

The State Of Logistics - A Five-Year Review

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Abstract: The state of logistics survey makes it possible to analyse and show trends over the past five years. This relates to quantitative and qualitative logistics issues that were not possible when this survey started in 2004. The paper will show that the continued measurement of logistics performance in SA is of critical importance to both government and the private sector and that this provides a platform from which logistics performance and competitiveness can be improved.

1. INTRODUCTION

The State of Logistics Survey for South Africa was an initiative initiated and started by the CSIR with partners in 2004. The objective was to provide, on an annual basis, a comprehensive overview of the state of logistics in the country. At that stage, nothing like this existed in the country. This initiative was a clear recognition of the growing importance of logistics and supply chain management for the country especially to enhance the ability of the country to compete in the global market place. Almost no data about this vital function existed at that stage and both policy makers and decision-makers in industry had very little real information for policy formulation and for business decision-making. Reducing logistics cost has been one of the major drivers by logisticians globally and in South Africa although there did not exist any reliable information on this. This inability to measure logistics costs on a regular basis hampered a continuous macro-understanding of the state of logistics. It was impossible to gauge the impact of various public and private sector initiatives to reduce South Africa's logistics costs. Providing some information by collecting data, quantifying this and interpreting it was going to go a long way to develop a more complete understanding of the drivers of logistics costs. The local survey initiative was to some extent based on the annual State of Logistics report of the United States where logistics costs were computed for the past number of years. The US report typically also covered a specific logistics theme or topic.

Various efforts, over many years, endeavoured to articulate strategies for the long-term development of South Africa's transport and logistics infrastructure. All these studies highlighted severe challenges and problems. The Transport White Paper of 1996 and the Moving South Africa research project were such examples. In 2005, the National Freight Logistics Strategy¹ was published as a further effort to address these challenges. The key challenges as outlined in this strategy were given as:

"The freight system in South Africa is fraught with inefficiencies at the system and firm levels. There are infrastructure shortfalls and mismatches; the institutional structure of the freight sector is inappropriate and there is a lack of integrated planning. Information gaps and asymmetries abound; the skills base is deficient and the regulatory frameworks are incapable of resolving problems in the industry".

South Africa is currently investing heavily in large infrastructure development that was necessitated by the historic backlog in infrastructure investment and infrastructure demands for World Cup 2010. There is no doubt that this is going to alleviate problems but many challenges will remain.

¹ National Freight Logistics Strategy, Department of Transport, Pretoria, South Africa, September 2005.

This paper endeavours to give a high level overview of the State of Logistics over the past five year period. It is obviously impossible to provide the detail as contained in the separate survey reports. The structure of the paper is in essence the same as that of the survey reports. We highlight the value of measurement, explain the research approach and then briefly cover aspects of the different perspectives of the research approach, namely, macro-economic, industrial and small business development. The paper clearly illustrates the value of computing logistics costs annually and the value of trends. The same applies to freight transport. Most of what is captured in this paper comes from the five survey reports.

2. WHY MEASURE?

When the survey was initiated, measurement was strongly motivated. The case for understanding logistics costs and the impact of global logistics is regarded as a non-issue by prominent researchers, it simply must be measured.

“The distribution of products and services from the point of origin to point of consumption is a very important part of any country’s gross national product and indicates how much “money” the country has produced or made. Logistics activities thus mean money to a country.”²

“As the logistics functions become more integrated, they are able to achieve much efficiency. But, a barrier to fully implementing an integrated logistics function is the lack of accurate information about costs”³. As a lead indicator, logistics cost measurement will support national policy-making and the targeted deployment of operational and capital resources (transport infrastructure investment). As a lag indicator, it will enable performance to be measured and prepare the way for corrective action.

As South Africa continues to grapple with requirements for new investment in rail, freeways, ports and other logistics infrastructure, policy-makers are experiencing an ever-increasing shortage of useful measurement tools to guide decision-making and to measure performance. The State of Logistics Survey fills this void specifically.

3. RESEARCH APPROACH

The research methodology used in almost all of the five surveys incorporates a macro-economic viewpoint (top-down), an industry-level perspective (bottom-up) and a small business development perspective, dealing with logistics as a developmental constraint for small, medium and micro-enterprises (SMMEs) in urban and rural environments. In some of the surveys a view on research priorities in this environment was presented. The multiple perspectives considered by the State of Logistics surveys include established areas of research such as cost modelling, transport economics and supply chain analysis, as well as areas such as the role of logistics in economic and social development. The research methodology reflects this holistic approach, as well as the relative maturity of these research areas. A more formal and quantitative approach is adopted for the development of the cost of logistics, while a more qualitative and exploratory approach is applied to the small business and economic development perspective.

For the purposes of the cost model (which has been refined over the years), logistics is considered as part of the supply-chain process that deals with the transportation, warehousing,

² Voortman, C. 2004. Global Logistics Management, Juta Academic, Cape Town.³

³ Fredendall, LD. And Hill, E. 2001. Basics of Supply Chain Management. The St. Lucie Press. Boca Raton, Florida, USA.

inventory carrying, administration and management of physical products between the primary point of production and the point of delivery to the final consumer (or last customer in the supply chain whenever products are not delivered to consumers). Per definition this excludes the cost of passenger transport and the cost of transport, storage, packaging, handling, etc of mail and luggage, as well as the storage and movement tasks that occur during the production process.

The research approach is summarised in Figure 1.

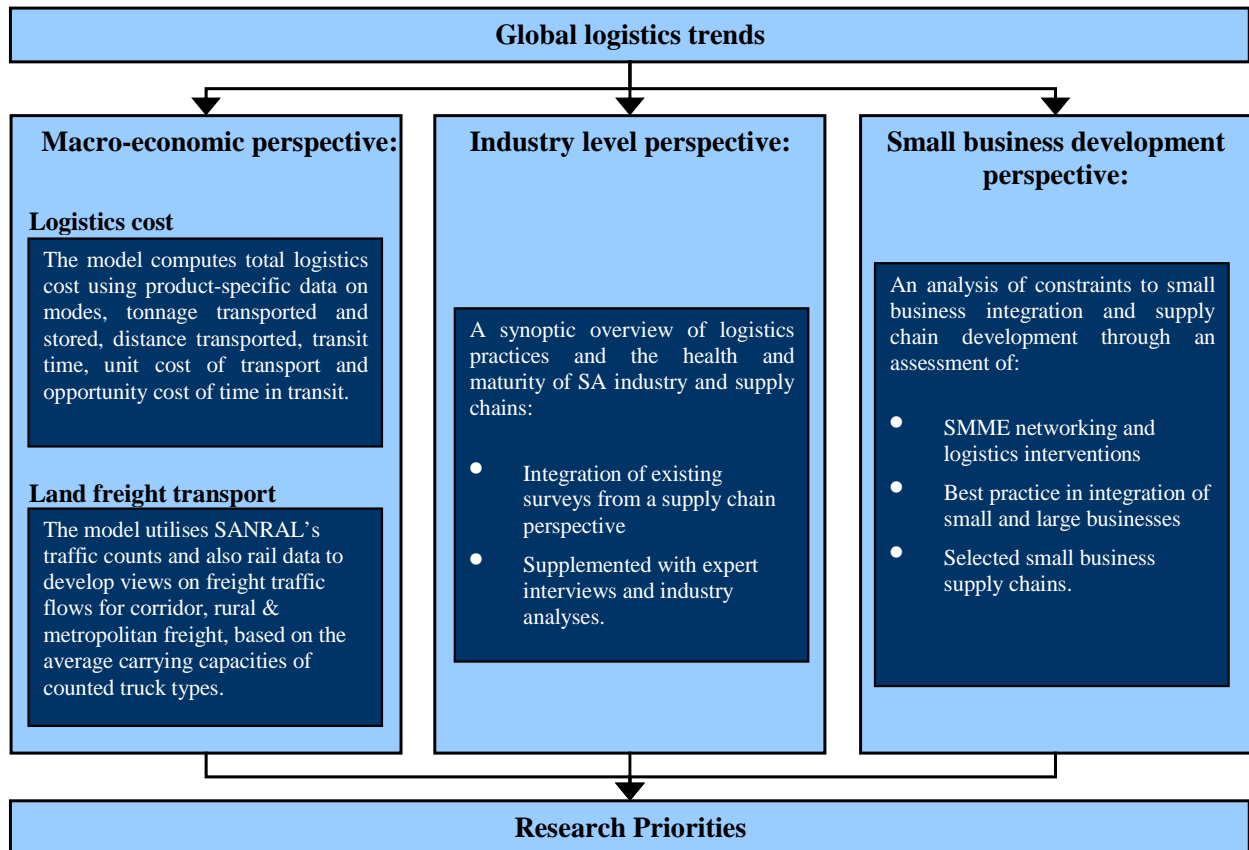


Figure 1: Research Approach⁴⁵

Following the above methodology, five annual surveys, covering 2003 to 2007, were completed with the following individual themes:

1. The case for measurement and revitalisation of basic logistics infrastructure in our dual economy;⁶
2. Defining research priorities for developmental logistics.⁷
3. Implementing logistics strategies in a developing economy;⁸

⁴ SANRAL = South African National Roads Agency Limited

⁵ The Logistics Cost Model was developed by the Department of Logistics at the University of Stellenbosch: Botes, F.J, Jacobs, C.G. and Pienaar, W.J.

The Land Freight Transport Model was developed by USB-ED: Havenga, J.H. and Hobbs, I.E.

⁶ First State of Logistics Survey 2004, CSIR Report, Pretoria, 2004.

⁷ Second State of Logistics Survey 2005, CSIR Report, Pretoria, 2005, ISBN: 0-7988-5559-2.

4. Logistics for regional growth and development;⁹ and
5. Logistics value and cost drivers from a macro-economic perspective.¹⁰

It is very clear that the emphasis has been on development in a developing country and on measuring costs to get a firm handle on some cost drivers in the logistics environment.

4. MACRO-ECONOMIC PERSPECTIVE

4.1 LOGISTICS COSTS

One of the main objectives that motivated the State of Logistics was to get better information, analyse and quantify these, to repeat these annually and then get the trends over a number of years. After five years this is now possible and one can analyse the changes over these number of years.

With the publication of the 5th State of Logistics survey, management information with regard to South Africa's logistics infrastructure and its performance is further enhanced. The absence of proper information has been a problem since the 1st State of Logistics survey and is illustrated by the fact that Government's contribution to this body of knowledge is still mostly lacking. Out of 72 performance measures issued by The Presidency in 2007, none refers to logistics performance in the country.¹¹

Any comparisons or benchmarking around logistics should take note of production factor differentials. Developing countries produce 37% of the world's Gross Domestic Product (GDP), but pay 48% of the logistics bill.¹² The best economies in the world have achieved logistics costs of around 10% of GDP, while the worst could pay as much as 30%¹³ with an average of between 11 and 16%.¹⁴ In logistics *structural differences and policy* are basically the reason for this. A more detailed analysis of South Africa's comparison to the world economy reveals some interesting statistics.¹⁵

⁸ Third State of Logistics Survey 2006, CSIR Report, Pretoria, 2006, ISBN: 978-0-7988-5567-9.

⁹ Fourth State of Logistics Survey 2007, CSIR Report, Pretoria, 2007, ISBN: 978-0-7988-5574-7.

¹⁰ Fifth State of Logistics Survey 2008, CSIR Report, Pretoria, 2008, ISBN: 978-0-7988-5586-0.

¹¹ Havenga, 2007, *The development and application of a freight transport flow model for South Africa*, PhD dissertation, University of Stellenbosch p. 38

¹² Calculated from Rodrigues, A.M., Bowersox, D.J. and Calantone, R.J.: *Estimation of Global and National Logistics Expenditures*, in Journal of Business Logistics, vol. 26, No. 2, 2005.

¹³ Roberts, P.O.: Supply Chain Management: New Directions for Developing Economies, SAIC, World Bank, 2002.

¹⁴ The Department of Transport and Regional Services: *The Commonwealth's Transport Directions*, Commonwealth of Australia, 2004.

¹⁵ Havenga, J and Pienaar W. , 2005, *The case for developmental logistics*, in Second State of Logistics Survey 2005, CSIR Report, Pretoria, 2005, ISBN: 0-7988-5559-2, p. 9

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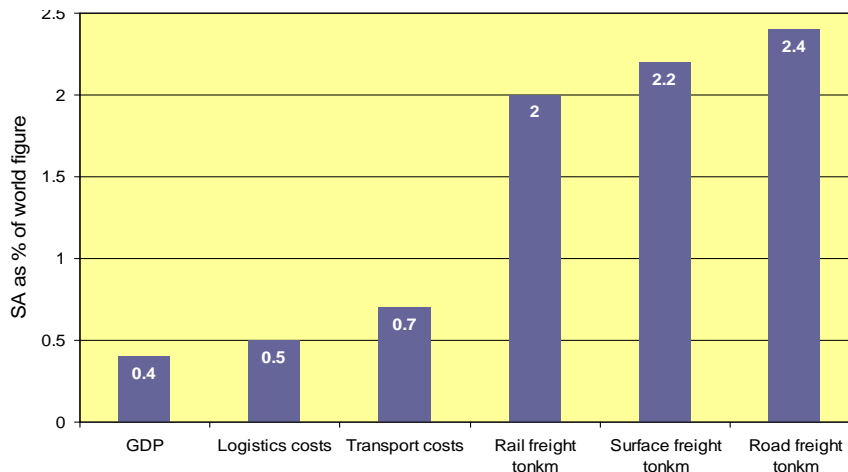


Figure 2: South Africa's GDP As % Of the World's Combined Production and Logistics Characteristics¹⁶

The country contributes less than 0.5% to the world's production, carries 0.5% of the logistics costs and contributes nearly 2.5% of world road ton-kilometers. The country requires 4.4 times the ton-kilometers for each dollar of production moved compared to the rest of the world and engineered a rail- and highway system that didn't impact costs as much as it could have.

In addition, up to fifteen years ago, the *common carrier* (rail) was required *inter alia* to provide low-cost solutions for un-beneficiated bulk exports, resulting in one of the cheapest bulk rail systems in the world with an unrivalled industrial logistics capability. Yet South Africa is unable to capitalize on this ability. Numerous studies over the past fifteen years illustrated that a 25% shift in road freight volumes to an *efficient* rail system could release large economic potential. Many factors influence *efficiency* but especially for high value products it is "*not so much the price that is important but reliability, both in taking proper care of the product and making sure it arrives on time.*"¹⁷ This concept is clearly defined by Pienaar: "... *emphasis is not on simply the cheapest or the fastest transport or reducing inventories, but rather on an integrated and coordinated logistics approach. The acceptance of the total-cost concept has changed the relative importance of the different logistics activities and has led to cost trade-offs between transport / goods flow services provided and the operation of warehouse and production facilities assuming greater importance.*"¹⁸

In line with stated intentions, since the 1st State of Logistics survey, major enhancements to the cost model were made in 2008. Most remaining gaps in the modelling system were addressed and more attention was given to detail. Table 1 shows the adjustments to previous survey results.¹⁹

¹⁶ Calculated from Rodrigue, J-P ET AL.: TRANSPORT GEOGRAPHY ON THE WEB, Hofstra University, Department of Economics & Geography, <http://people.hofstra.edu/geotransRodrigue>, 2005, Gielen, D. *Transportation in the World and the EU. A bird's eye view*. Presentation 7th EU Hitachi Science & Technology Forum 2004, and State of Logistics Survey modelling.

¹⁷ Meyer, F. *Reliability is more important than price*, in International Transport Journal, 14/2000, p.11-12.

¹⁸ Pienaar, W.J.: *Transport cost and pricing principles*, Chapter 12, in Vogt, J.J., Pienaar, W.J. and De Wit, P.W.C.: *Business Logistics Management, Theory and Practice*, 2nd. ed., Cape Town: Oxford University Press, 2005, p. 215.

¹⁹ Havenga, J.H., Van Eeden, J., Jacobs, N and Braun, M. 2008. *The state of logistics in South Africa – exposure to external risks in*, Fifth State of Logistics Survey 2008, CSIR Report, Pretoria, 2008, ISBN: 978-0-7988-5586-0., p. 14

Table 1: Adjustments to Previous Survey Results Due To Model Improvements

Year	2003	2004	2005	2006
Inventory carrying cost (2007 model)	R26bn	R27bn	R28bn	R30bn
Restated Inventory carrying cost (2008 model)	R26bn	R29bn	R33bn	R38bn
Transport cost (2007 model)	R117bn	R128bn	R141bn	R155bn
Restated transport cost (2008 model)	R101bn	R110bn	R121bn	R133bn

The overall effect of these changes on the cost of logistics is reflected in Table 2. The improvements caused a slight downward adjustment of logistics costs as a % of GDP, but resulted in a more robust model, further increasing the confidence in the outputs.

Table 2: Effect of Adjustments on Total Logistics Cost Statement

	2003	2004	2005	2006
Logistics costs as percentage of GDP (2007 model)	16.6%	16.4%	16.2%	15.7%
Logistics costs as % of GDP (2008 model)	15.4%	15.3%	15.2%	14.9%

The logistics costs in South Africa remain high and, for the calendar year 2007, were R317 billion or 15.9% of GDP. The contribution by the various cost elements is depicted in Figure 3. Even with the lower cost figures for transport, as per Table 1, the percentage contribution of transport costs to total logistics costs is 53% which is much higher than the world average of 39%. Transport and inventory carrying costs also show an alarming upward trend, even when the real (constant) increase is considered. See Figure 2. This means that inventory carrying costs have doubled over four years and transport costs have grown by more than 50%. The actual logistics cost figures are depicted in Figure 3.²⁰

²⁰ Havenga, et. al. 2008, p. 16

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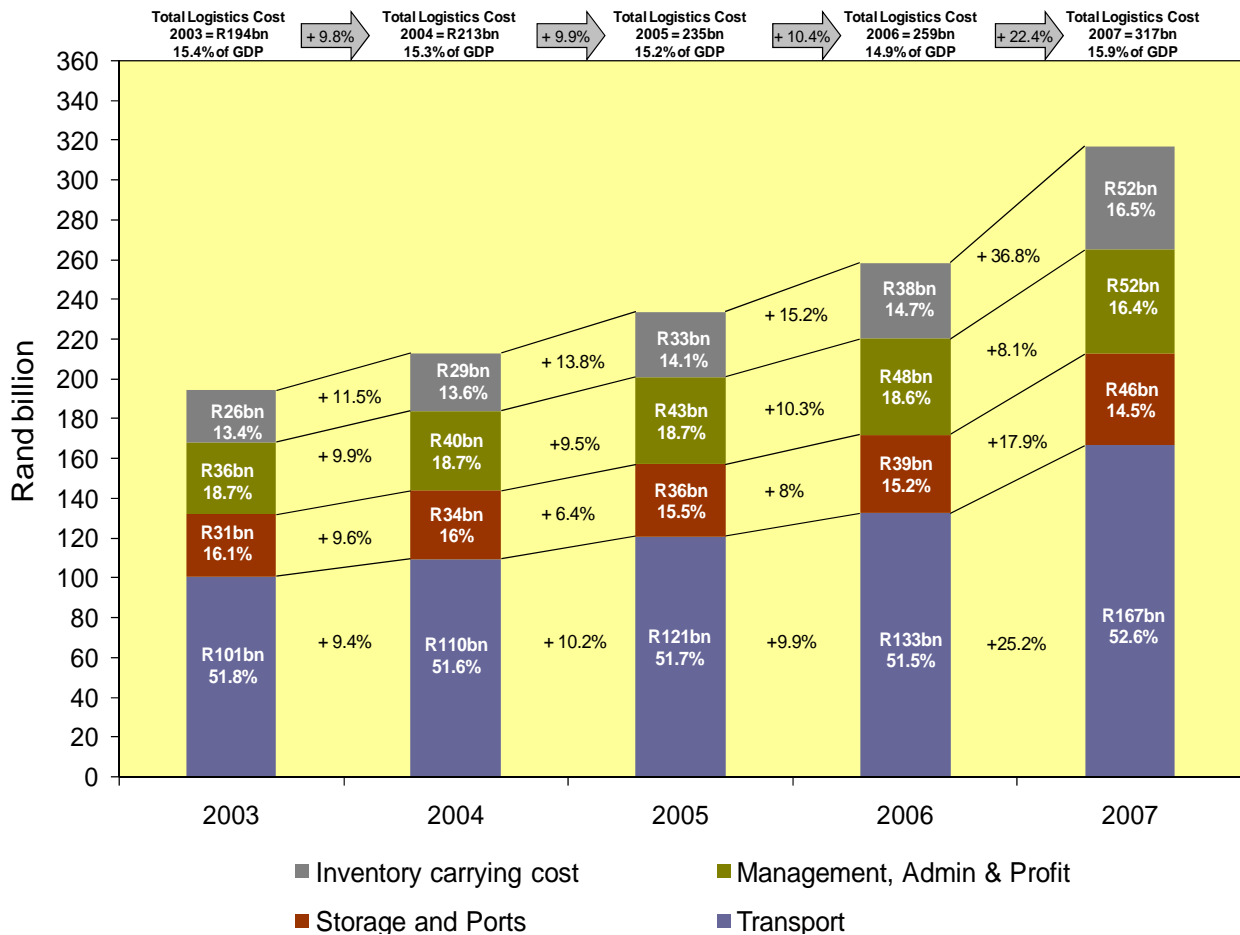


Figure 3: Actual Logistics Cost Figures for South Africa

During the five years under consideration, the GDP of South Africa has also grown significantly. The increased logistics cost percentage of an increased GDP is cause for concern. Internal logistics costs in South Africa are almost “running away”. Serious attention is required.

The significant growth in inventory carrying costs is further impacted by two key factors:

- The average interest rate for 2007 was 2% higher than for 2006, which contributed nearly R1 billion to the increase in inventory carrying costs; and
- In addition, on average 18.4% more stock was tied up in inventory (R393 billion *versus* R332 billion in 2006) and this contributed a further R13 billion increase in inventory carrying costs.

The double jeopardy of more stock in a high interest rate environment therefore contributed to this extremely poor performance with a concomitant impact on logistics costs in general.

From 1 January to 31 December 2007 the average diesel price increased by 32%. Fuel contributes 32% of all road transport costs and road transport’s cost market share further increased to 90% in 2007, making South Africa increasingly vulnerable to fuel price fluctuations. Thus, 29% of transport and 15% of South Africa’s logistics costs are exposed to direct external factors (given the current configuration) and cannot be controlled by logisticians. Many other ‘hidden’ aspects are also outside the sphere of control, such as the additional cost burden on operations that are caused by ailing infrastructure. Furthermore, externalities that are not accounted for (such as congestion,

accidents, bad roads, pollution) add aspects that cannot be controlled directly on a firm level.²¹

South Africa’s current logistics configuration leads to unacceptable risk exposure to global upheaval. Whereas logisticians continually attempt better practices, the current modal configuration, infrastructure condition and lack of management information pose a total system risk. The core drivers of logistics costs are currently the price of imported fuel and the interest rate. Strategic procurement practices suggest, at minimum, that more transport output should be generated with local input. This could be achieved only by higher local fuel production or a switch of transport supply to a locally-generated power source such as rail. This switch can be enabled only by intermodal services being provided by road and rail operators in South Africa.²²

Transport remains the biggest contributor to logistics costs and the biggest challenge in South Africa.

4.2 LAND FREIGHT TRANSPORT VOLUMES AND COSTS

The quantification of land freight volumes and flows was one of the additional objectives of the State of Logistics. All over the world, there is the tendency of freight moving away from rail to road. This phenomenon is also happening in South Africa but there was no data to substantiate this. The table below shows the tonnage on rail and road for each of the five years.

Table 3: Tonnage on Rail and Road for Each of the Five Years (Metric Tons)

	2003	2004	2005	2006	2007
Rail	200	205	206	196	205
Road	973	1 106	1 210	1 337	1 373
Total	1 173	1 311	1 416	1 533	1 578

The tonnage on rail has basically stayed constant over this five year period while all the growth in freight movement has been on road. The growth from 2003 to 2007 has been close to 40% on road. There could be differences in the numbers shown in survey reports. Updates were done with better source data and refinements in the methodology used to calculate these.

The National Freight Flow Model (NFFM) was developed prior to the first survey and it is used to determine freight volumes on road. The NFFM utilises the South African National Roads Agency’s (SANRAL) Comprehensive Traffic Observation (CTO) yearbooks as a basis for the development of a current and historical view of freight traffic flows in South Africa. The model accounts for the differences between corridor, rural and metropolitan freight and the various carrying capacities of the types of trucks used. This is then collated and compared to actual rail data to develop views on market shares, corridor densities and overall investment strategies for South Africa.

Road and rail are the predominant means of freight transport in South Africa (contributing 99% of all logistics costs) and therefore require close attention. The remaining 1% of costs is associated with other modes (0,08% with air, 0,29% with coastal shipping and 0,69% with pipelines).

In 2007, close to 1.6 billion ton of freight was moved across four different typologies in South Africa. See Figure 4. Of these, 1.4 billion ton was moved on road at an average transport distance (ATD) of 178 km, delivering 245 billion ton-km. Rail only contributed 205 million ton at

²¹ Op. Cit, p. 18

²² Op. cit. p. 19

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an average transport distance of 629 km, delivering 129 billion ton-km.^{23,24}

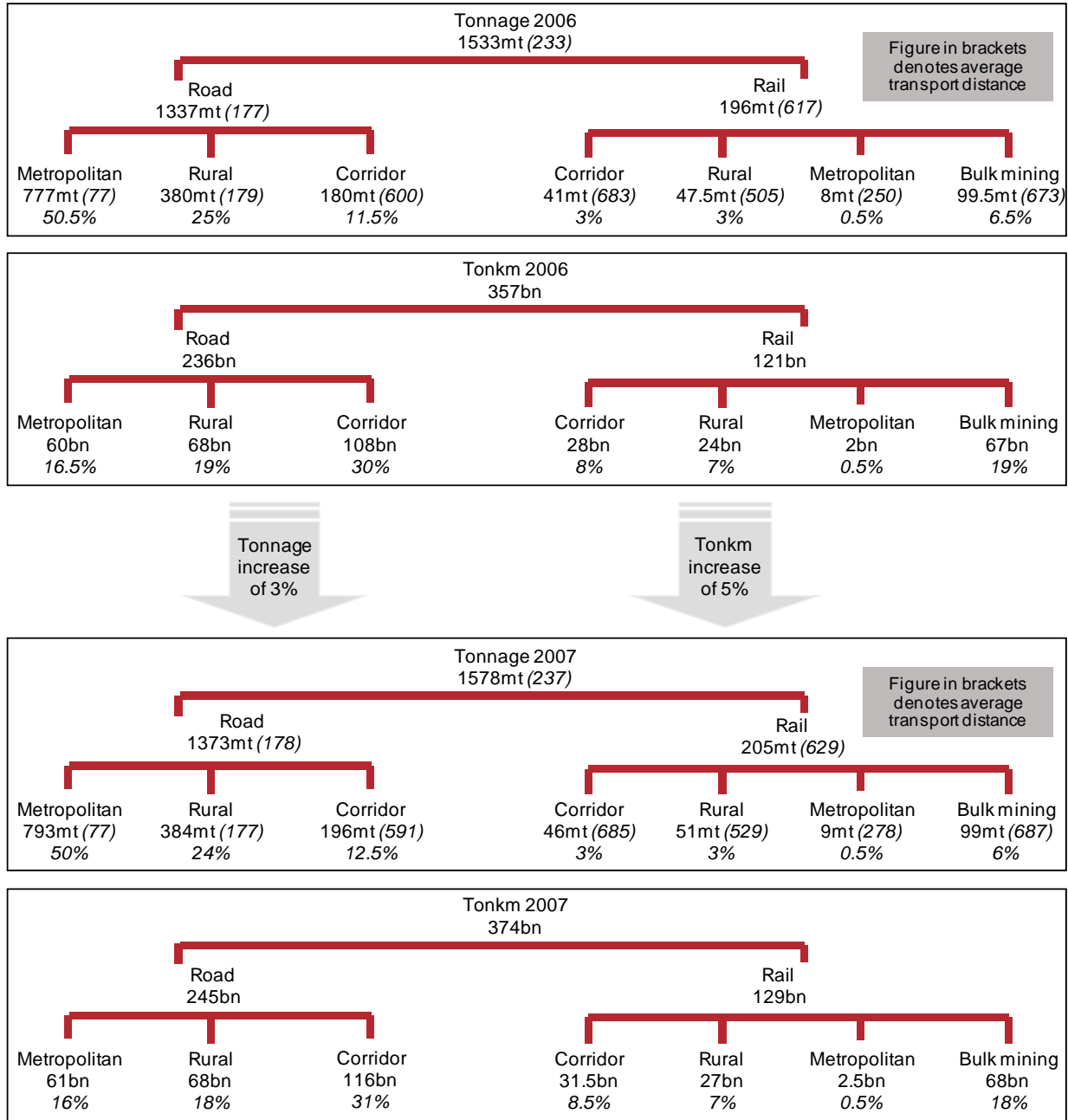


Figure 4: Modal Distribution of Road and Rail Freight in South Africa²⁵

²³ Havenga, J.H., Simpson, Z. and Van Eeden, J. 2008. Land freight transport volumes and costs, in Fifth State of Logistics Survey 2008, CSIR Report, Pretoria, 2008, ISBN: 978-0-7988-5586-0., p. 20

²⁴ The model is an observation-based model (as opposed to a survey or gravity model). This means that freight is 'observed' or counted at 363 counting stations in the country and then allocated to a typology (corridor, rural, metropolitan or bulk mining). It is then further allocated to a specific sub-class, i.e. the Cape Town-Gauteng corridor or the Durban-Gauteng corridor. A vehicle travelling from Cape Town to Beitbridge, for instance, will be counted twice (once on the Cape Town-Gauteng corridor and once on the Gauteng-Beitbridge corridor). In order to enable road and rail comparisons, the actual rail data are classified in the same way. Since gravity modelling results are now also available and actual rail data are available, the double-counting percentage can be estimated and is around 10%.

4.3 LAND FREIGHT TRANSPORT TYPOLOGIES

The core modal structure of transport has not changed the past few years and one of the challenges that arise is the inordinate volume of road freight on corridors, which requires sustained road infrastructure investment, thereby in effect limiting funds for rural and second economy infrastructure development. The need for modal restructuring is evident through further analysis of the four main transport typologies that is, bulk-mining, corridor, rural and metropolitan traffic. See Figure 5.

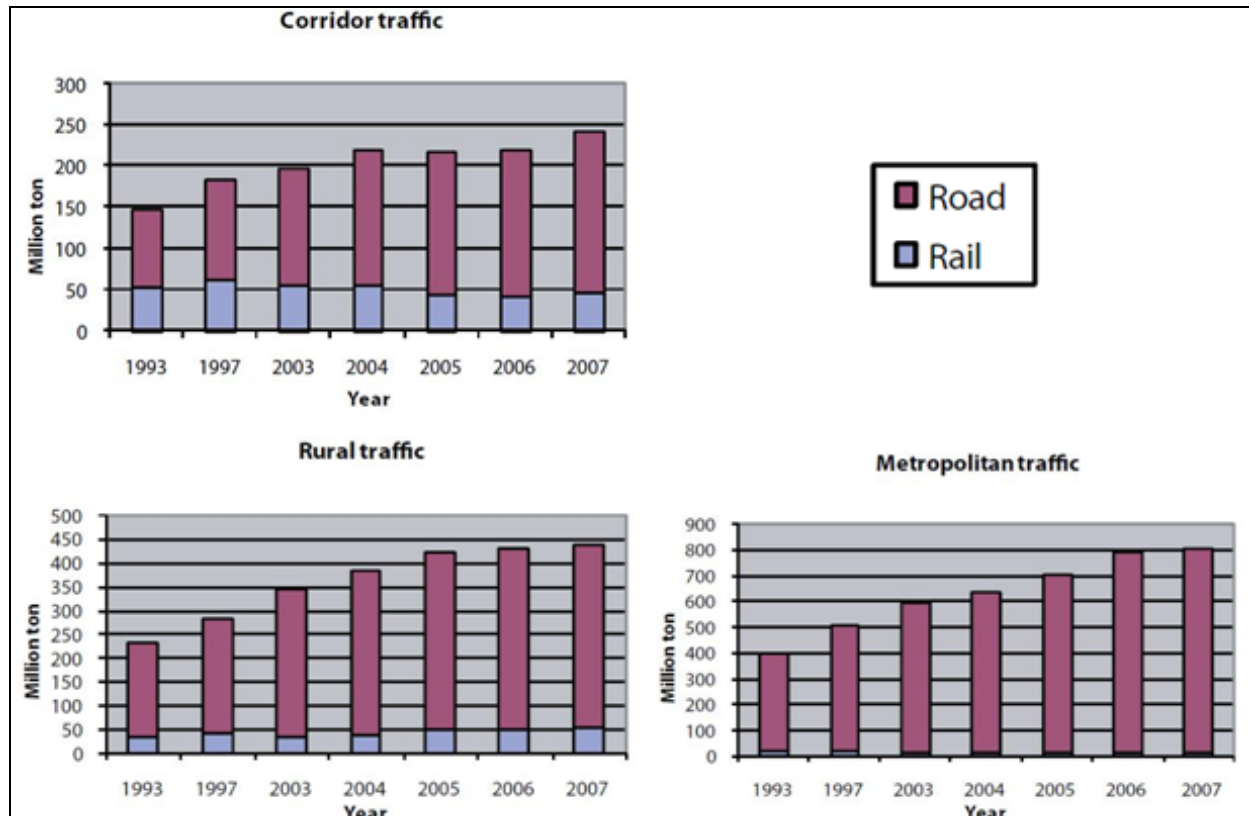


Figure 5: Historical Data for the Transport Typologies

Some observations around the four transport typologies:

- Bulk mining consists mainly of the coal and iron-ore export lines between Mpumalanga and Richards Bay and between Sishen and Saldanha, respectively. There is no road alternative for this traffic and this is thus captured rail traffic. Together 99 million tons that represent almost 50% of all rail transport in South Africa are transported on these lines.
- South Africa's unique spatial challenges require more corridor transport relative to the size of our economy than most countries in the world. The concern is that most of the freight volumes are on road and should really be on rail;
- Rural freight is mainly on road and although there is substantial rail infrastructure across the country in rural areas, these are difficult to operate profitably; and

²⁵ Havenga, et al. 2008, p. 20

- In metropolitan areas, freight is mainly on road. It is typically the “last mile” deliveries and is by far the preferred option.

4.4 OVERALL MARKET SHARE

The road / rail percentage split drives the question of modal shift on a macro-scale and informs the possibility of improving competitiveness through modal reconfiguration, or not. It can be expressed as overall ton market share, overall ton-km and overall costs or income. See Table 3.²⁶

Table 3: Market Share for Land Freight

		Tons in millions	Ton-km in billions	Costs or income in R bn
Mode	<i>Rail</i>	205	129	14
	<i>Road-for-reward (outsourced)</i>	279	58	27
	<i>Road as ancillary traffic (in-house)</i>	1 094	187	124
% Market share	<i>Rail</i>	13%	34%	8%
	<i>Road-for-reward (outsourced)</i>	18%	16%	16%
	<i>Road as ancillary traffic (in-house)</i>	69%	50%	75%

Although rail provides 34% of transport output (ton-km), only 13% of tons shipped are by rail and rail receives only 8% of the proceeds available for transport in South Africa. It also means that road-for-reward accounts for only 16% of all road transport costs and that rail’s market share of outsourced traffic is around 36%.²⁷

Another approach to market share (and probably the most important) would be around ‘contestable’ traffic. It is, after all, not really feasible to shift traffic onto road or rail that could not travel on the other mode, effectively. This would mean that:

- ‘Captured rail’ traffic (that is, bulk mining) is excluded;
- ‘Captured road’ traffic (that is, metropolitan and to some extent rural) is excluded; and
- It is assumed that even ancillary road transport on corridors should be a target for modal shift for a railroad.

This means that for contestable traffic, only corridor market share should be considered (including road ancillary traffic) and this is reflected in Table 4.

²⁶ For road transport it is often (in fact mostly) an ‘in-house’ or ‘private’ transport cost and not for reward. Transnet Freight Rail’s business model does not include taking ownership of freight, which means that almost all rail freight is for reward. It is therefore more prudent to refer to costs (meaning the costs of transport) and income meaning tariffs. An attempt is however made here to split the total road transport into outsourced and in-house, based on unverified work in progress by StatsSA. It is acknowledged that the figures are unofficial and subject to future correction, but at least these begin to provide a rough indication.

²⁷ Havenga, et. al., 2008, p. 26

Table 4: Corridor Market Share Analysis²⁸

		Tons in millions	Ton-km in billions	Costs or income in R bn
Volume	Rail	46	32	7
	Road	196	116	53
% Market share	Rail	19%	22%	11%
	Road	81%	78%	89%

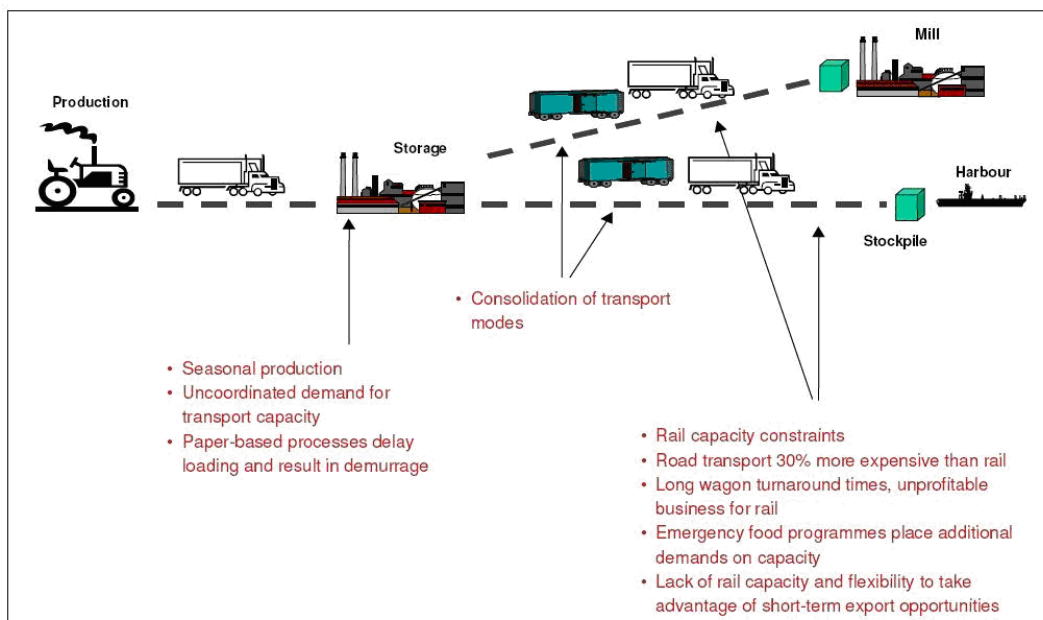
Intermodal transport as a 'mode' is not depicted, as no domestic intermodal solutions exist for South Africa.

The combined picture provided by the logistics cost model and the land freight transport model clearly point to an unsustainable situation. The core question remains – when will South Africa see changes that will reduce risks and costs and provide the domestic intermodal solution that the country clearly requires.

5. INDUSTRY PERSPECTIVE

The industry-level perspective gives a synoptic overview of logistics practices and the health and maturity of the SA logistics industry and supply chains. The analysis is strongly linked to each year's theme and therefore various different industries and sectors have been covered.

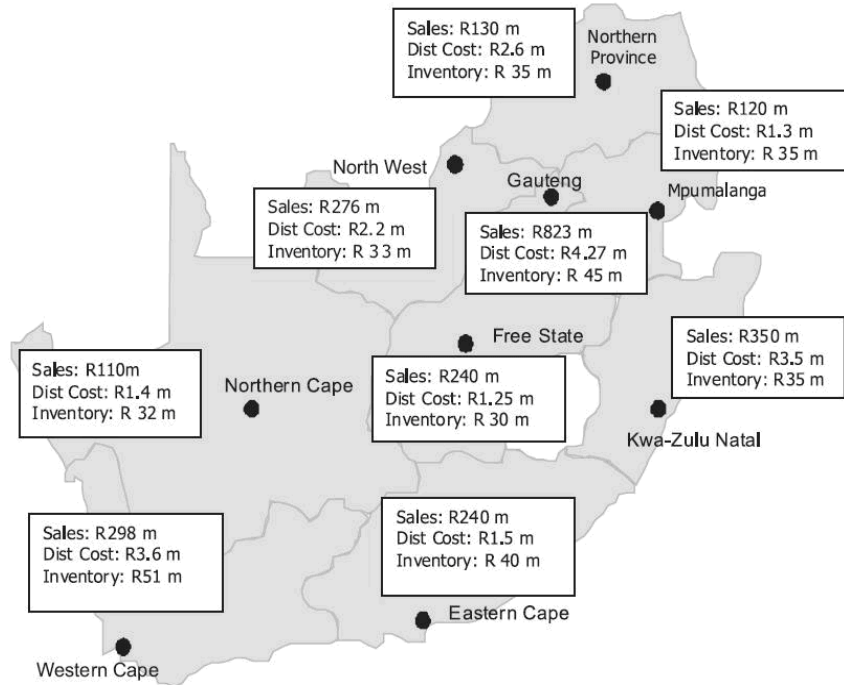
The first survey provided a broad overview of the logistics issues in industry and gave a supply chain overview on the steel, automotive and grain industries in SA. Figure 6 shows issues in the grain industry supply chain.



²⁸ Ibid

Figure 6: Analysis of the Grain Industry Supply Chain

Subsequent surveys analysed supply chain challenges and innovations for the chemicals, processed foods and third-party logistics service provider (3PL) industries. Similar to the private sector, government also faces supply chain issues when delivering services to its citizens and the survey illustrated this by analysing the complexities of the health-care sector in SA. **Figure 7**



gives an overview of some cost elements of the government pharmaceutical supply chain.

Figure 7: Cost Elements Of The Government Pharmaceutical Supply Chain

The fast-moving consumer goods (FMCG) industry was highlighted as well while issues associated to government service delivery were pointed out. As an example the concept of multi-purpose community centres (MPCCs), as a way of integrating service delivery and making it more accessible to citizens, was used to illustrate this issue. Figure 8 virtualises the supply chain of an MPCC.

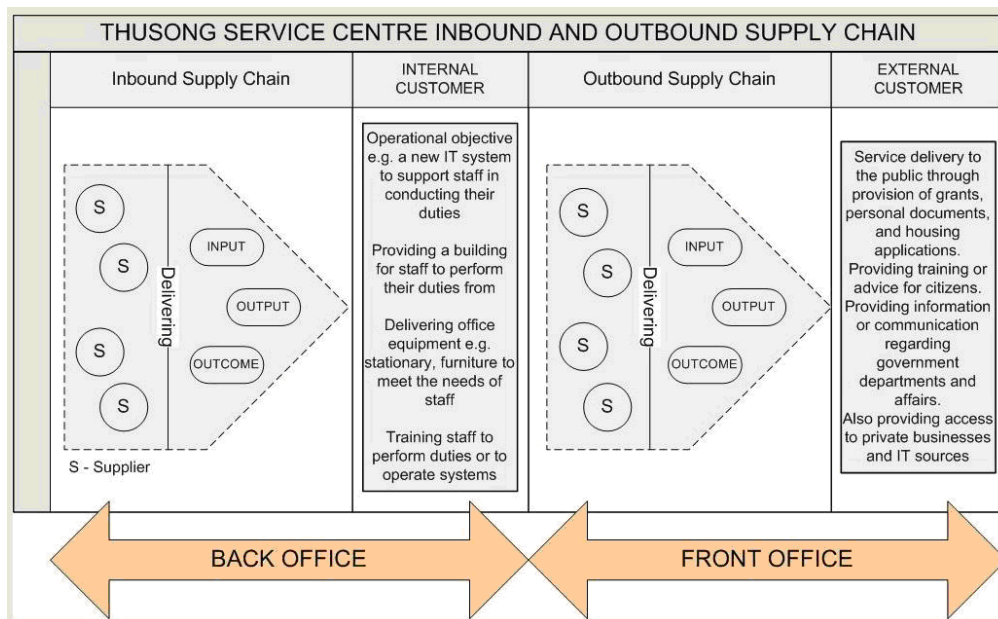


Figure 8: The Supply Chain of A Multi-Purpose Community Centre

From a regional perspective, consideration was given to the part that South African ports play as the economic lifeline in a global economy. Attention was given to the role of 3PLs when companies export into Africa. SAs potential as a regional logistics hub in the Southern African Development Community (SADC) region was promoted and the role SA can play in economic development in the region highlighted. Figure 9 shows that SA is suitably located in terms of distance and accessibility to reach markets in other southern African countries.

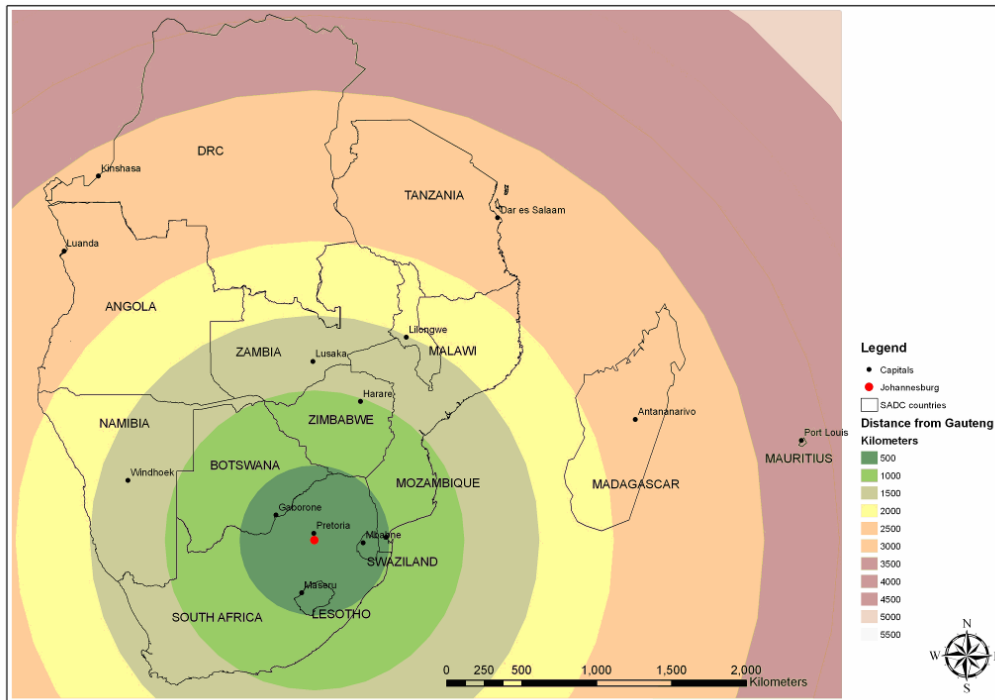


Figure 9: Geographic Position of South Africa in the SADC Region

The value that is created in the logistics sector through effective supply chain management cannot be under estimated and this was highlighted. Three important cost drivers, namely fuel, collaboration and skills development were identified. A new area of focus was to examine the effect of worsening road conditions on the economy. A limited case study indicating that trucks travelling on such roads could experience enormous increases in maintenance costs. See Figure 10. Green supply chain management is a new trend internationally and the question was asked whether green logistics is a cost burden or value creator to companies. The desired results in green supply chains are Green-Gold, where management drives cost savings and process improvement. A government programme similar to the Motor Industry Development Programme (MIDP), the Aerospace Industry Support Initiative (AISI), which is aimed at promoting and developing the aerospace industry in South Africa, was outline in the last survey.

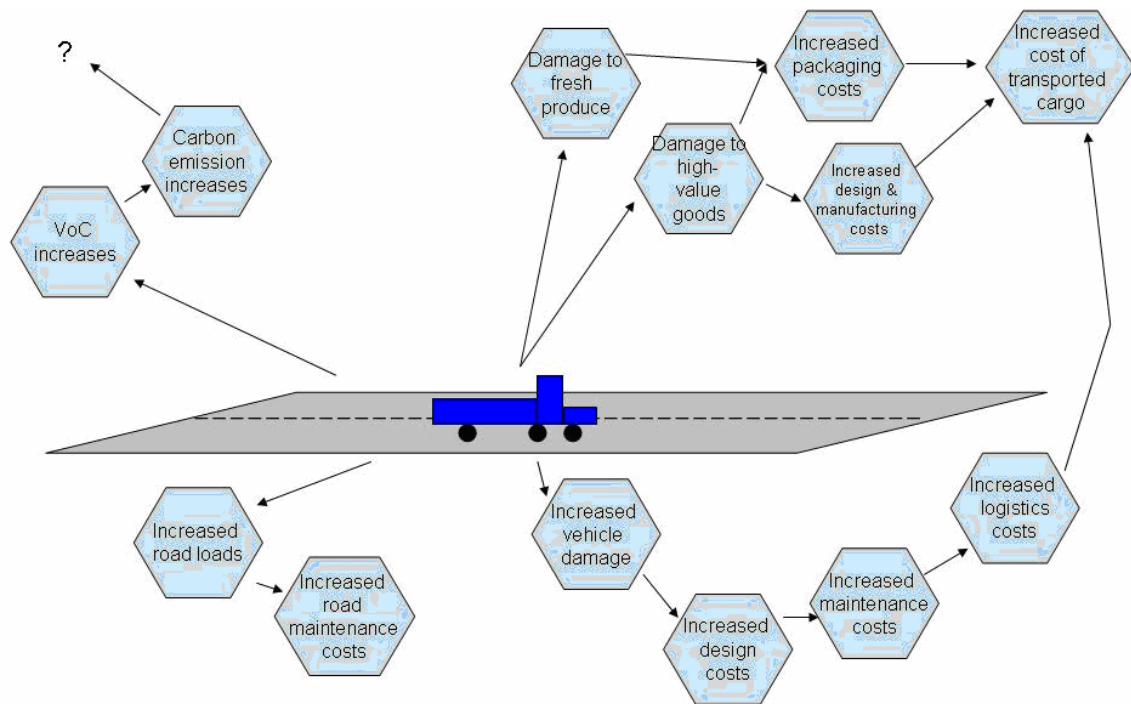


Figure 10: Potential Effects of Deteriorating Road Quality on the Economy

6. SMALL BUSINESS DEVELOPMENT PERSPECTIVE

The State of Logistics survey promoted the importance of the second economy in the logistics environment in South Africa. Government has been adamant about the importance of job creation in the country. Small businesses, both in urban and rural areas, are critical vehicles for this. Most of these small businesses will produce products and need to find their way into the national supply chains.

Logistics issues in resource-poor rural environments are highlighted and Figure 11 shows the location of poverty nodes in SA relative to the primary national logistics infrastructure.

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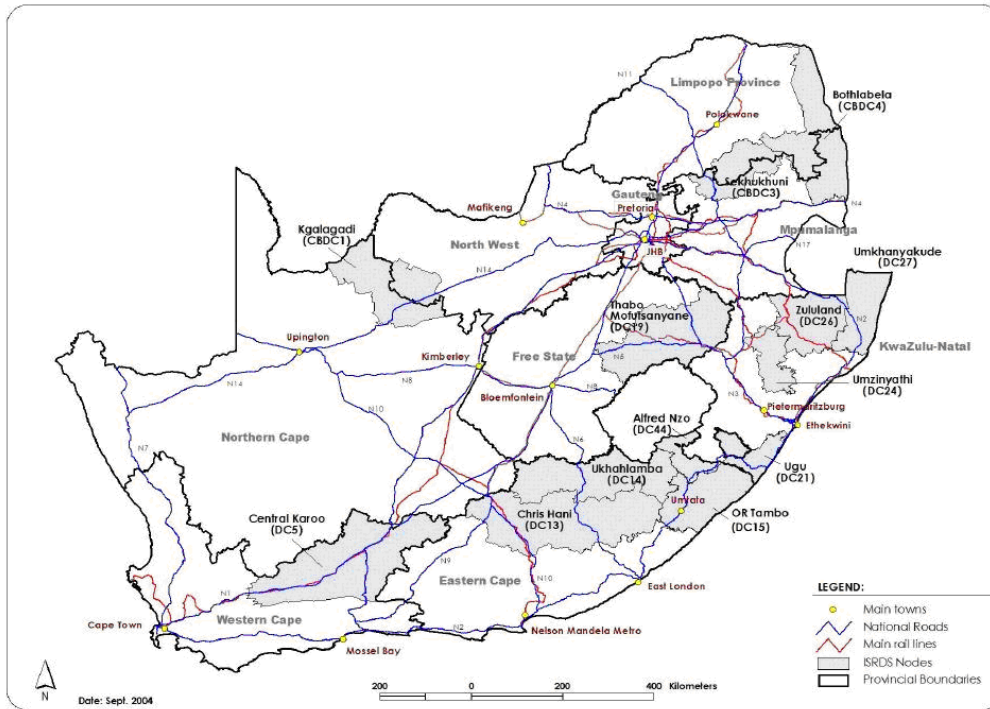


Figure 11: Location of Poverty Nodes Relative to the Primary National Logistics Infrastructure

The importance of reducing the ‘logistics divide’ between the first and second economy, which exists between mainstream supply chains of large technologically-advanced firms and the local or informal sector’s supply chains, was stressed. Examples used included inter-linked sets of national fresh produce markets (Figure 12) and the use of innovative light delivery vehicles (LDVs) for transportation and distribution.

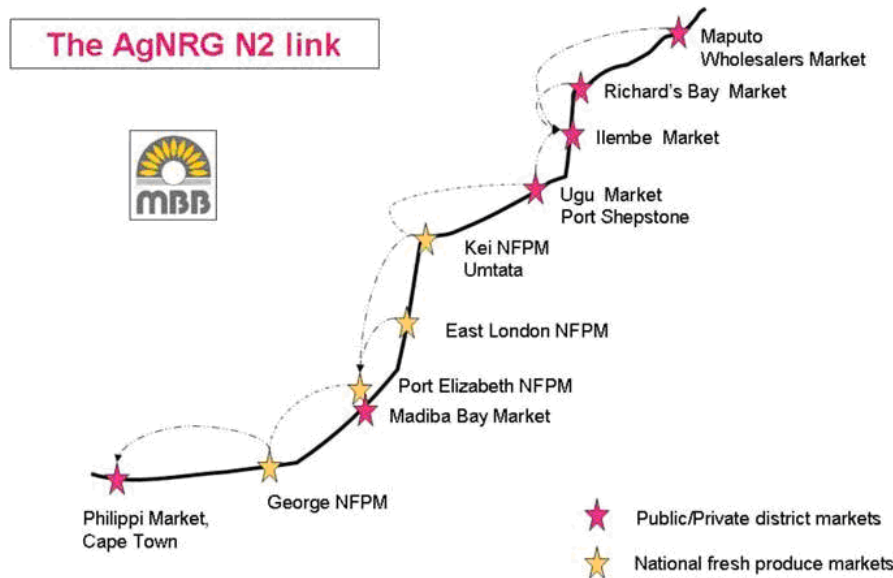


Figure 12: National Fresh Produce Markets and New District Agricultural Markets Along the N2 Development Corridor

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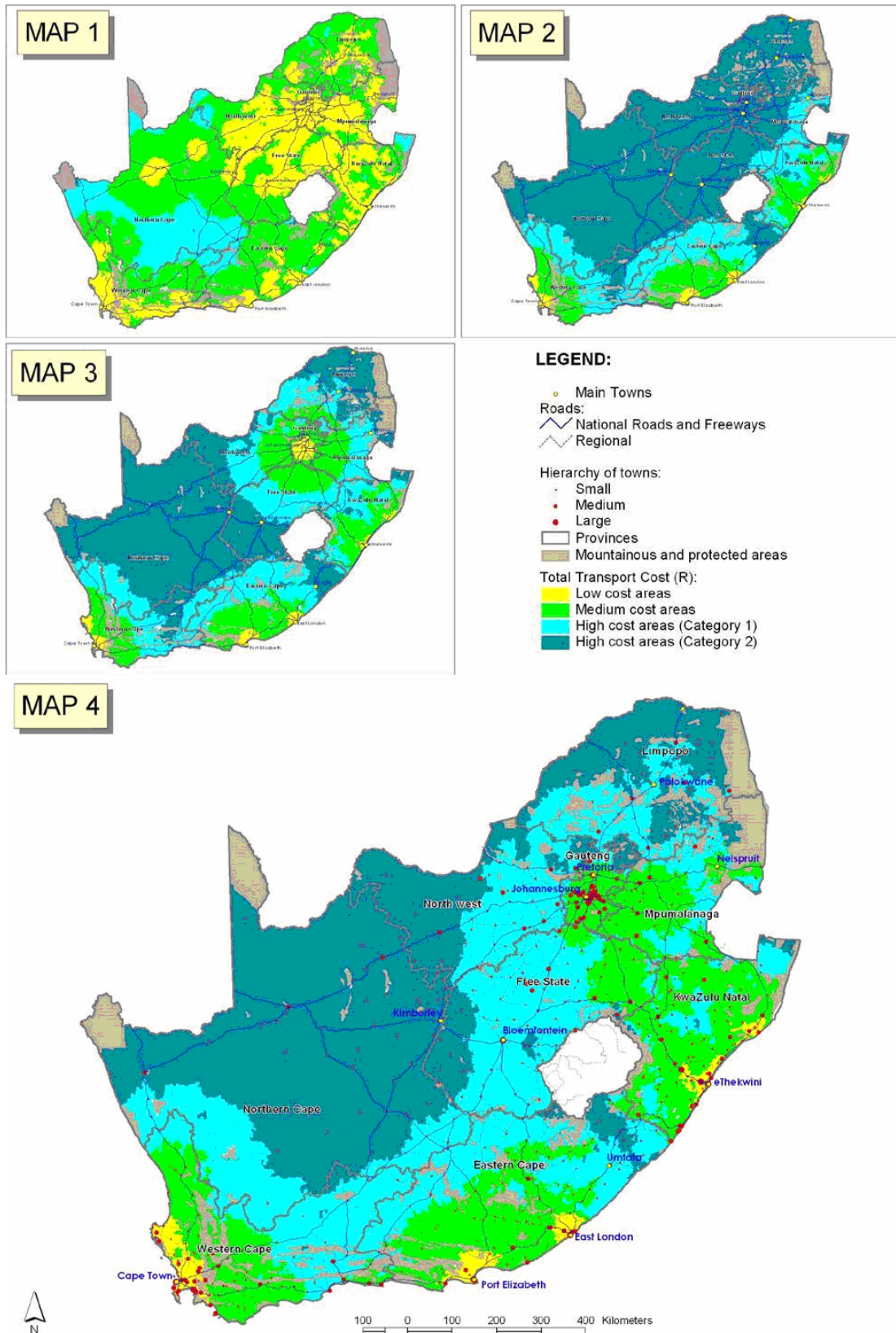


Figure 13: The Cost of Transporting Goods Across South Africa

Strategies for small businesses to improve their supply chain operations were developed as well as survival strategies when trading in a constrained environment. An extensive exercise was performed to estimate the transport component of road-based logistics costs for the whole of SA. represents the visual results of calculating and mapping the costs of transporting a ton of goods to different end-destinations.

- Map 1 shows the results of calculating the road freight transport costs to (and from) the closest regional market town, defined as all large or medium-sized towns or metropolitan nodes with more than R100 million of household income within a 45-minute travel time range.
- Map 2 gives the results of similar calculations undertaken to estimate costs to the closest medium-to-high capacity port, by implication the closest transshipment hub for the import or export of heavy, bulky and / or low-value goods that cannot be economically transported by air.
- Map 3 shows the costs to the closest major international logistics hub for low-weight / high-value goods defined as including all the medium-to-high capacity port cities (all with air freight facilities), as well as the Johannesburg City Deep - OR Tambo Airport complex.
- Map 4 shows the combined costs and the result of calculating the average cost of a road freight trip to the three types of destinations, giving equal weight to each.

An analysis was made of the role small, medium and micro-enterprises (SMMEs) play in the export market and programmes that government implement to assist SMMEs when exporting were reported on. The complexity increases in the supply chain when exporting and this makes it more difficult for SMMEs and government assistance or collaborating and partnering with bigger businesses which could make it easier for SMMEs to compete globally.

7. RESEARCH PRIORITIES

As part of the involvement in producing the annual survey many areas for research were identified. Some of these were reported - a few additional ones can be listed:

- Commodities that are currently transported on road that could potentially move to rail;
- Cost implications and savings, of transporting the above commodities on rail;
- Intermodal solutions that are required;
- Benchmarking around costs for companies in specific industry sectors. That is, more micro-level cost calculations and comparisons;
- The effect on logistics costs of service oriented industries; and
- The feasibility of more government lead initiatives to encourage industries, especially those that want to export, to locate closer to coastal areas and ports.

8. CONCLUSIONS

The value and importance of the annual State of Logistics within the country is huge. It is clear that the survey filled an essential gap in the supply chain market. Both government and the private sector have benefitted from this survey and use it for planning and decision making. The survey will continue and there will be continuous efforts to enhance the content.

9. ACKNOWLEDGEMENT

Over the last five years, many people have contributed to the State of Logistics surveys. To all of them, the authors wish to extend a huge thank you. However, there are three individuals that need to be thanked specifically since they were involved in the conceptualisation of the survey right from the start, namely Isabel Meyer, Ilse Hobbs and Mario Marais. Their contributions were invaluable initially.

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