recommendations will be made on the suitability of each funding model in relation to the Empangeni-Nkwalini branch line funding requirements. Recommendations for further research will be provided. Implications of the recommendations for similar projects in South Africa, Africa in general and internationally will be outlined.

6.2 SELF-FUNDING MODEL

It is clear from the document review that the conditions set, such as guarantee of returns to cover cost of delivering the project, profitability, higher user charge and ability to raise debt on the strength of bankability of the project disqualifies the Empangeni-Nkwalini branch line from the self-funding model.

The opposite is true from the interviews and discussions held with various people. The findings in these forms suggests that Transnet can indeed fund social and economic projects such as the Empangeni-Nkwalini branch line. It is suggested that a low cost to operate approach is used to ensure eventual profitability of the project which will enable it to raise and repay debt. The state can also act as collateral for Transnet to reduce the cost of debt. Reallocation of profits to social projects is also an option that will enable Transnet to fund projects such as the Empangeni-Nkwalini branch

line. It is recommended that although initially these projects can be funded by Transnet, part of the justification for funding must be a demonstration that they can eventually operate independently.

It seems that while the traditional way of self-funding as informed by document review will not be possible to fund the Empangeni-Nkwalini branch line project, there is nonetheless a variety of options available, as seen in the interviews, for Transnet to fund social projects internally. Exploring these different methods will enable Transnet to fund social and economic projects internally.

6.3 PUBLIC-PRIVATE PARTNERSHIP FUNDING MODEL

From the document review, it is obvious that the Public-Private Partnership model has many limitations in its ability to address the Empangeni-Nkwalini branch line funding requirements. This funding model will not work for Transnet in trying to use private funds in the form of a debt because the needed revenues to warrant a granting of a loan will not be adequate to create an incentive for the private sector to provide funds. The other limitation is that the public private partnerships do not guarantee value for money for the investment nor is it a cheaper method of delivering assets. Even if Transnet wanted to raise debt for the revitalisation of the Empangeni-Nkwalini branch line it would not be able to do so because of the inferior revenues generated from the line.

Public-Private Partnerships are viewed only as a highly geared special purpose vehicle which means it only works if there are healthy revenues to add all costs and generate value for the investor. This will not work for the Empangeni-Nkwalini branch line because the revenues generated do not cover all costs or create value for the shareholder.

From the interviews, the view is that partnerships can work only if customers that use the line contribute their CSI project budget or pay a portion of the revitalisation cost. This funding model can be applied only if over time the project is made profitable through a low operating cost strategy. It can also be applied if Transnet funds the gap through the established fund alluded to in the self-funding model and the private sector then brings the remainder of the funds through debt. At the point at which the project becomes profitable because of the low cost strategy or gap funding through the trust, the private sector can then begin to play a role.

6.4 GOVERNMENT FUNDING MODEL

This particular funding model is suited for the Empangeni-Nkwalini branch line project in as far as the government comes in to close the funding gap emanating from low profitability and rate of return. The resources for an infrastructure type of intervention will not work in South Africa because of the interest in maintaining sovereignty. The area of resources for infrastructure also poses a challenge for the South African context, in that the mining model in South Africa is based on the issuing of mining licences to the private sector. The government does not do the mining themselves, except in a limited way, as this is done by the private sector which pays the state several taxes and royalties into the fiscal pool that is used already for service delivery obligations, including infrastructure.

The document review and interviews indicate that there are various forms that government support for socio-economic projects can take, ranging from tax relief tools and subsidies to the provision of guarantees to the private sector to build the infrastructure while government undertakes to close the funding gap. There should be adequate filtering so that authentic socio-economic projects benefit from government funding. While Public-Private Partnerships are viewed as being a solution to the shortage of funds, in some instances government transfers may offer a better solution. Transnet

can form various partnerships with local government and state agencies utilising various budgets reserved for socio-economic projects to deliver projects such as the Empangeni-Nkwalini branch line.

6.5 AID OR DONATIONS MODEL

Aid and donations will not be a suitable funding model for the Empangeni-Nkwalini branch line project because of the misalignment between the conditions that need to be met and the ability of the project to meet these conditions. The first such condition is the general interest principle that cannot be met in the rollout of Empangeni-Nkwalini branch line. The second is the foreign policy interference that comes with aid that makes it impossible for it to be an ideal funding model because of the sovereignty of the South African State.

The issue with this funding model is its inability to drive economic growth and development. This is in contrast to what the Empangeni-Nkwalini branch line is intended to achieve. Although it is a socio-economic project, the intention is to encourage economic activity in the area where the project is executed. There is also an issue of risk of longevity where the donor can withdraw from the project and leave the local communities in a negative situation. Therefore, aid or donations will not be suitable as a funding model for the Empangeni-Nkwalini branch line project and should not be considered.

The hypothesis was that the introduction of a government funding model for the Empangeni-Nkwalini branch line project will lead to increased economic activity, create many local jobs and boost local small businesses for local communities. The hypotheses was proven to be partially true as government as well as Public Private Partnerships and Self-Funding can all be viable as funding methods under special conditions spelled out in conclusion of each funding model.

6.6 RECOMMENDATIONS

This section provides comprehensive recommendations to policy makers and decision-makers based on the findings of the study. The significance of the recommendations is two-fold: they will provide the practical funding options that the Empangeni-Nkwalini branch line funding needs and will also identify areas for further research.

6.6.1 Self-funding model

Transnet should create a policy that mandates the organisation to set aside 2% dividend from net profit after tax. This dividend must only be declared in years where the organisation generates profits. This dividend must be set aside only for socio-economic projects through the creation of the dedicated fund. There must be a future profitability condition that is attached to any socio-economic project that receives funding. This condition must be that the project during the justification for funding must demonstrate how it intends to eventually be profitable through inducing and stimulating new markets. This condition will guarantee the sustainability of the projects while ensuring that other similar projects can benefit as soon as the funded project becomes viable.

The operating model for socio-economic projects should be low-cost operation in order to allow them to turn to profitability in a shorter space of time. The timelines of when the project is expected to become profitable must be clearly outlined from inception. There must be thorough performance tracking to ensure that the projects does indeed become profitable. All the necessary support needed to convert the project into profitability must be provided. There should be thorough evaluation criteria in place to ensure that only legitimate socio-economic projects benefit from

the fund. On this basis, the Empangeni-Nkwalini branch line can therefore be funded by Transnet.

6.6.2 Public-Private Partnership funding model

Transnet should only consider using this funding model when the socio-economic project eventually becomes profitable through inducing and stimulating new markets. Transnet can also use this model in instances where government is willing to subsidise the funding gap for socio-economic projects. Using the private funds under the stated conditions will take the pressure off the balance sheet of Transnet and allow it to borrow money to fund projects that will provide higher returns. In instances where this model can be used, there must be a regulatory framework developed to manage the risk to the state. The Empangeni-Nkwalini branch line can therefore under special circumstances be funded through private sector funding.

6.6.3 Government funding model

This is the most suited funding model for socio-economic projects within the Transnet portfolio as well as the Empangeni-Nkwalini branch line project. Government should allocate a portion of the budget through the appropriation process to socio-economic projects within Transnet. The government allocation should be ring-fenced for socio-economic projects such as the Empangeni-Nkwalini branch line project. Government must also provide tax relief to Transnet for undertaking socio-economic projects. This will increase the profit after tax, thereby allowing Transnet to undertake further socio-economic projects.

Transnet must also solicit funding from allocations reserved for social initiatives in the local and district municipalities where the socio-economic projects are located. In this regard, the uMhlathuze Municipality must be approached to contribute in closing the funding gap for the Empangeni-

Nkwalini branch line project though the allocations reserved for social projects. Timelines for project profitability must be clearly outlined in the beginning and will require performance tracking to ensure that the projects eventually become profitable. All the necessary support needed to promote profitability must be provided. Thorough evaluation criteria should be in place to ensure that only legitimate socio-economic projects benefit from the government funding. There must be a regulatory framework developed to manage the risk to the state. The Empangeni-Nkwalini branch line can therefore be funded through government funding.

6.6.4 Aid or Donations funding model

There is overwhelming evidence that aid or donations will not be suited as a funding model for the Empangeni-Nkwalini branch line project and therefore should not be considered.

It has been clearly shown based on the findings of the research that it is not only government funding that can respond to the project funding needs of the Empangeni-Nkwalini branch line project, but also self-funding, Public-Private Partnerships under special conditions, andgovernment funding.

6.6.5 Further research

The following areas of study can be considered for further research:

A. It is recommended that the next phase of the research focuses on research that will lead to the development of thorough evaluation criteria for socio-economic projects. This will assist in ensuring that the correct and deserving socio-economic projects get funding.

B. The other important area of further research must focus on successful implementation of socio-economic funding models within Transnet.

The implications of the recommendations for other socio-economic projects in South Africa, Africa in general and internationally are explained below.

6.7 IMPLICATIONS OF RECOMMENDATIONS ON SOUTH AFRICAN PROJECTS

The findings indicate that socio-economic projects can be funded by government, leading to empowerment of local communities. In South Africa the government should through appropriation process and fund socio-economic projects using the budgets that would have been set aside for social programmes. Funding socio-economic projects such as the Empangeni-Nkwalini branch line is preferable for the government rather than just giving away social grants because funding projects give people the opportunity to earn an income and regain their dignity. The private sector can also play a role in funding social projects when they become profitable or when government closes the funding gap. The self-funding model is ideal in South Africa for socio-economic projects. This means that self-funding presents an avenue where socio-economic projects can be funded in South Africa. The conclusion is that in South Africa all three funding models can be applied, depending on the State Owned Enterprise's readiness and capacity.

6.8 IMPLICATIONS OF RECOMMENDATIONS ON PROJECTS IN AFRICA

The lack of a vibrant private sector in many countries in Africa means the chances of private funding remain limited. Governments still struggle to raise enough money to fund infrastructure in general. Aid and self-funding

by State Owned Enterprises when they generate profit remains the most viable option for most African countries.

6.9 IMPLICATIONS OF RECOMMENDATIONS ON INTERNATIONAL PROJECTS

Self-funding for socio-economic projects has not been adequately explored by State Owned Enterprises internationally. This research presents an alternative that could be useful in seeking to deliver these projects to the greater benefit of their societies.

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ANNEXURES

ANNEXURE A

Questionnaire

Consent given by the interviewee to use their views and input as part of the research?	YES	NO

Interviewee's initials and surname: _____

Organisation	
Function	
Level	

Please answer the following questions:

1. How should socio economic projects within Transnet, be funded e.g. branch line projects?

_____

_____

_____

_____

_____

2. Should government fund the socio economic projects within Transnet in the same way it is done at Sanral, why?

_____

_____

_____

3. What is stopping Transnet from creating a budget or basket for socio economic projects the same way it is done for regulatory and mandatory projects?

4. What is the correct mechanism that can be used to ensure that socio economic projects deliver on their social promise?

5. What in your view is the impact of not embarking on socio economic infrastructure projects to local communities and the economy at large?

6. Do you think that private sector should fund the revitalisation of the Empangeni – Nkwalini branch line, why?

7. If you were given the responsibility to influence how the socio economic projects are funded, how would you do it?

8. Why does Transnet not have a deliberate strategy on how the socio economic projects should be funded?

9. Should Socio economic projects even be funded by Transnet, explain?

10. How will the revitalisation of the Empangeni – Nkwalini branch line help the community, explain?

11. What are the risks to Transnet associated with revitalisation of the Empangeni Nkwalini branch line, explain?

ANNEXURE B

Questionnaire

Consent given by the interviewee to use their views and input as part of the research?	YES	NO

Interviewee's initials and surname: _____

Area	
Proximity to the Branch line	
Gender	

Please answer the following questions:

1. How will the revitalisation of the Empangeni – Nkwalini branch line impact the community?

_____

_____

_____

_____

_____

2. Which goods and commodities would you like to see being transported on the branch, why?

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3. Do you think the general prices of goods and services will change if the line is revitalised? Why?

4. What will be the impact on job creation if the goods and commodities you selected are transported on the branch line?

5. Do you think the revitalisation of the branch line will lead to economic growth in the area, why?

6. Who do you think must pay for the revitalisation of the branch line, why?

7. What are the risks associated with the revitalisation of the branch line for the community?

8. Do you think government should fund the revitalisation of the branch line, why?

9. Do you think private sector should fund the revitalisation of the branch line, why?

10. Do you think Transnet should fund the revitalisation of the branch line, why?

11. What are the risks associated with revitalisation of the Empangeni Nkwalini branch line, explain?