

**TOTAL QUALITY MANAGEMENT AND EFFECTIVE URBAN PUBLIC
TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY**

by

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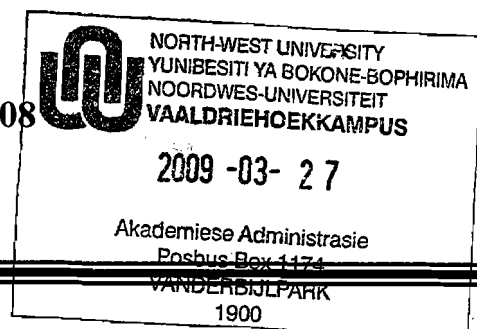
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ABSTRACT

Total Quality Management (TQM) at the urban interface is one means to delivering improved value of tax payers' money, but effective urban public transport is one step along the road to a better quality of urban life in general. Similarly, TQM is an organizational philosophy that stresses meeting customer requirement and expectations the first time, and sustainably. Philosophy, therefore, in this context encompasses a set of structured principles, value systems with attitude and beliefs, and processes that are never ending and always in motion: detecting and preventing defects while creating an idea of innovation.

The role that transport plays in the social and economic development of any country is significant. Urban public transport authorities have recognized transport as one of its priority for socio economic development in meeting basic needs of its people. Specifically, a public transport system has been identified as being vital to social and economic development. In this context, urban public transport is a key link to access services and other livelihood assets to serve the poor such as women, children and the disabled people effectively. Urban public transport operations at Sedibeng District Municipality (SDM) are deteriorating. This deterioration manifest in the form of delay, pollution, inadequate infrastructure, high transportation costs, lack of public participation, constraints of planning and co-ordinating; and lack of coherent public transport operations. Mass Transport (trains, buses and mini-bus taxis) are scarce, overcrowded, unreliable and involve long walking distances. Whilst many municipalities have made significant strides in adopting TQM, little has been written on how TQM has been applied in the Department of Transport and Infrastructure Planning of the Cluster: Transport, Infrastructure and Environment. The fundamental objective of this study, consequently, is to empirically investigate the relationship between TQM and effective Urban Public Transport operations at Sedibeng District Municipality.

In evaluating the level of TQM implementation at Sedibeng District Municipality (SDM), the concepts and principles from an examination of documentary data and analyses were applied. In testing the validity or otherwise of the hypothesis, semi-structured interviews, focus group discussion and participant observation methods were conducted to solicit comments from senior managers, employees, public transport operators and users. This study reports the results of a full survey among a sample of the District-wide customers in the study area. It was found, amongst others, that:

- The overwhelming majorities of the Senior Management Team are educated and have rich years of experience in working in local government to ensure that strategies, structures, and processes are in place for the continuous improvement of service quality for customer satisfaction.
- The drafting of the TQM strategy by the Senior Management Team is not inclusive of the broader stakeholder such as internal and external customers.
- SDM as a whole is not customer orientated; hence TQM calls for a cultural transformation that requires employee involvement at all levels and the spirit of teamwork amongst managers, employees, operators and users.
- Employees are not encouraged to use Total Quality concepts to improve their work process.
- Statistical tools and process control charts are typically not used or understood by employees. In this case, opinions are clear on this item since employees have not been trained in the use of statistical tools and process control charts.

The study ends with recommendations for management action in improving urban public transport by making use of TQM as a management tool.

ACRONYMNS AND ABBREVIATIONS

ASQ	American Society for Quality
CDBs	Central District Businesses
CBOs	Community Based Organisations
CEO	Chief Executive Officer
CPTR	Current Public Transport Records
DOD	Department of Defense
EC	European Commission
FQI	Federal Quality Institute
GDPtrW	Gauteng Department of Public Transport Roads and Works
GPPRTA	Gauteng Public Passenger Road Traffic Act
IDP	Integrated Development Plan
ISO	International Standard Organization
ITP	Integrated Transport Plan
LLF	Local Labour Forum
MEC	Member of Executive Council
MM	Municipal Manager
MMC	Member of Mayoral Committee
MPO	Metropolitan Planning Organization
MSA	Moving South Africa
NDoT	National Department of Transport
NGO	Non-Governmental Organizations
NHTS	National Household Travel Survey
NLTTA	National Land Transport Transition Act
NMT	Non Motorized Transport

NPM	New Public Management
NTTT	National Taxi Task Team
PA	Performance Appraisal
PF	Performance Feedback
PDCA	Plan Do Check Act
QC	Quality Control
QM	Quality Management
RTF	Regional Transport Forum
SALGA	South African Local Government Association
SAMS	Strategically Aligned Management System
SARCC	South African Rail Commuter Corporation
SDM	Sedibeng District Municipality
SRAC	Sport Recreation Art and Culture
SPTN	Strategic Public Transport Network
TA	Transport Authority
TIE	Transport Infrastructure and Environment
TRB	Transportation Research Board
TRP	Taxi Recapitalization Programme
TQC	Total Quality Control
TQM	Total Quality Management
UITP	Union of International Public Transport
UPT	Urban Public Transport

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CHAPTER 1

INTRODUCTION

KEY WORDS

Quality, quality management, Total Quality Management (TQM), Sedibeng District Municipality (SDM), urban transport operations, urban transport sector, Integrated Development Plan (IDP), Integrated Transport Plan (ITP), customer satisfaction

1.1 ORIENTATION AND PROBLEM STATEMENT

Quality is a shared responsibility of the authority and the operator: to the authority, it is the strategic responsibility to define the level of quality and to the operator, the managerial and operational responsibilities are to ensure that the agents successfully deliver the defined quality service. In this respect, an integrated action involving authorities and operators is a key factor to provide a service quality that meets the expectations of the customers (Tyson, 2003:1).

Interestingly, Johannsen & Page (1996:311) defined Total Quality Management (TQM) as “a comprehensive, systematic, customer-centered approach to the management of any organization with the broad objectives of meeting the changing needs of the customer and continuously improving every activity in the organization.” Similarly, Pearce & Robinson (2000:457) viewed TQM as virtually “a new organizational culture and a way of thinking which is built around an intense focus on customer satisfaction, on accurate measurement of every critical variable in the operation of a continuous improvement of products, services and processes; and on work relationships based on trust and teamwork”. In addition, TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach (Besterfield *et al.*, 2003:1).

Transport can be seen as central to economic growth, increasing the physical access of urban residents to resources (supplies, services, facilities and income-generating opportunities) (Sohail *et al.*, 2003:13). In turn, public transport is a collective mode of transport which must answer a wide range of needs and expectations which depend on the diverse characteristics of the population and areas they serve. For young and elderly people, public transport is often the only motorized transport option available or affordable (Mezghani, 2005:18).

One of the main goals of TQM is customer satisfaction. In urban public transport, this should translate in increased use of public transport relative to private cars. Different types of measures can be used to achieve this: legal and regulatory, fiscal and financial. However, the most obvious and embracing goal is to provide customers with a service that answers (or fits) their mobility needs. Mezghani (2005:56) postulated that the quality approach in urban public transport has two different, yet related, dimensions: quality at the level of the organization providing the service and quality of the overall urban public transport system.

Sedibeng District Municipality (SDM) consists of three local municipalities, namely: Emfuleni, Midvaal and Lesedi. It is also defined as the Core City under *Section 4 of the Urban Transport Act* (Act No. 78 of 1977). Furthermore, the *White Paper on Local Government (1998)* emphasizes the new challenge of local government to create a developmental local government system committed to working with citizens and groups within the community, and to finding sustainable ways to meet social, economic and material needs and improve the quality of life. In terms of *Section 2 of the Gauteng Public Passenger Road Traffic Act (GPPRTA)* (Act No. 7 of 2001) SDM as the planning authority is entitled to look after public transport related matters within its area of jurisdiction. *The National Land*

Transport Transition Act (NLTTA) (Act No. 22 of 2000) is currently a piece of legislation directing transport planning and implementation. This Act (*NLTTA*, 2000) requires all planning authorities to prepare a number of plans for their areas. These plans must form part of the Integrated Development Plan (IDP) as a strategic plan for the area concerned, and their annual review will eventually need to dovetail with the annual cycle for preparing IDP and municipal budgets in order to be considered for funding (*SDM ITP Update*, 2004:11).

In the context of this research, currently at Sedibeng District Municipality (SDM) there is a fragmented institutional reform and capacity building whereby few urban public transport policies and interventions have focused on the poor, and thus the effects and impact of transport interventions on the poor broadly been unaccounted for. Regulatory capacity is clearly limited, and sometimes ineffective and counter-productive due to lack of enforcement capacity. There are also constraints on planning and coordinating services at SDM. Low income families are obliged to spend proportionately more of their disposable income on transport in order to make essential journeys. In some low-income settlements, transport services reduce the quality of the local environment with noise and air pollution causing long-term ill health within localities. In some lucrative routes, the supply of the public transport service exceeds the perceived demand which leads to conflicts. In some areas residents have the farthest distances to walk to public transport and have to travel the long distances to get to work (*SDM ITP Update*, 2004:13).

Inadequate infrastructure is a major hindrance to the operation of public transport service, and a cause of danger and discomfort to the users. In respect of safe stopping places, there is no distinction between major and minor stops, therefore improving safety at major stops is likely more difficult to achieve. Bus stops provide inadequate protection against sun and

heavy rain. Roads are often in poor condition and there are no waiting facilities at the stops. Pedestrians are frequently forced onto the roads, as pavements are used by vendors to sell their items. Besides putting pedestrians at risk of injury, road capacity is thus further constrained and exacerbating congestion. Stakeholder consultation is critically important in any analysis of transport intervention between the local municipality (regulator), the community (users) and the operators (as suppliers) of transport. Currently, there does not appear to be such a channel for communication at SDM (*SDM ITP Update*, 2004:14).

It is against this background of current lack of coherent approach for urban public transport operations that necessitate the promotion of TQM as a co-ordination mechanism for efficient and effective public transport system in SDM.

1.2 RESEARCH QUESTIONS

Flowing from the above orientation, the study will attempt to provide answers to the following questions:

- What does TQM in urban public transport operations entail?
- What strategies under the existing structures, processes, systems, methods and tools does SDM have in place for the continuous improvement of service quality in urban public transport operations?
- What progress has SDM made in the implementation of TQM in urban public transport operations?
- What recommendations can be offered regarding the effective implementation of TQM in urban public transport operations at SDM?

1.3 RESEARCH OBJECTIVES

Flowing from the above research questions, the objectives of research are the following:

- To give a theoretical analysis of concepts TQM and urban public transport;
- To describe the strategies under the existing structures, processes, systems, methods and tools put in place for the continuous improvement of service quality in urban public transport operations at SDM;
- To empirically assess the progress made by SDM in the implementation of TQM in urban public transport operations;
- To offer recommendations regarding the effective implementation of TQM in urban public transport operations.

1.4 HYPOTHESIS

The present situation in urban public transport sector at SDM seems disorganized and would require a TQM approach to improve effectiveness.

1.5 RESEARCH METHODOLOGY

The following methods were utilized for the collection of information during the research process:

1.5.1 Literature review

The theoretical part of this research consisted of utilization of available literature on books, journals, legislations, newspapers and electronic database available on existing approaches and techniques of TQM related to urban public transport operations, both nationally and internationally. Furthermore, existing departmental reports on the systems and procedures to

implement TQM in urban public transport operations were consulted in order to establish and explain the difficulties involved in the implementation process. The synthesis of secondary data consisted of historical analysis of transport provision in SDM and review of existing user studies of transport service providers.

1.5.2 Empirical study

The scope of the empirical investigation was limited and analytically descriptive to SDM. The following research strategies were pursued:

- **Semi-structured interviews:** A semi-structured interview was conducted with SDM's politicians and officials: Mr. S Khumalo (MMC: Transport and Infrastructure) Ms. L Seftel (Municipal Manager, former Deputy Director-General for Gauteng Department of Public Transport, Roads and Works), Mr. S Manele (Executive Director: Transport, Infrastructure and Environment), Mr. C Netshivhale (Director: Technical Services), Mr. M Manqa (Assistant Manager: Transport) to draw their experience and knowledge of the issues, particularly relating to transport policies, strategies and regulatory measures.
- **Focus group discussions:** A common questionnaire was distributed to key service providers, three public and private transport operators (bus, mini-bus and rail) to understand the nature of their constraints in service delivery and to establish an estimation of the level, frequency and quality of service resulting from road improvement.
- **User surveys** were intended to obtain representative data at a household level from consultants and the SDM's based commuter organizations. These included: demographic considerations, socio-economic considerations, availability and condition of infrastructure, land use and urban footprint and economic data for the household,

transport use and satisfaction, trip length and times, transport costs and principles for improvements.

- **Participant observation:** the researcher has gained extensive knowledge in urban public transport operations and regulations in both provincial and local government as he was a Traffic Inspector in the Free State Department of Public Works, Roads and Transport (1998 – 2002), Traffic Officer at Midvaal Local Municipality (2002 – 2004). The researcher also has gained an in-depth understanding of the challenges relating to the subject of research, as he has specialized in Transport Economics as an academic and currently a Senior Technical Assistant: Taxis and Public Transport Facilities at SDM.

6. PRELIMINARY CHAPTERS

Against this background, the organization of the research consists of the following preliminary chapters:

Chapter 1: Introduction – Problem statement and research method

Chapter 2: Theoretical exposition of TQM and urban public transport operations

Chapter 3: An overview of TQM and urban public transport operations at SDM

Chapter 4: Empirical study on effects of TQM on urban public transport operations at SDM

Chapter 5: Summary, findings, recommendations and conclusions

CHAPTER 2

THEORETICAL EXPOSITION OF TOTAL QUALITY MANAGEMENT AND URBAN PUBLIC TRANSPORT OPERATIONS

2.1 INTRODUCTION

This chapter examines the international quality movement during the past decade to provide a foundation for understanding the TQM philosophy. Its primary focus is on the utility of environment today in which stability is rare and change, uncertainty, complexity and ambiguity are frequently the constraints. The fundamental issue explored here is the appropriateness of the TQM, which is the application of management approach that was originally designated specifically for the corporate manufacturing environment to public sector needs and requirements.

Recognizing these concepts of TQM contribute to an overall understanding of TQM primary tenets, it is for these primary tenets that criteria for implementing and measuring the success of TQM were developed. This chapter also reviews the impact of principles, tools and techniques with its quality improvement programs on overall organizational performance. The fundamental theme explored in this study is the synergistic effect of the TQM approach on Urban Public Transport Operations. Hence, the information discovered during the development of this chapter is what provides a basis for this study.

2.2 OVERVIEW OF TOTAL QUALITY MANAGEMENT (TQM)

This section of the research started to conceptualize TQM with a brief reference to its comprehensive definition. It further explores the origin of TQM and offers a sound way of managing organizations in the 21st century.

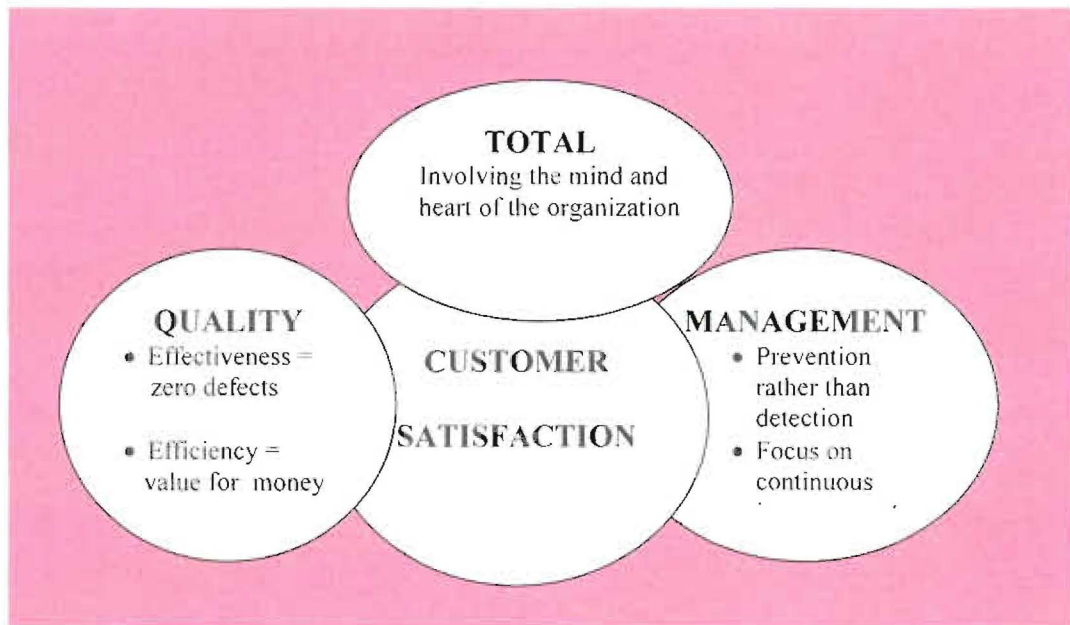
2.2.1 A Comprehensive Definition of TQM

Total Quality Management (TQM) - *Wikipedia, the free Encyclopedia* (1999:2) defined TQM as the management of total quality. It further explains that management consists of planning, organizing, directing, control and assurance. Moreover, it has to define “total quality”. Total quality is called *total* because it consists of three qualities: *Quality* of return to satisfy the needs of the shareholders, *Quality* of products and services to satisfy some specific needs of the customers (end customers) and *Quality* of life – at work and outside work – to satisfy the needs of the people in the organization. In an article published entitled “*Introduction and Implementation of TQM*”, Khurram Hashmi (2000:1) further defined Total Quality as a description of culture, attitude and organization of a company that strives to provide customers with products and services that satisfy their needs. Cohen & Eimicke (in Stringham, 2004:184) ascribe specific and particular meaning to each word making up the acronym TQM: *Total* means applying to every aspect of work, from identifying customer needs to aggressively evaluating whether the customer is satisfied. *Quality* means meeting and exceeding customer expectations. *Management* means developing and maintaining the organizational capacity to constantly improve quality. *Figure 2.1* illustrate the concept TQM.

In his paper presented at the Third International Conference on TQM, Professor Ali Farazmand (2002:1) outlined that the term TQM appeared with diverse connotations and variations, both terminologically and conceptually, in business and public management textbooks, reference documents, guide pamphlets and instructional manuals around the world. A cursory review of literature reveals a cluster of concepts and terms, which include the following: Total Quality Service (TQS), Quality Circle (QC), Quality Improvement (QI), Quality Improvement Programme (QIP), Quality Control Circle (QCC), Total Care Concept (TCC), Total Quality Control (TQC), and Total Quality Management (TQM). Of these concepts, TQM appropriately captures the whole notion of thinking,

conceptualizing, designing and implementing quality ideas in private individual life, in professional work organizations, in service delivery and process organizations.

Figure 2.1 Illustration of TQM



Source: Keep in Touch 142: TQM (www.csb.gov.hk/hkgcsb/eon/142/kit)

International Organization for Standardization (ISO) further defined "TQM is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society". Joubert (2002:34) indicates the significance of following the TQM approach in the managing for total quality, effectiveness and competitiveness and involving each and every activity and person at all levels of the organization. This approach often involves the total transformation of the existing management and corporate culture as discussed in *Table 2.1* below. This in turn, implies that each person or departmental activity within the organization affects another and is in turn affected by others.

Table 2.1 **New and Old Cultures**

<i>Quality Element</i>	<i>Previous State</i>	<i>TQM</i>
Definition	Product-oriented	Customers
Priorities	Second to service and cost	First among equals of service and cost
Decisions	Short-term	Long term
Emphasis	Detection	Prevention
Errors	Operation	System
Responsibility	Quality control	Everyone
Problem solving	Managers	Team
Procurement	Price	Life-cycle costs, partnership
Manager's Role	Plan, assign, control and enforce	Delegate, coach, facilitate, and mentor

Source: Besterfield *et al.* (2003:3)

2.2.2 The Origin of TQM

Some literature suggests that the origin of TQM advanced literally through the writings and teachings of the so called quantity pioneers or TQM gurus such as W. Edwards Deming, Joseph Juran, and Phillip B. Crosby who contributed to the body of knowledge now known as TQM. One of the most influential of the recent management gurus was W. Edwards Deming, known to many as the father of Quality Management. His (Deming) philosophy emphasized that statistical process control was an invaluable instrument in the quest for quality (TQM Wikipedia). He further identified several “deadly diseases” and developed fourteen points for management to follow in order to deal with them and to achieve success in improving and maintaining product quality. *Appendix A* summarizes a brief version of Deming’s fourteen points for management and Seven Deadly Diseases.

In October 1994 an internationally published, *Transit Cooperative Research Program (TCRP) Project F-3* entitled “TQM in Public Transportation” cited that it was Japan’s past reputation for poor product quality and the need to compete in the post-World War II world marketplace that drove the Japanese to implement TQM concepts as the core of their business planning. Since the 1970s, Japan has been recognized as the world leader for product and service quality. Swiss (1992:356) enlightened that Deming’s approach to management was adopted much more enthusiastically in post-World War II Japan than in the United States. It was for this reason that it became obvious that Japanese companies were far ahead of U.S companies in quality. By the early 1970s and 1980s, U.S. managers were making frequent trips to Japan to learn about the Japanese miracle. It was then that US companies began to investigate the secret of Japanese success. The Chief Executive Officers (CEOs) of major U.S. private corporations such as Motorola, Ford, General Motors, Florida Power and Light stepped forward to provide personal leadership in the quality movement emphasizing not only statistics but approaches that embraced the entire organization, became known as Total Quality Management (TQM).

As a result of the findings associated with this research, *TCRP (1994:4)* indicated that TQM in the United States (US) federal government grew out of productivity programs and started to be widely adopted and embraced the principles and techniques of the private sector’s focus on quality and customer relations. The primary catalyst for quality improvement in the public sector has been budget pressure, caused by the rising cost and dwindling tax revenues. In the early 1970s, The US Department of Defense (DOD) embraced early commitment to this effort; it remains one of the best examples of TQM in the federal government. Furthermore, the Federal Quality Institute (FQI) in the US was created by the Office of Management and Budget in 1988 to inform and consult with government agencies involved in TQM programs.

2.2.3 TQM and Beyond

The TQM and beyond is directly linked to the human resources systems. However, a great number of studies have documented the fact that a frequently overlooked but fundamentally important aspect of the implementation of TQM in public sector organizations is the human factor (Stringham, 2004:191). From the human resource perspective, the development of TQM approaches led to a stronger emphasis on the human factor within organization.

Several authors related this evolution to the development of a system approach to TQM in which the organization's departments were seen as the interacting parts of the same body (Mezghani, 2005:55). Other key considerations that have to do with alignment among various organizational systems is that human resources systems which include: job design, selection processes, compensation and rewards, performance appraisal, training and development must align with and support new TQM culture. The *UITP Position Paper on Human Resources Management in Public Transport* (2004) demonstrated that the underlying concept of human resources management needs to be defined should priority be given to human beings or the management of resources.

2.3 PRINCIPLES OF TQM

The most determinant of the organization's success in implementing TQM is its ability to translate, integrate and ultimately institutionalize TQM behaviours into everyday practice on the job. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach. Lack of concern on guidelines for key principles in TQM, Williams (1993:14) believes may be TQM's most serious downside, an organization may lack direction, and in the end, it may be unable to measure its success against initial expectation. As a sequence, the successful implementation of a TQM initiative frequently results in the following key principle approaches:

2.3.1 Leadership

Leadership is possibly the most important element in TQM. In their book, Total Quality Management, Besterfield *et al.* (2003:17) highlighted that there is no universal definition of leadership and indeed many books have been devoted to the topic of leadership. Ultimately, Burns (in Besterfield *et al.*, 2003:17) strongly believe that: “Leaders and followers raise one another to higher levels of motivation and morality...Leadership becomes moral in that it raises the level of human conduct and ethical aspiration of both leader and the led, and thus has a transforming effect on both.” Leadership is not solely the responsibility of those who reside at the higher levels of the hierarchy. Instead, it’s an activity in which anyone whose interest in the success of an organization can take part.

Table 2.2 **Strategic and Operational Leadership**

<i>Strategic Leadership involves</i>
• Defining the overall vision and mission of an organization • Developing strategies, system and structures to achieve the vision and mission • Creating both technical and social systems that are effectively integrated, and which address the needs of both customers and employee
<i>Operational Leadership involves</i>
• Ensuring that organizational processes are effectively carried out on a day to day basis. • Monitoring performance • Addressing constraints. • Ensuring that employees understand what is to be done and are provided with the authority, knowledge and skills to do it.

Source: *American Society of Quality* (<http://www.asq.org>.)

Williams (1993:14) offers an advice that leadership in TQM requires the manager to provide an inspiring vision, make strategic decisions understood by all and to instill values that guide subordinates. The key to this phase is bringing senior management and labour together to learn about TQM and to set jointly a course of action. Although managers and employees are full participants in supporting and helping the organization achieves its goals and objectives, it is the top managers in organizations that should be ultimately involved in the setting of those goals and objectives. In the TQM arena, *American Society for Quality (ASQ)* indicated that developing appropriate leadership involvement tools whereby one can assess the potential for organizational success through an evaluation of organizational leaders as depicted *Table 2.2* above.

Again, it is instructive to note the emphasis on the leader's use of time to demonstrate his or her commitment to quality and continuous improvement. Apparently there is no substitute for personal leadership participation in the quality effort.

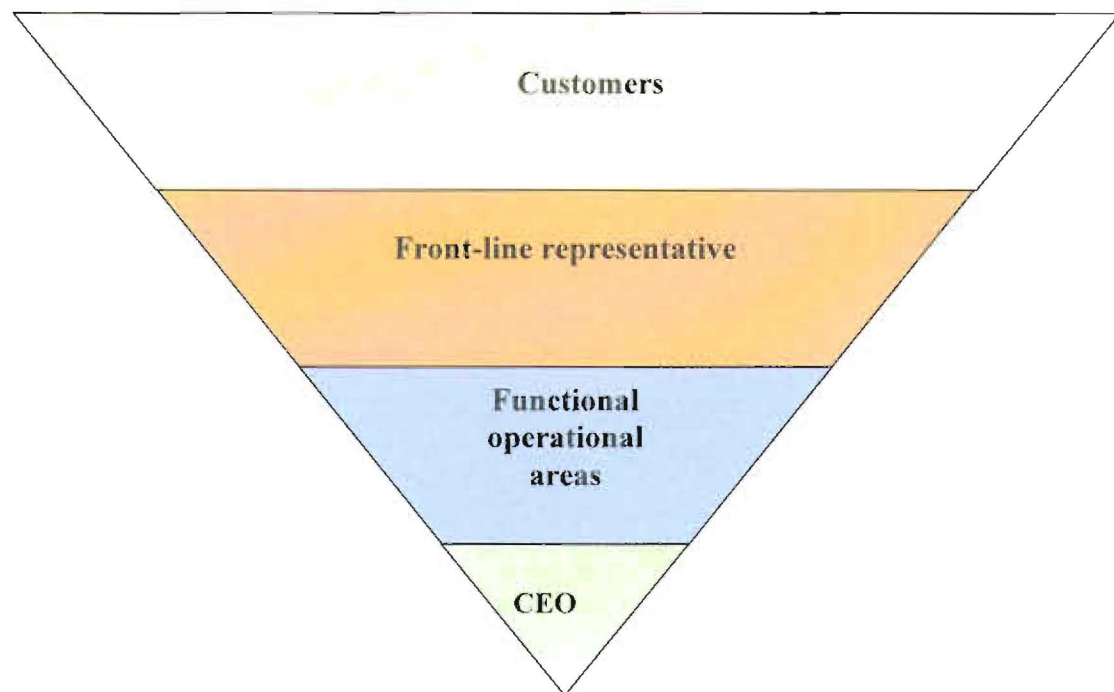
2.3.2 Customer Focus

The centre of all TQM discussions is the customer. Users of products or services define what they want rather than have their needs identified by a specialist. Customer needs and expectations establish standards and define quality. Quality starts with the understanding of customer needs and ends when those needs are satisfied. In the context of TQM, Williams (1993:20) described the term "customer" as the beneficiary of any effort. The beneficiary may be people, organization, affected citizens, or the employees of the organization. Beneficiaries outside the organization are referred to as "external customers", while those within are "internal customers. *Figure 2.2* best exemplifies how the customer is to any organization.

In TQM the emphasis is to embrace the idea of the "customer first". Drawings on *TCRP Report 8 in 1995. The Quality Journey: A TQM Roadmap for Public*

Transport expands that without the customer focus the TQM initiative can degenerate into a series of disconnected efforts that may initially help the employees “feel good” about themselves but, in the long run, will create cynicism.

Figure 2.2 **Customer Satisfaction Organizational Diagram**



Source: Besterfield *et al.* (2003:55)

To establish a customer focus, you **must** get information about your customers. A good way is to have employees develop and conduct customer surveys in the form of customer report cards. Bailey & Dandrade (1995:1) in *Centre for Quality of Management Journal* reinforce the conclusion that “when companies put employees and customers first, their employees are satisfied, their customers are loyal, their profits increase and their continued success is sustained”.

2.3.3 Worker Involvement and Empowerment

Employee involvement is one approach to improving quality and productivity. The key to improvement under the TQM philosophy is to involve workers at all levels of the improvement process. TQM creates an environment where employees are proud of their work, where they are part of a team and are respected for their effort, where fear is eliminated and where everyone strives for the best interests of the company while not abandoning their own. Employee empowerment is based on the belief that employees have the ability to take on more responsibility and authority than traditionally has been given to them, and that heightened productivity and a better quality of work life will result. *American Society for Quality (ASQ)* found that employee empowerment requires:

- Training in the skills necessary to carry out the additional responsibilities
- Access to information on which decisions can be made
- Initiative and confidence on the part of the employee to take on great responsibility

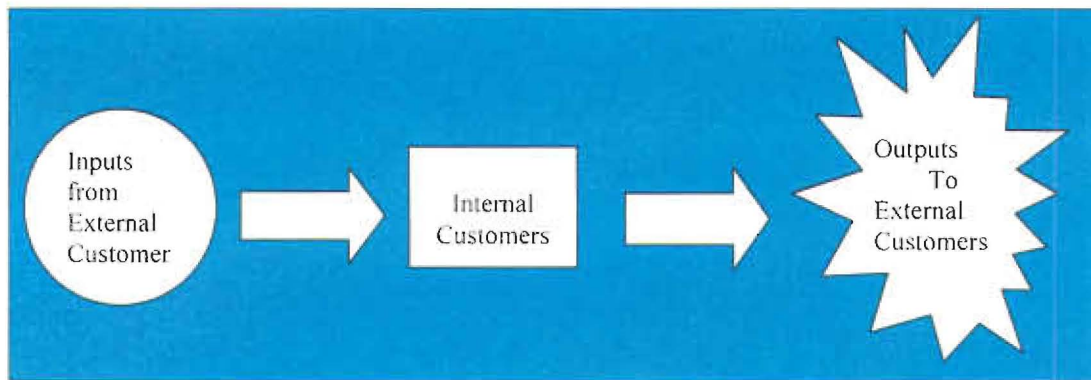
In addition to the requirements listed above, Joubert (2002:39) offers a solid advice that for a system to be able to motivate workers, it must include proper working conditions, supply training and education, encourage good communication and co-operation, utilize modern leadership rather than strict supervision, supply good incoming materials, equipment and appropriate quality tools and create job satisfaction.

2.3.4 Focus on Supplier

One of the most powerful new concepts in TQM is customer-supplier partnership. As shown by *Figure 2.3*, each forms a link in the customer/supplier chain, where every chain ends with an external customer and starts with an external supplier. By working together for common goals is to create a far better result for both customers and suppliers. Customer and supplier are not positional terms, they are

solely related to a given work transaction. The supplier's responsibility is to understand customer requirements and strive to meet their needs. on the other hand the customer's responsibility is to establish specific, clear, consistent achievable objectives so as to improve organizational resource utilization and optimize performance.

Figure 2.3 Customer/Supplier Chain



Source: Besterfield *et al.* (2003:58)

Williams (1993:15) argued that organizations should develop long-term relationship with suppliers to nurture an attitude of harmony in order to improve services or products. These improvements demand effective working relationships and trust, and suppliers themselves should use continuous improvement techniques for their own processes.

2.3.5 Continuous Process Improvement

Whatever is done as a process is the transformation of a set of inputs into the desired outputs. In so doing, organizations are systems which are composed of a series of process. Hence, a central principle of TQM is that mistakes may be made by people, but most of them all permitted by faulty systems and processes. This means that the root cause of such mistakes eliminated can be prevented by changing the process. In every organization there are some core business

processes that must be performed especially well if the mission and objectives are to be attained. One of the basic concepts in TQM philosophy is continuous process improvement. TQM is a prescription of the culture, attitude and organization that strives to provide customers with products and services that satisfy their needs. This culture requires quality in all aspects of the organization's operations, with process being done right the first time and defects and waste eradicated from operations. TQM is an effort to continuously improve all human and business systems and processes by focusing all employees on identifying customers and meeting their requirements. Again, *TCRP (1994:13)* mentioned that a widely accepted TQM approach to understanding and improving operation is process management. Process management requires understanding how work is done, how outputs or result are achieved, and how value is provided customers. It provides a comprehensive, integrated method of analyzing operations and focusing all work activities on satisfying customers.

In order to understand in greater depth the process of production or service that is delivered, an analysis of Deming's 85/15 rule provides that "85% of a worker's effectiveness is determined by the system he works within while 15% by his own skill". His teaching emphasized that in order to break down a system into meaningful blocks for analysis, it is better to consider "internal customers" of process based on the below-mentioned activities:

- **Look at inputs from suppliers** – when you understand the importance of quality and timelines in your inputs, you will stop buying on low-bid only
- **Quantitative analysis of process** – use Statistical Process Control, monitoring of critical variables, charting. Monitor before and after changes. Use Plan/Do/Check/Act (PDCA) repeatedly
- **Monitor "outputs" throughout** – when doing this, you can cease or de-emphasize end-point inspections. Refine the entire process; make everyone responsible

2.4 TOOLS AND TECHNIQUES

TQM is a new paradigm of management since it is fundamentally different from traditional management. In this context, it is both a philosophy and methodology for managing organizations as it includes a set of principles, tools and procedures that provide guidance in the practical affairs of running an organization. Quality improvement tools used in TQM are statistical; they provide a common quality language throughout the organization and help in the assignment of duties. The principal idea of using these tools is to continuously improve the process that produces the product. Joubert (2002:41) pointed out that commitment to quality without backup of scientific tools will soon be rendered useless. The result of matching the scientific tools to the TQM structure will result in the creation of a learning curve, the refinement of the TQM system and the redistribution of knowledge throughout the organization. Amongst them, the efficient and practical quality improvement tools analyzed are:

2.4.1 Statistical Process Control (SPC)

One of the best technical tools for improving product and service quality is SPC. This technical tool not only controls the process but has the capacity to improve it as well. There are four basic techniques under SPC and are as follows (Besterfield *et al.*, 2003:461-468):

- **Pareto Diagram** is a powerful quality improvement tool. It is applicable to problem identification and the measurement of progress
- **Process Flow Diagram** shows the flow of the product or service as it moves through the various processing operation. This diagram makes it easy to visualize the entire system, identify potential trouble spots, and locate control activities

- **Cause-and-Effect Diagram** is a picture composed of lines and symbols designed to represent a meaningful relationship between an effect and its causes.
- **Cheek Sheets'** main purpose is to ensure that the data is collected carefully and accurately by operating personnel

2.4.2 Benchmarking

Benchmarking is a measurement-based method used in TQM to make operational improvements. It is defined as a process of measuring products, services, and practices against those of competitors and “best-in-class” organizations, for the purpose of improvement (*TCRP, 1994:14*). The main goal of benchmarking is to build on the successful experiences of others instead of “re-inventing the wheel”. The idea is simple: the most efficient way to implement change is learning from the positive experience of other organizations and its benefits derived from that (Mezghani, 2005:109):

- Benchmarking encourages and enables the management of change through the implementation of innovation and best in class process;
- It results in increased customer and people satisfaction as well as in superior competitive advantage;
- In the long run, it can be extremely important for setting strategic goals and identifying programmes for achievement;
- It increases awareness of what you do and how well you do it. Benchmarking can be successful because it requires significant self analysis and motivation;
- It removes blinkers and not invented here attitudes

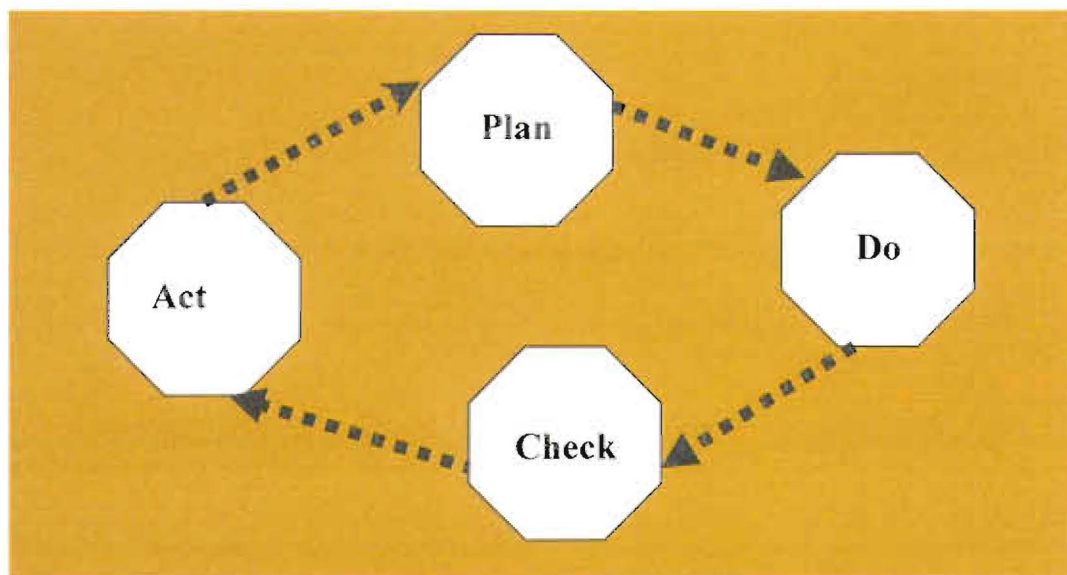
2.4.3 The Quality Loop

The Quality loop is a dynamic process based on the idea that product definition is the most critical step in service production. For Deming, the mission of any responsible person, at any hierarchical level in the company, is to continuously improve the product delivered, resources, machines and processes. The PDCA scientific process brings the necessary dynamic to the global production process from the competition stage to the actual delivery stages. This PDCA loop as shown in *Figure 2.4* can be used to fine-tune the implementation of another important tool, the quality. The four quality benchmarks identified in the loop are (Mezghani, 2005:98-100):

- **The Expected quality**

This is the level of quality anticipated by the customer and it can be defined in terms of explicit and implicit expectations. Qualitative and quantitative surveys can be used to identify these criteria and to assess their relative importance.

Figure 2.4: Deming's PDCA loop



Source: Mezghani (2005:98)

- **The Targeted Quality**

This is the level of quality that the company wishes to reach. The targeted level of quality is determined on the basis of the expected quality. It made up of an identified service, a level of achievement for that service and a threshold of unacceptable performance.

- **The Delivered Quality**

This is the level of quality is achieved on a day-to-day basis in normal operating conditions. The relevant measurements are established using statistical and observation matrices.

- **The Perceived Quality**

This is the level of quality perceived, that is appreciated more or less objectively.

2.4.4 Information Technology

The increasing availability of sophisticated information technology has a profound effect on business processes. Satellites, cellular telephones, modems, teleconferencing and facsimiles are examples of recent improvements in information technology (*TCRP, 1994: 14*).

In a paper prepared for the Conference entitled “*Refocusing Planning for the 21st Century*” in February 1999, Martin Wachs highlighted that the most influential social trend that is over time having ever greater influence on transportation is the growing role of information processing and telecommunications in modern society. He further elaborated that the use of computers and other information processing devices is also changing the hours and the places at which we work, and consequently changing the spatial and temporal patterns of travel and the spatial patterns of cities.

Although the technical tools are tried and tested, there is still the need to co-ordinate their use and to train people in using them optimally. The main function of these tools should be to identify when and where bad performance occurs and to suggest and implement corrective actions immediately. This will fix small problems at low cost before they become big problems that incur large costs. Should the process become successful, quality output would become an expected reward rather than a forced obligation. This will lead to job satisfaction which will, in turn, lead to company survival (Joubert, 2002:41).

2.5 IMPLEMENTING TQM

While TQM has proven to be an effective process for improving organizational functioning, its value can only be assured through a comprehensive and well thought-out implementation process. Implementation refers to the actual presence of TQM as an integrated function of the organization. The institutionalization process will become evident as employees at all levels use key words to describe organizational activities, and become truly comfortable with the underlying concepts (Williams, 1993:29).

Besterfield *et al.* (2003:32) indicated that the TQM implementation process begins with senior management and most importantly the CEO's commitment. The importance of the senior management role cannot be overstated. Leadership is essential during every phase of the implementation process and particularly at the start. In fact, indifference and lack of leadership by senior management are frequently cited as the principal reasons for the failure of quality improvement efforts. Accordingly, *TCRP Report 8 in 1995, The Quality Journey: A TQM Roadmap for Public Transport* offers an advice that to enlist support of TQM goals and action plan, the leadership team must communicate them and build awareness. This suggests that the most effective communication is through frank, open, face-to-face discussions. Another system consideration is that TQM should evolve from the organization's strategic plan and be based on customer

expectations. Implementing the organizational planning process will help such organization to identify critical success factors. Schedule implementation; define ownership, track progress and achieve result.

2.6 REVIEWING, MONITORING AND EVALUATION

TQM is a process, focused on client's needs; quality centered, based on facts and depends on team work which is guided by top management of the organization to achieve the strategic goals of the organization through continuous improvement. Quality can and must be measured in order to identify and establish measures that are key indicators of the health of the business, such as customer satisfaction and improvements in individual, team and process performance. Measuring customer satisfaction is the only accurate means of validating whether quality was delivered. This is done by a documented process for determining customer satisfaction, including frequency of determination, and how objectivity and validity are assured. Trends and key indicators of customer satisfaction will be compared to those of competitors, benchmarked and reviewed by senior management. Customer satisfaction data are received in a variety of methods, documented in Tyco Electronics TQM Process as including:

- Feedback received in response to answers to customer complaints
- Industry positioning surveys
- Lost business reports
- Supplier "report cards"
- Meeting with customers and
- Ship to customer request performance

TQM asserts to concentrate on was to incorporate a focus on customers and employees as part of organizational measures to intensify attention towards building a culture which is employee and customer-centric. In TQM journey, it may be appropriate to use elementary areas of quality improvement purpose.

2.7 URBAN PUBLIC TRANSPORT (UPT)

The fundamental goal of any transport system is to move people and goods to where they need to go, safely, quickly and affordably. A transport system consists of infrastructure and modes for improving efficiency of the entire system or both. Transport can be seen as central to economic growth, increasing the physical access of urban residents to resources and markets. Public transport is the provision of transport that is consumed collectively (whether provided by the state or private sector) and a fare is paid by passengers (Sohail *et al.*, 2003:1). Primarily, modes include Rail, Buses, Minibus Taxis and Non-Motorized Transport (NMT) such as walking and bicycles. Urban areas include a wide range of cities and towns which are fortunate in terms of intercity transportation. Urban growth, in its dimensions, creates increasing demand for effective urban public transport systems. Public transport demand in most cities has increased substantially, due to increases in population as a result of both increase in migration from rural areas and small towns. The provision of urban transport affects and is affected by a range of social, cultural, economic, political and environmental factors.

The role that transport plays in the social and economic development of any country is significant. Urban public transport authorities have recognized transport as one of its priority for socio economic development in meeting basic needs of its people. Specifically, a public transport system has been identified as being vital to social and economic development. In this context, urban public transport is a key link to access services and other livelihood assets to serve poor people, women, children and the disabled effectively. There has been however, relatively little visible effort to draw out some of the trends in ways that help urban public transport system define what should be the medium to long term strategic direction for public transport in urban areas (Hemily, 2004:9).

2.7.1 URBAN PUBLIC TRANSPORT MODES

Addressing the problem in terms of improving the quality of public transport operations in the urban interface, this section will commence with the modes of public transport within the locus of this study. It will also discuss the integration of these modes as well as their quality of service they need to offer to the commuting public. These concepts are to be used as the foundation for the urban public transport modes.

2.7.1.1 Rail transport

For over a century, rail transport has experienced significant transformations that today have turned it into a shop window for both industrial and technological innovations as well as other in relation to operations and customer services. As a high capacity mode, rail transport has a structuring influence on urban cities. It provides the backbone for the development of residential zones alongside economic and socio-cultural activities into other transport modes. In this way, rail transport perfectly fulfils its role as integration leader within a city's transport and urban planning policies. More than just a transport mode, it is an urban structuring tool and a key factor in providing better quality of life.

South Africa has an extensive network of railways that serve freight and passenger traffic in both urban and intercity trips. Urban rail services have declined, but remain significant. Passenger rail operations are currently on a "knife edge" primarily as a result of the aging train fleet (rolling stock) and rail infrastructure due to a prolonged under-investment in this sector. In addressing this situation, *A Draft Report on Public Transport Strategy* (2006:7) reveals that in December 2004 Cabinet approved that urgent action should be taken to improve efficiency of the passenger rail services in the country by authorizing a consolidation of the South African Rail Commuter Corporation (SARCC), its

commuter service operator, Metrorail and the long distance rail operator, Shosholoza Meyl.

2.7.1.2 Buses

The bus industry can be classified into three major types of operators in the provision of subsidized public transport in South Africa utilizing over 8 500 buses to provide these services. In the *Study Guide for Transport Economics III: Road Passenger Transport TEC 361 FE*, Cloete (2000:4) concluded that these buses are as follows:

- **Private bus operators** provide services from the townships to the economic and commercial centres which are almost exclusively located in and around formally white areas. A large proportion of these services are subsidized by national government.
- **Municipal-owned bus services** provide services within metropolitan areas and in some cases to black townships. Subsidization may take place by either the municipal council or national government.
- **Parastatal bus services** were owned by the former self-governing or independent states. Services were provided from these areas to economic and commercial centres with subsidies provided by South African national government.

Considering the financial health of various levels of government, it is evident that bus transport will have to play a major role in providing passenger transport services. It is amply clear that among the various modes of road based passenger transport; buses occupy less road space and cause less pollution. Therefore, urban transport plans should emphasize bus transport.

2.7.1.3 Taxis

In South Africa the most significant common type of taxis is the minibus or midibus taxi which accommodate 9-18 and 19-35 passengers respectively and which operate on a shared rider basis. Some preliminary findings by Lowitt (2006:5) provide that these taxis operate either by picking passengers up along a predetermined route or from fixed taxi ranks. The minibus and midibus taxi industry dominate the South African road public transport landscape and accounts for 65% of current public transport. Similarly, the *National Household Travel Survey* (2003) also confirms the taxi industry as the dominant public transport mode on a national scale. Interestingly, this mode of public transport caters for low income riders who rely on public transport essentially because they do not own private motor vehicles and taxis are more convenient and cost effective than other public transport mode (bus and train) (Lowitt, 2006:5).

A Draft Report in Public Transport Strategy (2006:7) argues that since the inception of the Taxi Recapitalization Project (RTP) in 1998, the focus has been on the actual rollout and implementation of the project. As a result of the findings from the above report, the RTP is one intervention to start addressing challenges prevalent in the taxi industry and aimed to achieve the following:

- Set acceptable vehicle standards that are aimed at addressing road safety,
- Ensure only legal operators ply their trade,
- Ensure that Operating Licenses are issued in accordance with integrated transport plans that support integrated transport and spatial development,
- Promotion of regulatory instruments and frameworks including tax compliance, working conditions and other applicable legislation,
- Effective law enforcement,
- Modal integration,
- Promotion of accessibility for people with special needs.

Whilst the above are necessary, other essential issues need to be addressed in order to move towards having a coherent, integrated and effective urban public transport system that responds to the needs of users and of the country as a whole.

2.7.1.4 Non-Motorized Transport (NMT)

Non-Motorized Transport (NMT) including walking remains a viable option to meet the basic mobility needs of all groups in a viable way. According to the *World Bank: Urban Transport Strategy Review* (2002) between 40 to 60 per cent of all trips in several major cities are made by using NMT. Furthermore, NMT is also an environmentally sustainable form of urban public transport system.

A number of countries are promoting the use of bicycles as a sustainable means of public transport, with view to create exclusive bicycle lanes. In South Africa, *The Road to Safety Strategy* 2001-2005 demonstrated that National Department of Transport has been engaged in an aggressive roll out of the Shova Kalula (Ride Easy) initiative which is one million bicycles project in partnership with Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs) targeted at primary and secondary school students in most disadvantaged rural and urban settings. Walking and cycling network – that link with the Public Transport Network creates a wider range of sustainable mobility options for shorter trips.

Eventually, an urban transport policy should encourage the need for modes like bicycling, walking through the provision of pedestrian paths and cycle tracks especially in new development areas which should be integrated within the transport network.

2.7.1.5 Integrating Public Transport Modes

A well-developed *Strategy for Public Transport Modal Integration in 2001 for Gauteng* found that integration has always been accepted as a very important

principle that must be taken into account in transport planning and provision. The term “integration” or “integrated” is in fact a very common term and is often stated as a requirement in the transportation planning field. Modal integration is the integration of some or all of the different public transport modes (mainly taxis, buses and trains) into the public transport system in such a way that these modes support and complement each other and that they operate as a co-ordinated public transport system while providing an effective efficient and affordable service to the users. The vision is to provide an integrated public transport system where taxis, buses and trains operate in a single seamless system (*Modal Integration*, 2001:3):

- within an integrated network
- with integrated schedules
- with proper transfer facilities
- a common ticketing and fare system, including through-ticketing, and
- a combined information system, including call centres

In developed countries modal integration as a concept is often described in the international literature as a combination, in a co-ordinated, supportive and complementary way, of different modes of transport in a total public transport system, which has the potential to result in a comprehensive service to the commuter as well as to other users of the transport system. Cities with more advanced forms of transportation, such as Hong Kong, China and Singapore, have successfully integrated their different urban public transport services provided by various operators, such as the underground and bus system. Although the concept has been promoted and accepted for some time and there has been isolated implementation in certain areas, there has not been general progress with modal integration in South Africa. *The Department of Transport, Public Transport Action Plan* (2007:63) indicated that different public transport modes developed independently according to their own needs and in fact operated many times in direct competition with each other.

Modal integration is one of the priorities of all three sphere of government in South Africa. At national level, the *White Paper on National Transport Policy* (1996) and the *Moving South Africa: The Action Agenda* both very strongly support and promotes modal integration as national government policy. At provincial level, the *Gauteng White Paper on Transport Policy* (1997) came out very strongly in favour of modal integration. The different metropolitan and district areas in Gauteng province are also in full support of modal integration and some have published policy statements and implemented certain modal integration elements. Since the ultimate goal is to provide an adequate and effective urban public transport operation, there is a need to have a co-ordinating authority with the assigned role of co-ordinating the operations of various modes. The key objective should be to attain the integration of different modes of transport to improve the efficiency of service delivery and comfort for commuters.

2.7.1.6 Urban Public Transport Quality of Service

Before proceeding with the link that exists between quality of service and customers using public transport in urban areas. The words, “quality of service” are often used interchangeably with the “level of service”, yet caution is needed. As used in this research “quality of service” is a user based qualitative assessment of how well a service or facility is operating while a “level of service” is a quantitative breakdown of the “quality of service” (Mc Leod, 1999:221).

Mezghani (2005:42) stressed that the position of the European Commission on quality in urban public transport is expressed in a variety of documents. He further emphasized that in the *Citizens' Network Green Paper "Fulfilling the Potential of Passenger Transport in Europe"* (2001) the focus is placed on system accessibility. To ensure system accessibility, passenger transport systems need to be affordable, safe and reliable. Quality requirements such as frequency,

cleanliness and comfort are considered as essential preconditions to make public transport more attractive.

However, the quality approach in urban public transport has two dimensions: quality at the level of the organization providing a service and quality of the overall urban public transport system. Generally all relations between authorities and operators are regulated by a contract; these contracts generally do include some quality standards relating to accessibility, availability, comfort, security, information, heating and lightning and driver behaviour (see *Appendix B*). The inclusion of these quality elements necessarily implies their follow up in terms of management and control. Urban public transport agencies are concerned with delivering quality service to current and potential customers. In June 1995, *TCRP Project H-5 Research Agenda for Increasing Transit Ridership*, defined “quality service” as on-time performance, comfort, safety and convenience. Notably, if public transport agencies have to maintain and capture new riders, consumer definition of quality must be developed. It is for the focus of this research to develop quality determinants as shown in *Appendix B* attached.

2.7.2 URBAN PUBLIC TRANSPORT PLANNING

Planning is a scientific process which provides information for local government decision-makers so that their decisions are accountable and responsible. Planning process starts with the identification of community needs including education, jobs, mobility, shelter, services and security. Urban transport planning attempts to satisfy the mobility and access needs of communities by providing transport infrastructure and transport services in an efficient and cost-effective manner.

Good planning and management relies upon accurate information about communities and their needs on the one hand and about resources on the other. Planning seeks, therefore, to anticipate changes that will take place in the future

and to ensure that these changes can be accommodated by the effective urban public transport systems.

2.7.2.1 Land Use and Transport Planning

The legacy of apartheid ensured that residential areas (townships) were allocated far from areas of industrial and economic development. This created spatially dislocated settlement and insufficient transport services to transport black people from their home to the places of work. The main factors which influence urban travel pattern are population distribution and the location of employment opportunities. Policies can be developed to shape future land use, but is often the property market which dictates where development occurs. One of the strongest influences on future land use is the development of transport infrastructure.

The *White Paper on National Transport Policy* (1996:21) proposed the following spatial development principles to support urban restructuring and efficient land use/transport interaction:

- Land use development proposals must be subject to land use and transport policy frameworks within agreed development planning processes;
- Establishment of structures (all tiers of government) which facilitate integrated planning of infrastructure, operations and land use in a co-ordinated manner;
- Development priority will be given to infilling, densification, mixed land use and the promotion of development corridors and nodes;
- Containment of urban sprawls and suburbanization beyond the urban limits will be addressed through provincial spatial development plans;
- Unrestricted car usage and subsidized car parking will be contained through application of policy instruments.

These principles have been taken into account into the *Moving South Africa (MSA): Action Agenda* which proposes that problems of land use and spatial development can be addressed only by means of the creation of transport corridors. These transport corridors are well-populated business, residential and industrial areas which are supported by efficient public transport services. Land use controls and incentives, plus low-cost housing developments, will be implemented in these corridors to attract residents and businesses. The MSA further suggest that an integration of land use and transport planning to ensure that residential and industrial developments are connected around transport corridors.

2.7.2.2 Effective Law Enforcement

South Africa's roads are among the world's most hazardous when it comes to traffic accidents and pedestrian death. Between 9 600 and 10 000 people die on South African roads each year. Almost 150 000 people are injured in the approximately 500 000 crashes that occur each year. Each year the festive season is followed by a vigorous debate with much finger pointing about the high road death toll. Apart from the humanitarian aspect of this problem, road accidents cost countries of the developed countries at least one per cent of the Gross National Product (GNP), statistics has proven that this costs 13 billion the South African economy each year. From these statistics, it should be clear that methods of improving traffic safety needs to be implemented with a high priority in South Africa. Despite irregular and random campaigns promoting zero-tolerance for traffic and transport offences, urban public transport operators and drivers are still risking the lives of millions through unsafe vehicles and dangerous driving practices (*A Draft Strategy to Accelerate Public Transport Implementation*, 2006:49).

The *European Commission (EC) Road Safety Report* (2001) cautioned that safety has to be addressed in all aspects of the design, operation and interfacing of the

transport system affecting road users, vehicles and the corresponding infrastructure. In addition technical solutions will need to be backed up by soft measures to influence user behaviour. In particular the following problems need solutions (*EC Road Safety Report*, 2001:2-3):

- Excessive speed;
- Impairment by alcohol, drugs and fatigue;
- High risks facing pedestrians and pedestrians;
- Inexperienced young drivers;
- Inadequate visibility of motor vehicles and road users; and
- Failure to use protective equipment such as seat belts and helmet

Flowing from the above, the main focus on road traffic management needs to be addressed urgently and all the cost-effective enforcement strategies were to be applied to ensuring equitable competition in road transport. Notably, provision of effective enforcement mechanisms is important to avoid that those quality requirements become mere formality. Local and provincial authorities must undertake safety critical law enforcement activities which targets priority offences such as speeding, alcohol and vehicle roadworthiness.

2.7.2.3 The Environmental Impact

Wachs (1999:20) cautioned that the transportation system was seen as a key to environmental betterment. With this in mind, as times change so does the understanding of the facts about the linkage between transportation systems and the environment. Notably, the goals of public policy regarding transportation and the environment similarly evolved. With motorization increasing at up to 10% per annum in many developing countries, the transport problem is beginning to have a considerable impact on the environment. At present transport account for 70% to 80 % of total emissions in the cities of developing counties and continues to rise. International best practice seems to focus on the pollution issues in environmental

sustainability. It recommends minimizing the environmental cost of transportation activities. It also promotes controlled growth of private vehicles and encourages use of non-pollutant energy sources for motorized transport (*South African Cities Network*, 2004:41).

Urban transport problems in cities are manifest in the form of congestion. Congestion is a problem not only for the individual motorist, in terms of delay, accidents, energy, wastage, pollution, uncertainty and stress, but also for society as a whole. In particular, congestion has impact on the environment in terms of higher emissions and pollutants, noise, vibration, visual intrusion, and it has implications for public health and safety. All these have heavy economic, social and environmental costs. In South Africa, policy-makers have become increasingly focused on finding a solution to these escalating levels of urban traffic congestion. The *White Paper on National Transport Policy* (1996) fundamentally redirects the thinking on energy efficiency and environment as follows:

- The use of more energy efficient and less pollutant modes of transport will be promoted;
- A greater energy awareness will be fostered in both planners and users of the land passenger through public awareness programmes;
- Close co-operation between the Departments of Mineral and Energy Affairs, Finance and Transport is essential.

In the absence of an adequate, efficient and effective urban public transport system, a large number of private and public transport modes such as buses and taxis have entered into the market to meet the travel demand. Such a proliferation of vehicles results in the acute congestion, inordinate delays, serious accidents, high-energy consumption particularly of fossil fuels, and intense pollution of the environment. Crucially, local authorities are expected to play a leading role in delivering policies to mitigate congestion.

2.7.2.4 Discouragement of Private Vehicle Usage

As discussed before an ideal non restrictive measure to discourage private vehicle usage is to increase the quality and level of service of urban public transport, to make it attractive for more users and reduce the use of private vehicles. Unfortunately, there are many cases where more restrictions are necessary to compel private owners to reduce their car usage during peak hours or even the whole day (weekdays or weekends). This can help to reduce traffic congestion in urban areas. Some additional measures to discourage private vehicle usage are listed below:

- Compulsory private vehicle restrictions;
- Fuel surcharge; and
- Car pools allowed on exclusive bus lanes

When combined with a parallel policy of limiting parking space and increasing parking fees, motorists are provided with a greater incentive to switch from private to public transport. This contributes significantly to the reduction of congestion during commuting peak periods (*South African Cities Network*, 2004:18).

2.7.2.5 Crime and Urban Public Transport

Crime continues to be a problem facing commuters throughout South Africa, impacting negatively on the public transport sector and the social and economic development of cities and towns. Statistics availability of crime on public transport points to poor crime records for this sector, with SAPS statistics not always differentiating between crimes that take place while traveling on public transport vehicles and crimes that take place in the vicinity of a transport interchange. This has been identified as a problem hampering potential crime prevention initiatives, which to be successful are dependent on an understanding of incident patterns. Crime in public transport covers a wide range of offences that

could occur in at least three different types of situation, namely (Kruger & Landman, 2006:2):

- Walking to, from or between transport facilities or stops (walking from departure point e.g. home to a taxi rank or back, from taxi stop to a bus stop, from a train station to destination point, e.g. workplace or back);
- Waiting at boarding points and facilities
- Traveling on board.

At the same time anecdotal evidence and media coverage suggest that crime is a problem for commuters ranging from petty crime to rape and murder. The design of public transport interchanges, which is a local government responsibility, can play a role in either encouraging or discouraging crime. In particular when tackling crime at local level, it is essential to develop specific crime reduction initiatives. A holistic approach to crime reduction that considers the journey from its initial starting point of its final destination seems to be favourable.

Functional transport interchanges designed to accommodate commuter traffic and informal traders, which are well lit and signposted and are designed to facilitate easy access between different modes of transport (rail, bus and taxis) have the potential to limit crime, particularly violent crime occurring at interchanges.

2.7.2.6 Funding of Urban Public Transport Operations

Public transport undertaking often lack the financial discretion needed to adapt to changing conditions. At the same time, *TCRP Project H-5 Research Agenda for Increasing Transit Ridership* in June 1995 specifically states that the transit industry is caught up in a complex budgetary process whereby increased expenditures can no longer be accommodated through traditional funding mechanisms. It further stipulates that budgets are being cut, demands on public financing are increasing and political accountability demands more efficient use

of available resources. Due to this, transport undertakings find it difficult to raise revenue sufficiently enough to meet cost of operation. Specifically, it is becoming increasingly difficult for loss-making urban transport operators to augment and manage fleet which in turn leads to poor performance and deterioration in quality of service. Yet improving transit is necessary in the increasingly congested environment in most urban centers.

The *Moving South Africa (MSA): Action Agenda* calls that the biggest challenge for South Africa to create a sustainable funding relationship between the users and the transport system where financial ring-fencing and direct customer-provider relationships are not immediately practical. The *TCRP* (1995:12) indicated that funding transit system improvements is complex and demanding, yet there are opportunities for enhanced financing options to assist in increased demands. For example, new mechanisms are available for leveraging funds by private sector contributions to increase the otherwise limited pool of finances available. The *White Paper on National Transport Policy* (1996) appears to take a very pragmatic approach to ensure a sustainable and dedicated funding for passenger transport infrastructure, operations and law enforcement.

2.7.3 URBAN PUBLIC TRANSPORT INFRASTRUCTURE

The *White Paper on National Transport Policy* (1996:12) defines transport infrastructure as comprising all physical elements upon which transport operations take place. It includes roads, railways, airport, harbours, pipelines, interchange facilities, and the associated dedicated power and communications systems. There is a range of transport infrastructures which constitute a crucial component of any transport system, and provide support to transport development. Transport development may not just include roads. It may involve multiple modes; as with “park-and ride”. Relatively little attention has been paid to the planning and development of modes of transfer from one mode of transport to another. Transfer from water to land, foot to vehicle, road to train, and vice

versa. This is linked to the importance of considering transport development as the development of an integrated system for improving physical mobility as one means of improving access.

2.7.3.1 Interchanges

In a Transport Planning Workshop organized by the South African National Department of Transport in 2004, the facilitator, Louis Roodt described interchanges as points in the transport network where people change from one mode of transport to another. The simplest interchange is a bus stop where people change from one bus to another or from bus to walking. He elaborated that railway stations are also interchanges which may be simple changes of mode from walk to train or train to walk. They may also be complex, involving a number of modes of transport, such as trains, buses and minibuses. This type of interchange is called a multi-modal interchange or a modal transfer station. Terminals are interchanges at the end points of a transport services. Terminals are commonly found in central city areas at the business end of urban transport service or at the edge of the built up area at the residential end. For long distance inter-city movement, the major terminals in the urban area are the central rail and/or bus station and, in the case of minibuses, the taxi ranks.

2.7.3.2 Urban Roads

Good roads play a significant role in economic development and a pre-condition for national economic growth. In Gauteng, high level of congestion as well as the state of some parts of the roads network is becoming a constraint to growth. Public transport competes for road space with cars and has enjoyed little priority treatment to date. While cars move only a third of the roads travelers, they consume most of the road space, leading to congestion, slowing down space-efficient mode and have high social costs and negative environmental impacts. People moving on foot are an important portion of road-users, yet till now have

occupied an insignificant portion of the policy, strategy and implementation efforts.

The *Gauteng Strategic Road Network* (2006:31) identified critical problems with the existing and planned strategic network include that the road network was developed under apartheid and reflects apartheid priorities and land uses. Today, the important link and support mechanisms between land use and transport infrastructure has largely been lost as a result of underinvestment in road provision as well as a result of land use trends. As a result many road corridors are no longer performing their originally intended functions. Roads designed for mobility are now performing access functions. Therefore, public transport was also not being recognized as a major component of the overall transport network. Furthermore, there is the increasingly pressing issue of congestion which needs to be addressed not by building more roads but better management of road space and private car use. Prioritizing public transport on the road network implies that different road classes need to include appropriate public transport features such lighting, bicycle lanes and proper sidewalks.

Public transport friendly measure that provide for the safety, security, convenience and attractiveness of pedestrians, cyclist and public transport vehicle are (*Gauteng Strategic Road Network*, 2006:38)

- Modal transfer stations near or integrated with the road network;
- Lighting for security and safety;
- Bus lay-bys at intersections;
- Preference to public transport vehicles along a road in the form of a dedicated lane;
- Safe passage to pedestrians in the form of walkways, barrier kerbs and rails, signalized pedestrian crossings and pedestrian subways/overpass;
- Attractive lighting, bus shelters, open spaces, artworks and greening.

Urban transport infrastructure improvement measures such as road alignment, hierarchy of roads, a provision of service roads, by-passes, ring roads, bus-bays, taxi platforms, rail-tracks, wide medians, intersection improvements, construction and repair of footpaths, bicycle lanes and good surface drainage should also be introduced at least in metropolitan cities. Achieving the legacy articulated in detail above will require a municipality acting as a network authority that procure the required public transport infrastructure – including dedicated road space, dignified public space, good pedestrian and bicycle access, good park and ride facilities for car users, and high quality stations, stops, interchanges, terminals and depots (Noland, 2004:25).

2.7.4 URBAN PUBLIC TRANSPORT FOR SPECIAL NEEDS

Passengers with special needs include people with disabilities, including those that have mobility, sight and hearing impairments; older people; pregnant women, and people limited in their movement by pushing prams or carrying or accompanying children. The *UITP Report: Access to Public Transport* (<http://www.uitp.com/publications/eu/2001.htm>. 09.11.2007) estimates that a combined population of elderly and persons with disabilities currently represent an average of 25% of the total population may be said to belong to one of the categories. Thus no public transport company can ignore this fact. In the future, this trend will be reinforced. The shortage of transport impacts on personal well being generally; however, some groups within society have special needs and this affects their ability to make use of efficient and effective urban public transport systems. The elderly, disabled, and children have needs that should be identified and addressed. Their mobility and freedom may be curtailed by busy, badly lit, unsafe streets and poor urban public transport provision. Specific provision could be made to subsidize their fares, or small-scale urban public transport could be arranged for trips to health clinics, community centers to improve mobility. Due to the strong correlation between age and mobility impairment, the impact of an

ageing demographic structure on transport needs and demand is a vital issue (Sohail *et al.*, 2003:91).

Whilst the above have illustrated that collaboration between effective urban public transport system and special category needs is possible. Then, public authorities have to ensure that their needs are met in the most efficient and effective way as far as possible by the system provided to mainstream urban public transport operations. Furthermore, the core network (both road and rail corridors as well as their precincts and stations) should be accessible to wheelchair users and other special needs such as the blinds and deaf. In addition, the design of the space at the stations, terminals and other public transport vehicle should be user-friendly and child-friendly.

2.7.5. URBAN PUBLIC TRANSPORT STAKEHOLDERS

Noland (2004:7) explicitly stated that in consultation, the local and regional authorities; transport providers; business representatives; transport users; environmental interests; the general public with the study area; the traveling public who might be affected; and other statutory bodies needed should be involved. Stakeholder consultation is critically important in any analysis of urban public transport interventions. This is the mechanism through which the planning and development process should become informed of the opinions, problems, wishes and issues of the community (as users) and the operators (as suppliers) of transport. It also enables inclusiveness to be developed, giving a voice of the urban poor, disabled, women and other disadvantaged groups. Clearly, the policy-makers of public transport also have an important role in the consultative process. Besides direct problems with the services, such a forum could discuss other transport needs and requirements (Sohail *et al.*, 2003:34).

As mentioned before, the starting point should be the development and articulation of a new vision of urban public transport, and more specifically its

role in a sustainable community. This provides a unique opportunity to reposition the urban public transport system within the community, and to engage the public, stakeholders and officials in this reflection. Given the enhanced community decision making and public participation requirements, many urban public transport institutions have begun to build coalitions and develop relationships with local and regional advocacy organizations.

2.8 TQM APPROACH IN URBAN PUBLIC TRANSPORT

TQM began as a challenge to private business to satisfy customer needs, reduce costs, and continuously improve performance of industries. It refers more to a general organizational movement or philosophy and a way of thinking than to a very specific set of management procedures, processes, and rules. Until a few decades ago, TQM was not so formally emphasized in the service sector. The importance of TQM was mainly related to its application in the production of manufactured goods. Globalization is now presenting a multitude of challenges to governments and all organizations that both provide, directly or indirectly, public services to citizens, and undertake large-scale projects with national and international impacts that they need to be more responsive to the expectations of their customers, employee satisfaction and improve productivity as the former were becoming better informed and more demanding.

The public sector adopted the idea of TQM in government operations in the late 1980's in order to improve the quality of public service. Implementers of TQM in government face a number of challenges not found in the private sector. The public transport industry also faces many of the same challenges. As an innovative strategy, public organizations across the world need to adopt the concept of TQM and turn it into reality at national, provincial and local levels. However, only few agencies have introduced innovative TQM-based practices. Public transport is more than a business. Its missions are so closely related to the quality of life and to the economic development of a town that it sometimes seems

appropriate for public authorities to intervene on or in urban public transport operations in order to ensure their delivery in adequate conditions of quantity and quality. Public transport authorities and operators need to be quite clear about their own field of responsibility and action (Mezghani; 2005:17).

Similarly, the provision of effective public transport services in urban areas always requires the involvement of both public authorities and transport operators. It appears that quality is one of the key dimensions in the provision of urban public transport that should receive more attention from authorities and operators in the future. Besides the control and regulation of the urban public transport sector, public authorities play a critical role in managing the place and level of priority awarded to public transport in the city or town they administer. However, the need for public intervention depends heavily on local situations (Mezghani; 2005:17).

2.8.1 TQM PRINCIPLES IN URBAN PUBLIC TRANSPORT

The search for TQM in urban public transport should be carried out in different stages. Ideally, specific attention should be paid to the methods available to tighten up the link that should exist between TQM and urban public transport operations. Hence, the fact that the importance of quality has been recognized does not mean that the urban public transport sector has made significant achievement in this field. Unfortunately, in most countries there is no uniform quality approach for urban public transport and the concept of quality remains somewhat vague and theoretical. Furthermore, there is no significant and systematic effort within the public transport industry to evaluate applications of TQM, to disseminate information regarding successful strategies, and to develop a body of practical resources specifically designed for public transport. Having this in mind, it is possible to analyze specific principles of TQM initiative that provide guidance in the urban public transport operations as listed below (*TCRP*, 1994:8-16):

2.8.1.1 Put Customer first

TQM focuses on the needs and wants of two types of customer: “internal” customers – the next people down the line in the work process –and “external” customers – those who purchase or utilize a good or service (Blumner *et al.*, 1998:15). In this light, TQM seeks to improve the quality of both the product and the process by identifying the type and quality of good desired by both internal and external customers and providing what each customer wants. “Putting customers” first is the basis for quality management. It also implies an increased focus on individual customer satisfaction. The identification of customer needs and the translation of these needs into organizational goals are the starting point of this process. The major challenge is to foster customer satisfaction and consequent loyalty to the service(s) provided. TQM requires organizations to adopt the belief that service and product quality should meet if not exceeds customers’ expectations. All people and processes in the organization should be directed to meet this goal.

The success of public transport depends on customer satisfaction by attracting and retaining customers to use its service. By understanding and meeting customer expectations for service and product quality, an organization improves its performance. Market segmentation has been shown to be an effective tool to gain market share in many industries. Therefore, considerable attention has been paid to the concept of market segmentation in the urban public transport industry in order to increase ridership, develop the service mix required, and develop market tools to meet the needs of these varying segments of the travel market. Front-line employees are also important resources for understanding customer expectations through regular contact with passengers. A good way to create a customer focus is to have employees develop and conduct customer surveys and report cards to get feedback on the most important aspect of an urban public transport service. Paralleling this trend is increased attention to the notion of “public transport-friendly” environments, “livable communities” and “sustainable

communities.” Every organization must adjust its own culture, systems and plans to successfully “put customers first” (TCRP, 1995:4).

2.8.1.2 Manage and Improve Processes

This focus on highlighting management and improved processes implies that process management creates customer satisfaction through an integrated method of analyzing operations and focusing all work activities on satisfying customers. The *TCRP Project F-8 on TQM in Public Transportation* (1994) states that by improving operations on how work activities are performed organizations can raise the quality of their services, product and delivery, increase productivity; improve operational efficiency and eliminate waste. This requires building quality into work processes to avoid defects and improve performance. In the planning and development of processes, it is essential that members of all stages and sub processes be involved. Public transport employees can view their responsibilities in the chain of events that leads to service delivery while adopting an understanding of the needs and demands of their colleagues. Processes are then created or reorganized to meet customer expectations rather than having employees’ complete tasks in their own areas, with little regard to the end results

In the face of a fierce competition, urban public transport sector cannot limit itself to maintaining its current level of performance. It must continuously improve its quality and enhance services it offers so as to retain passengers. In this context, a critical step in any service improvement consists in gaining a realistic view on level of quality delivered in the first place together with a sound understanding of the public’s satisfaction and expectations with respect to these services. At the same time, future improvements also need to be visible by the users and advertised adequately to convince travelers to shift to public transport. Successful improvement projects try to ensure that projects have a good chance for success by carefully focusing them on specific problems or opportunities. Examples of meaningful customer-focused concrete projects include reducing the number of

vehicle breakdowns because of engine overheats or designing more user-friendly public schedules/time-tables; avoid broad and unfocused projects, for example, improving morale or reducing absenteeism. These are typically symptoms of much larger problems, and the symptoms will remain until the root causes of the broader problems have been attacked (*TQM Roadmap*, 1995:19).

2.8.1.3 Manage by Fact

TQM is a management philosophy that requires the use of facts and data, such as market research and process documentation, to achieve customer satisfaction and improve operational performance (*TCRP*, 1994:13). It therefore follows that TQM in this research encourages steady data collection and rational decision making based on data rather than on impressions or uninformed opinions. To this effect, information is an asset for all modern public transport operators that want to upgrade their infrastructure and improve services provided to customers. Furthermore, such information has to be accurate, comprehensive and provided in a timely manner. However, efficient information flow, accuracy, reliability and comprehensiveness are directly associated with effective interoperability between various applications handling such information (Tyrinopolous, 2004:102).

The single most influential social trend having an ever greater influence on public transport is the growing role of information processing and telecommunications in urban society. Today, public transport faces a challenging period in which authorities and operators invest in information systems for the planning and management of urban public transport operations in order to upgrade and improve the services provided. At the very least, the ability to expand mobility will increasingly depend on the use of telecommunications and information processing in concert with the efficient and effective urban public transport system. Another recent *TCRP International Transit Studied Program Report on 1996 Missions* reveals the below-mentioned devices:

- **On-board computers:** improved on-time performance significantly and produced considerable cost savings through reduced delays;
- **Intelligent Transportation System:** improve communications especially at intersections and provide real-time passenger information
- **Public transport vehicles:** provides on-board information by displaying “next stop” information by means of electronic, rotating straight line drawings that detail many stops along the route and highlight the next stop and a uniform colour scheme;
- **Sign posts:** depict both route and schedule information;
- **Trip cards:** illustrate schedule and detailed route information (i.e. route number)

Similarly, a customer service centre effectively communicates service and fare information to riders. A good case is found in Netherlands with an impressive passenger information system completely integrated train, bus and tram transport systems information on a national level using a technology referred to as “the traveller’s friend” or *de reiswizer* which is accessible and easy to use. Riders simply insert a phone card into a machine and choose in which language they prefer their trip information (TCPR, 1996:13). Once the information is entered into the computer, the rider will see a display depicting all the details for his or her trip, including the travel mode (train, bus and tram). Aboveall, the use of the more affordable transport technologies is encouraged to meet the desired for increased personal mobility and accessibility for the passengers.

2.8.1.4 Cultivate Organizational Learning

Besterfield *et al.* (2003:37) state that achieving the highest levels of performance requires a well-executed approach to organizational and personal learning. Organizational learning refers to both continuous improvement of existing approaches and adaptation of change, leading to new goals and approaches. In

turn, *TCRP* (1994:14) cautioned that without learning, organizations and their members repeat old behaviour and practices. Solving problems, changing procedures to meet customers' changing needs, understanding the importance of satisfying customers, and designing or reengineering processes all require learning that work can be performed in different, better ways.

Participatory methods of decision making, identifying customer needs, and determining what kind of data to collect it requires skills of employees and managers that are not inborn or traditionally taught in schools or in workplaces. Thus, to effectively implement a TQM program and achieve paradigm shift required for success, training is essential (Blumner *et al.* 1998:15). This need for training can be identified through a comparison of job skills with job description, changes in procedures. When a need has been identified, training shall be scheduled and be completed.

Public transport operators are made up of a fleet of vehicles in order to enhance the mobility needs of its customers (passengers). The *UITP Position Paper on Human Resources Management in Public Transport* (2004) calls attention to the fact that having accessible infrastructure and vehicles is not enough, but above all, it is thousands of employees working for the institutions that facilitate the operation of those vehicles. Nowadays the capability of a candidate is no longer assessed only on technical skills such as driving but mainly on behavioural skills (service-minded, flexible, etc). For this reason it is important to capitalize on these skills, to ensure that the objectives for mobility and service quality are met. For an example, driving staff on average account for two thirds of all urban public transport network staff. Moreover, the passengers usually do not know the company; one meets the driver who thus becomes the ambassador of the company. In this light, it is imperative to ensure that the image of the driver reflects the image of the company. This can be achieved through training and communication. Finally, each training should be assessed in regard of the learning

objectives and their consequences on the company's performance. This result then becomes the starting point in a permanent improvement process.

2.8.1.5 Improve Labour – Management Teamwork

Traditional industrial relations practices relied on the acceptance of a shared ideology among labour, management and government that defined workplace roles and provided stability to the system. The 1990s saw the development of a new model, one that recognizes there is often lack of consensus between management and labour and that both are greatly impaired by the instability in economic, technological, political and social environment. TQM has changed the way decisions are made, processes are designed and labour and management interact. Labour-management committees are cooperative structures that focus on problem solving and building trust. They typically deal with issues including workplace safety, work hours, training, personnel issues and daily workplace concerns. However, they are not necessarily formed to solve crises. Many are proactive and attempt to improve current work practices (Blummer *et al.*, 1998:7).

The ongoing change process in the public transport market challenges organizations to introduce large scale changes in order to achieve the shift from a traditional public transport organization to mobility service provider. It is essential for this shift that employees contribute to sustain and constantly help to evolve this process through labour-management teamwork. If employees have to take change process they must be actively implicated in corporate communication. Only an active bi-directional communication instead of a bare transmission of information within the organization leads to a transfer of the organization's values and missions.

2.8.1.6 Lead the Change in Organizational Culture

Change has become a constant feature in almost aspect of every day lives. In business and industry, circumstances that dictate corporate mission, strategies and business practices over last decade have changed dramatically. In response, organizations of all types are being forced to rethink, organize and adapt on a nearly continuous basis to remain successful.

The Department of Public Service and Administration Report, *Batho-Pele Change Management Engagement Programme* (2004) dismissed the issue of organizational culture generally as a “soft issue” (both in public and private sectors) and thus not worthy of any serious attention. However, various studies have demonstrated the centrality of culture in order to have effective and efficiently functioning organizations. After all, it is people who have to implement process, systems and thereby deliver services. In turn, technology, process and system-based solutions on their own are essential but not sufficient to make organizations function optimally. It is people who make or break service delivery through work ethic, ethos, attitudes, behaviours, beliefs and so forth. Hence it is important to address the issue of culture in a systematic fashion.

According to the TCRP document, *Support for Fundamental Change in Public Transportation* (2002), public transport organizations are under pressure to embrace fundamental change despite acceleration in the expansion of traditional services and a dramatic resurgence in public transport ridership. More importantly, urban public transport organizations are beginning to implement far-reaching changes that can lead this industry to a new paradigm in the design and delivery of services. Finally the impetus to pursue fundamental changes in public transportation organizations is being fed by ongoing research that demonstrates the principles guiding fundamental change in other business and industries world-wide have direct applicability to urban public transport.

2.9 CONCLUSION

Total Quality Management (TQM) is an organizational philosophy that stresses meeting customer requirement and expectations the first time, every time. Philosophy, therefore, in this context encompasses a set of structured principles, value systems with attitude and beliefs, and processes that are never ending and always in motion: detecting and preventing defects while creating an idea of innovation. Modern TQM has emerged as a management approach based on a set of fundamental quality principles with a toolbox of diverse techniques and procedures that provides guidance and structure in the practical affairs of running an organization. But these diverse quality approaches, tools and techniques must be applied in a focused and unified approach by visionary leadership and the right type of team structures in order to provide check and balances needed to ensure quality. Using outputs and customer feedbacks enables organizations to understand the impact their policies or programs may have on society.

The fundamental theme of this research is to outline the connection that exists between TQM and urban public transport operations in order to understand the expectations of the passengers which were discussed in the literature. During this stage, the most obvious and embracing goal is to provide customers with a service that answers (or fits) mobility needs. The main thrust in the right direction is a combination of sound urban public transport policies to encourage and promote public transport at all levels of governance, particularly at the city level, for planning, development, operation, management and co-ordination of urban transport systems. These policy frameworks would be reinforced with effective law enforcement to encourage the use of clean vehicles and fuels, restrict the use of polluting vehicles and modify travel behavior and transport demands using regulatory and pricing instruments. This research also filled the knowledge gap by understanding the roles and responsibilities of the key stakeholders in order to deliver efficient and effective urban public transport system(s). Finally, the implementation of TQM will be realized through changes in the organizational

culture, such as modification to job descriptions, reward, systems and appraisal criteria and procedures. Chapter 3 will provide the vehicle for understanding the setting in which this research is accomplished. It is here that an overview of TQM in urban public transport operations is described, and the specific organization under study is examined.

CHAPTER 3

AN OVERVIEW OF TOTAL QUALITY MANAGEMENT AND URBAN PUBLIC TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY

3.1 INTRODUCTION

This chapter examines the public transport sector institutions whose responsibility it is to support quality programs throughout the national government. It further presents a background on TQM and the imperative of using this strategy in the local sphere of government. The fundamental purpose of this study is to explore the essential principles of Total Quality Management (TQM) initiative at Sedibeng District Municipality (SDM) and the authority it receives in term of the Urban Public Transport Operations. The model presented in this research provides enhanced tactics for evaluating urban public transport quality and customer satisfaction.

The research presented in this study suggests that to improve customer satisfaction, public transport must offer efficient services. The growing attention given to the role of public transport as part of the transportation system creates an increased need for public transport agencies to measure and monitor their performance of the services in terms of accessibility, safety, mobility, financial services and service efficiency (Boile, 2001).

3.2 TQM IN THE PUBLIC SECTOR

Quality movement emanated from a private sector manufacturing orientation and as a result, some fundamental concerns about adaptation of TQM to the public sector are frequently raised and these must be addressed. In particular, principal issues associated with the use of TQM in the public sector include (Robertson & Gill, (<http://www.asq.org/gov/best/bestr&g.html>. 15.08.2008):

- The nature of TQM itself inhibits public sector applications;
- The nature of the public sector is inimical to the reception of TQM applications;
- The work cultures of professional groups that characterize the public scrutiny are inimical to the public sector;
- In the public sector, the “customer” is more problematic concern;
- Public sector provisions (decision-making) are much more complicated than manufacturing.

To address these types of concerns it is important to adapt quality principles that fit the unique context of public sector organizations. Notwithstanding the concerns raised related to the use of TQM within the public sector, there are a number of notable examples of the use of TQM at both national and local levels. TQM is a business management approach that gained great popularity in the private sector in the United States beginning in the early 1980s. During the past decade, various quality approaches have been adopted by the public managers in agencies at all levels of government across the country and quality management has become an important organizational trend in the context of change management in the public sector (Stringham, 2004:182). A *TCR (1994:4)* cites that the primary catalyst for improvement in the public sector has been budget pressure caused by rising cost and dwindling tax revenues. However, the current topic in the literature is the applicability of what are essentially manufacturing techniques and approaches to public service delivery. Over the last decade, all levels of government have embraced the principles and techniques of the private sector’s focus on quality and customer relations. In today’s economic and political climate, government must find ways to trim costs and manage cash-flows while continuing to deliver excellent customer service.

In recent years, Stringham (2004:187) indicated that TQM focuses on inputs and processes and many government agencies adopt process mapping techniques, process reengineering tools and performance metrics. In this case, he points out

that the adaptation of TQM in the public service sector is entirely consistent with the government's move to make administration more efficient, more powerful, sleeker and more citizen-orientated. As a sequence, he cited that real public organizational life; these efforts reflect New Public Management's (NPM) far-reaching changes in the organization and performance-oriented programs of public service facilities and numerous measures of organizational development

3.2.1 TQM in Federal Government

In its incarnation, TQM in the federal government grew out of productivity programs that started at the United States (US) Department of Defense (DOD) in the early 1970s. As a result of DOD's early commitment to this effort, it remains one of the strongest proponents and provides one of the best examples of TQM in the federal government. In 1986, the US President Regan signed an executive order to implement a government-wide productivity initiative under the direction of the Office of Management and Budget. After consultation with private sector leaders, this productivity effort evolved into TQM initiatives. Its objective is to involve top federal executives, managers and employees in creating a culture of excellence that emphasizes (Williams, 1993:43):

- Meeting customer requirements and expectations;
- Continuously improving products and services through teamwork;
- Training employees in problem-solving skills and seeking participation in improving operations;
- Rewarding employees for productivity and quality achievements; and
- Setting quality and productivity goals and holding managers accountable for their performance;
- Using quality and productivity measures to track progress, provide feedback, and plan for improvements.

In noting the above, Williams (1993:43-44) took a decision that TQM requires a long-term commitment by federal managers to ensure that improvements are consistent and incremental. Importantly, it requires many years to develop an environment which places a premium on excellence. In order to accommodate that effort, the federal government has developed support organizations or redefined some of the responsibilities of existing entities. In turn, *TCRP (1994:4)* found that the Federal Quality Institute (FQI) was created by the Office of Management and Budget (OMB) in 1988, to inform and consult with government agencies involved in TQM programs. This TCRP calls that it was also charged with administration of the President's Awards for Quality and Productivity and the Quality Improvement Prototype Award (QIP) established in 1988. Additionally, Williams (1993:44) indicated that the FQI provides quality awareness training courses to federal management teams through a Federal Master Contract, facilitates access to private-sector quality experts who can assist agencies in implementing TQM.

3.2.2 TQM in Local Government

In the past few decades, following the model of the private sector, local governments have come to realize that top-down management is not always to achieve results and that line workers have valuable contributions to make in identifying strategies for improvements. At the outset, it is important that a clear definition of local government applicable to this research study is made. Different definitions emphasize different aspects of importance as worth mentioning. As a sequence, in terms *Municipal Systems Act, 32 of 2000*, "local government" consists of municipalities which are instituted for each demarcated area, or municipal area, for the whole territory of South Africa. Following this, a municipality, when referred to as a geographic area means a municipal area determined in terms of *Local Government Demarcation Act, 27 of 1998*. The *Municipal Systems Act, 32 of 2000* further referred to a municipality as an entity,

an organ of state within the local sphere of government exercising legislative and executive authority within a specific demarcated area of jurisdiction.

Through this analysis, this study intended to contribute to the understanding of public sector in areas demarcated as local government. It is the researcher's opinion that different categories of municipalities are worth mentioning in order to get a clear understanding of the municipal setting. To crystallize these concepts, *Section 155 of the Constitution Act 108 of 1996 and the Municipal Structure Act 32 of 2000* guided this research to categorize municipalities as follows:

- **Category A**

This refers to a municipality that has exclusive municipal executive and legislative authority in its area (a Metropolitan Municipality)

- **Category B**

This refers to a municipality that shares executive and legislative authority in its area with Category C municipality within whose areas it falls

- **Category C**

This refers to a municipality that shares executive and legislative authority in its area that includes more than one municipality (a District Municipality).

The close analysis of these definitions enables the researcher to determine all the necessary concepts needed within the local sphere of government. It is against this background that the researcher calls attention to the definition of a “district municipality” since Sedibeng District Municipality forms the locus of this study.

3.2.2.1 TQM in Local Government: An International Perspective

In the past years, there has been considerable interest in TQM. Importantly, at the local government sphere of government interest is shown by the number of TQM initiatives in services such as garbage collection, street maintenance, welfare services, police protection, emergency services and others. Applications vary from administrative cost savings to strategic reorientations of agency objectives to meet the needs of citizens more effectively (Berman & West, 1995).

As early as 1993, an international literature revealed that the City of Saarbrücken initiated a TQM program in response to a number of things. The findings from this study cite that this City had to deal with cross-border competition in the region between France and Luxembourg. At the same time during 1990's the financial situation worsened. To a larger extent, during 1997 Spreyer German Quality Award was presented to Saarbrücken as "...the first City succeeded in installing a TQM system. In this case, setting up municipal works of a private business character, reorganizing the departments' structures and modernizing services (based on customers) are further pillars of reform" (Robertson & Gill, (<http://www.asq.org/gov/best/bestr&g.html>. 15.08.2008).

3.2.2.2 TQM in Local Government: A South African Context

The public sector in general and local government in particular is under considerable pressure to control their costs and improve their services. In response to chronic fiscal constraints, local government are considering management tools used in the private sector such as activity based costing, activity based management, TQM, benchmarking, process re-engineering and the balance score card. There are increasing demands on municipal managers and employees to achieve higher levels of efficiency and productivity in South Africa. Van Amsterdam (1999:12) argues that the quality of service delivery in South African cities is questionable, given the high expectations created by urban and economic

growth. He reasons that fragmentation of city structure, poor management and lack of public participation are but a few of the problems faced. In this case, adoption of TQM with its focus on managed process improvement is a necessary strategy in addressing, overcoming and improving these problems.

In attempting to develop an understanding as to why the implementation of TQM has not progressed well, international literature experiences of other government may offer some explanation. Swiss (1992) points factors such as its (TQM) stress on products rather than services, insensitivity of identifying government customers, an inappropriate emphasis on inputs and process rather than results and demands for top-level leadership that can rarely be met by the governmental culture. Hyde (1995) identifies that continuing high-level political appointees, the requirement for sustainable support from the senior leadership and a strong and supportive corporate culture continues to be problematic for many agencies. For it to function properly, Grant, Shani & Krishnan (1994) share similar concerns that TQM requires major changes in public management practices, a redefined goals and objectives, significant work and organizational redesign. This would be true for the major changes in processes to support the implementation of TQM. Importantly, the TQM philosophy seems to be the answer, because it can make the connection between the needs for efficiency in production and greater efficiency in municipal management, and can thereby make great strides towards the twenty-first century and improving the quality of life for all (Naidoo & Reddy, 2006:877).

TQM and Integrated Development Plan (IDP)

TQM at the urban interface is one of the means to deliver improved value of the tax payers' money, but efficiency enhancement is only one step along the road to a better quality of urban life in general. Similarly, TQM is a cultural transformation tool for municipalities to realize their constitutional mandate, legislative obligations and their organizational goals. Importantly, TQM is the

HOW of the Constitution, the HOW of the IDP and the HOW of the *Local Government: Municipal Systems Act* 32 of 2000 (Kwanaloga, 2004).

Section 53 of the above Act, calls that the IDP is the principal strategic planning instrument of the municipality, which gives and informs all of management planning and development, implementation of decisions and actions in the local area and supersedes all other plans for local development. To date the SDM IDP lack integration of the sectoral analyses and indeed exclude significant analysis of one of sectors such transport. It is intended that ITP should be a component part of IDP and in the absence of such plans the District's IDP has treated transport in a cursory fashion. Thus, TQM enhances and complements the strategic management function of a municipality. Importantly, the principles and tools of TQM and the benchmarks of business should be adopted and utilized in order for the strategic objectives of the municipality to be realized and achieved.

3.3 AN OVERVIEW OF SEDIBENG DISTRICT MUNICIPALITY (SDM)

The study provides an analysis of the demographic make-up of the SDM; it identifies and documents the public transportation dependency by the commuting Sedibeng residents.

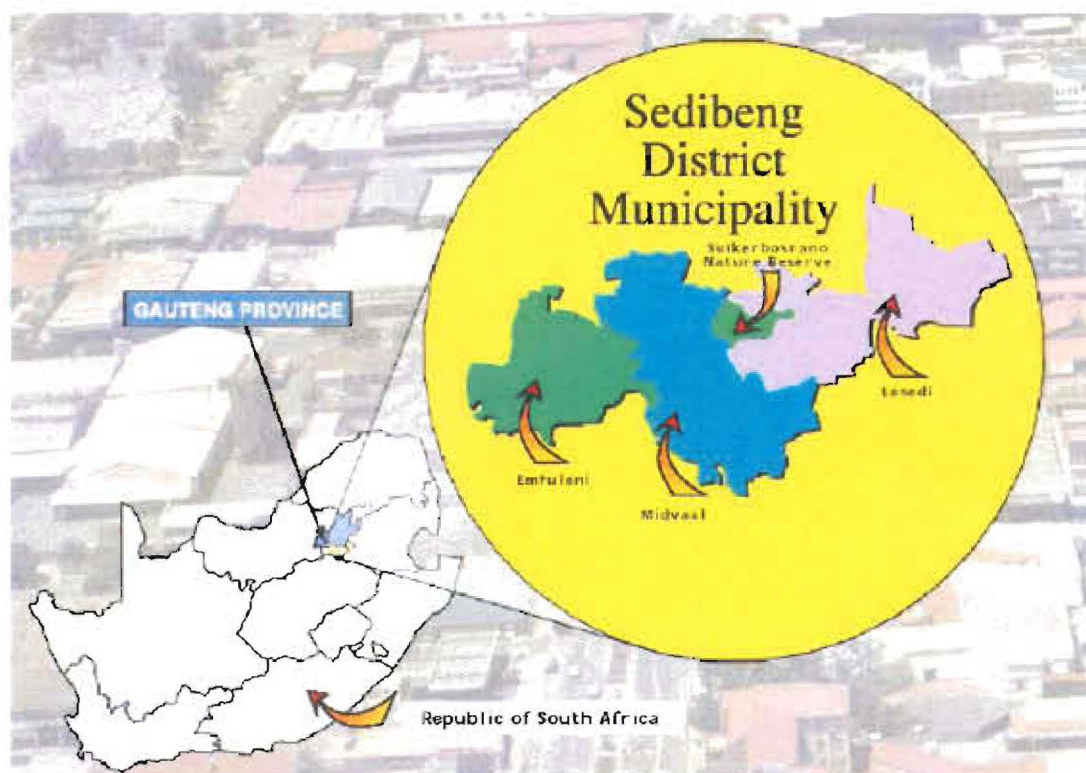
3.3.1 Historical Background

Study Area

In terms of the *Sedibeng District Municipality IDP for Report 2007/8*, SDM, previously known as Lekoa Vaal, found its name from the Vaal River which is its greatest natural resource and asset which has the potential to attract local, national and international tourists established in 2000, SDM is primarily an eco-tourism and heritage destination because of the massive Vaal River and historical happenings that have occurred in Sharpeville and Vereeniging. As a category C municipality, its cardinal role is to co-ordinate the activities and capacitates of three local municipalities as follows (*SDM 2004 ITP Update*):

- **Emfuleni Local Municipality:** This Municipality is based in Vereeniging and it consists of the following residential areas (Vereeniging, Vandebijlpark, Vaal Oewer, Vaal River, Evaton, Boipatong, Sebokeng, Sharpeville, Roshnee, Rust-ter-vaal and Three Rivers).
- **Midvaal Local Municipality:** This Municipality is based in Meyerton and it consists of the following residential areas and agricultural holdings (De Deur, Walkeville, Eikenhof, Randvaal, Vaal Marina, Meyerton, Risiville and part of Suikerbosrand).
- **Lesedi Local Municipality:** based in Heidelberg and consists of the following residential and agricultural holdings (Heidelberg, Ratanda, Devon, Blesbokspruit, Impumelelo and Vischkuil).

Figure 3.1: Sedibeng District Municipality



Source: SDMIDP 2006/7

The Municipal Area

The SDM municipal area covers 4 630 km² of which Emfuleni takes up to 1 276 km (12,63%), Midvaal 2 312 km (49,9%) and Lesedi 1 042 km (22,5%) respectively. While total area of the District takes up only a tiny part of the entire southern area of the Gauteng Province, it is home to more than a third of the residents and is responsible for one-third economic area in the Province. It extends along a 120 km axis from east to west. The borders of the District reach from near City of Joburg in the north to Ekurhuleni Metropolitan Municipality in the east, West Rand District in west and Fesile Dabi District on the south.

Population

The 2007 – 2011 IDP estimated the total population at 843 006 for SDM as per *National Spatial Development Perspective (NSDP)* 2006. This District further contains an estimated 9% of this population at 794 599 (Statistics SA: Census 2001). Sedibeng's population is currently at approximately one million as shown in *Table 3.1* below.

Table 3.1: Population Estimates: Period 1996 to 2006

YEAR	POPULATION	SOURCE
1996	717 472	1996 Census
2001	794 599	2001 Census
2006	843 006	NSDP
2006	1 362 000	Municipal source

Source: SDM IDP 2007 – 2011

This population makes Sedibeng the seventh largest municipality in South Africa. Sedibeng is one of the three districts within Gauteng Province with three local

municipalities. The total population distribution amongst its local municipalities is 84% (Emfuleni), 9% (Lesedi), and 7% Midvaal respectively. For the goal of this research, it is important to highlight the phenomena of the movement of the population within the region. In this case, the most important characteristic linked to mobility is the population. For this reason, the rapid growth in Sedibeng population has put enormous strains on the public transport system.

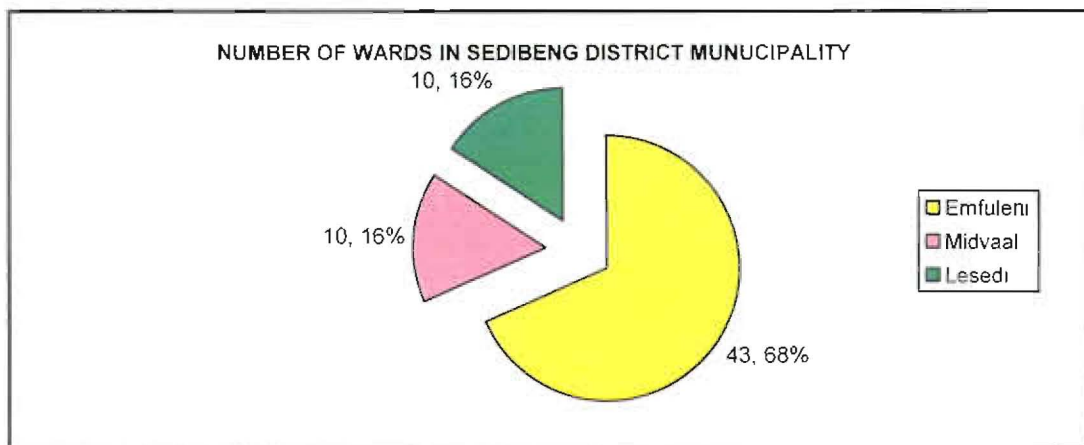
3.3.2 Institutional Structures

This section serves to describe the political and administrative structures within the study area. Insight into political and administrative functioning of this District Municipality provides an indication to the level of service delivery currently achieved. Similarly such insight will allow for possible adjustments to the institutional structures, where appropriate and necessitated to improve service delivery and expedite implementation of strategies.

3.3.2.1 Political Governance

The political governance of the SDM includes the Executive Mayor assisted by the Mayoral Committee who head the executive arm of the District who influence a degree of support of Council has in the community. On this note, the Executive Mayor is at the centre of the system of governance, since executive powers are vested in him to manage the affairs of the SDM comprising a total of 63 electoral wards divided amongst the local municipalities as shown in *Figure 3.2*. In this view, this means that he has an overarching strategic and political responsibility. The key element of the executive model is that the executive power is vested in the Executive Mayor, delegated by the Council, and his power is assigned by legislation. The Executive Mayor is also the first citizen of the District and attends ceremonial functions.

Figure 3.2: Number of Wards



Source: SDM IDP Report 2006/7

Although accountable for the strategic direction and performance of the District, he operates in concert with the Mayoral Committee that he appointed. Each MMC is responsible for the portfolio whilst remaining accountable to the Mayoral Committee and the Executive Mayor in particular as depicted in *Table 3.2*. For the purpose of this research, Executive Mayor in collaboration with the MMC: Transport, Infrastructure and Environment will foster a degree of political support within a cohesive vision and mission that is widely shared within SDM to promote public transport for the commuting Sedibeng residents.

Table 3.2: MMC and Mayoral Committee

MMC MAYORAL COMMITTEE CONSISTS OF:
Executive Mayor
Transport, Infrastructure and Environment
Corporate Services
Finance
Community Services
Economic Development and Planning
Sport Recreation Art and Culture

Source: SDM IDP Report 2006/7

3.3.2.2 Administrative Dispensation

The District's governance system was constituted around the acceptance that policy ownership and control is the non-negotiable responsibility of the District, whereas operational delivery could be provided by clusters through directorates, departments and divisions.

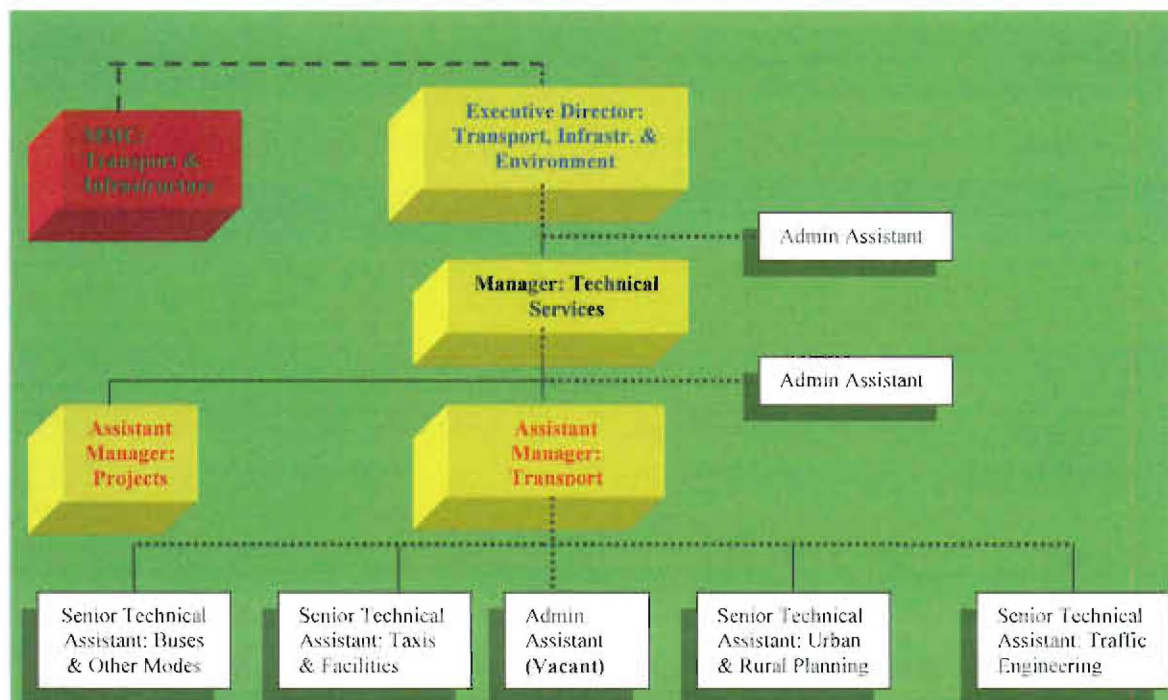
The Municipal Manager (MM) as the accounting officer who is responsible for the central administrative functions of SDM and is supported by a team of Section 57 employees, namely Executive Directors responsible for various clusters such as Transport, Infrastructure and Environment; Corporate Services; Finance; Community Services; Economic Development and Planning and Sport Recreation, Art and Culture (SRAC). The MM is the implementation arm of the political leadership of the District and this management structure and its supporting functions is responsible to implement Council decisions and similarly monitor, evaluate and provide feedback to the Mayoral Committee regarding progress and service delivery by the various (*SDM ITP*, 2004:21). From a public transport viewpoint, the MM and the Executive Director: Transport, Infrastructure and Environment are technocrat and agents of change who offer strong direction and leadership in terms of strategies and policies on the part of top management with the backing of the political arm of the Council to meet and exceed customer expectations.

3.3.2.3 Transport, Infrastructure and Environment (T, I & E)

Transport, Infrastructure and Environment as one of the six clusters in the SDM, employs nearly twenty-two (22) people. This cluster encompasses a wide range of activities, including Taxis and Public Transport Facilities, Buses and Airports, Rail Transport, Traffic Engineering, Fleet Management, Urban and Rural Transport Planning, Project and Facilities Management, Public Works, Civil Engineering, Storm-Water, Water and Sanitation, Waste Management, Environmental Planning and Public Health Services. Prior to 2006 reorganization.

all of the Transport, Infrastructure and Environment cluster were organized and divided into two departments known as: Technical Services and Environment. The operational division for Technical Services was divided into Transport and Project Management each headed by two Assistant managers as both were headed by Manager: Technical Services. *Figure 3.3* show this old organogram for Technical Service Directorate.

Figure 3.3: Old Organogram for Department of Transport

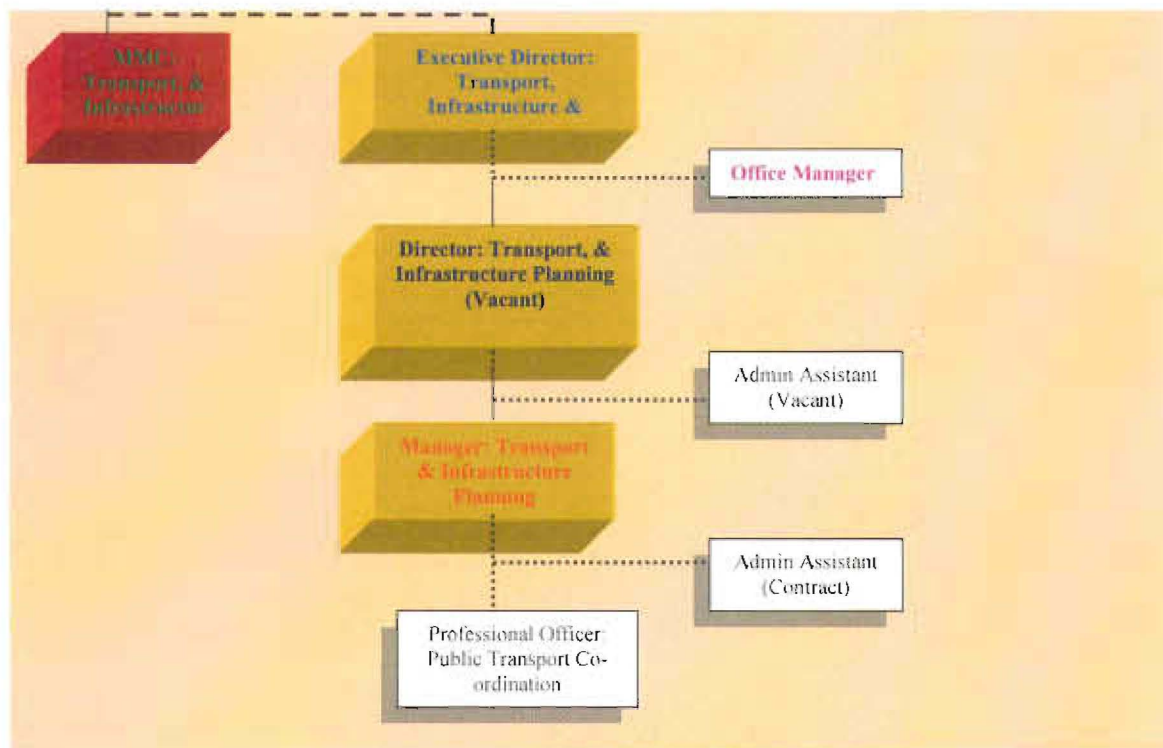


Source: Own Information

Specifically, this new department namely, Transport and Infrastructure Planning's function is to manage all aspects of public transport (taxis, buses, rail, metered taxi, learner transport, 4 + 1 sedan taxis, air transport, non-motorized transport) and infrastructural planning such as roads, public amenities and public transport facilities (taxi ranks, taxi lay-byes, bus termini), storm-water and pavement management system also to provide engineering and technical support. In addition to these primary functions, this Department maintains a number of support organizations. On this note, the goal of this research will be therefore to describe

the relationship between TQM and Urban Public Transport Operations at SDM. From the public transport perspective, this department will remain the focus of this study. *Figure 3.4* depict the new organo-gram for the Department of Transport and Infrastructure Planning.

Figure 3.4: New Organogram for Department of Transport and Infrastructure Planning



Source: Own Information

3.4 DEPARTMENT OF TRANSPORT AND INFRASTRUCTURE PLANNING

Public transport is emerging as a key issue of municipalities in South Africa, particularly districts and metropolitan municipalities where poor public transport is contributing to growing traffic congestion, high accident rates, economic stagnation, social problems and environmental degradation. For many cities the lack of an effective public transport system is a major impediment to local economic growth, job creation, new investment and expansion of the tourism industry. Public transportation has become the major challenge not only for the District, but also for the entire country. This department as showed in *Figure 3.4*

has no choice other than adopting TQM for its survival. Although the fundamental objective of this department since its inception is to promote the use of public transport in SDM, there are major challenges in locating people with reasonable distance to work, as well as traffic congestion due to poor planning, poor routing and under-investment in infrastructure. The challenge of public transport is further emphasized by the need to invest in preparation for the 2010 Soccer World Cup, both in terms of planning and infrastructure investment. In order to address these issues, SDM as a custodian of public transport will encourage the search for innovative and ambitious urban public transport solutions within its area of jurisdiction. The Department of Public Transport and Infrastructure Planning will focus on a search for TQM initiatives in urban public transport operations in terms of planning and innovation, capital project and system management as well as technology, modelling and information system.

The literature describes that quality also requires the setting of clear visions, missions, objectives and measurements to deliver the expected levels of customer satisfaction. For this reason, everyone in the organization should be committed to its vision, mission and needs to work towards its common objectives. Again, Mezghani (2005:22) pointed out that service driven should be shared by those responsible for strategic management as well as by those responsible for actual service provision. He further said that all people involved (drivers, traffic and highway staff, sales and service staff, maintenance staff,) need to share the same sense of purpose and vision. In a document entitled "*Top Quality Transportation Through Deming's Fourteen Points*", Bhimaraya A. Metri urged that to create a constant purpose necessitates the development of a mission statement for the transportation corporation. In this case, Sedibeng District Municipality Department of Public Transport and Infrastructure Planning vision, mission, objectives and strategies are formulated as (*SDM ITP 2004 Update*):

Vision

“Accessible, sustainable and reliable public transport that meets passenger needs and supports the local economy by providing acceptable levels of service for all categories of passengers”.

Mission

In support of the public transport vision of the SDM, it was found prudent to develop a mission statement which would inform ethos of the District employees in an endeavour to achieve its mission:

“To provide an integrated, well-managed, viable and sustainable public transport services and infrastructure, informed by commuter needs that exceeds municipal, provincial and national goals, in order to enhance effective and efficient movement of people and goods.”

Public Transport Objectives and Strategies

For the purpose of giving concrete meaning to the vision statement measurable strategies that direct the efforts to the District in arriving at the stated vision. These strategies are segmented into a number of focus areas that were identified in need analysis phase. *Table 3.4* above encapsulates the objectives and strategies identified in pursuit of the vision.

3.5 URBAN PUBLIC TRANSPORT OPERATIONS

An important aspect of the planning for public transport is the assessment of the urban residents. Similarly, assessment of trends in the public transport system in Gauteng reveals a service prone with under-investment, inappropriate targeting and poor reliability. It is a service that is generally regarded as default service for

the poor and it does not enjoy support across income levels as in other countries. Unsafe and unregulated taxi services, sub-standard and mis-targeted bus service, and dangerous and unreliable commuter rail services are direct consequences of the apartheid system and continuous under-investment in the public transport system. Notwithstanding these, road-based public transport has been suffering marginalization in the SDM, while on the other hand there is no link has been visible between TQM initiatives and urban public transport operations.

Table 3.3: **Public Transport Objectives and Strategies**

FOCUS	OBJECTIVES	STRATEGY
Promoting Public Transport	Providing high standard public transport facilities	To promote high standard public transport facilities to meet passenger needs
	Provide good road infrastructure	To upgrade roads used by public transport vehicles
	Increase mobility and accessibility	To provide greater access and mobility to public transport users
Special Needs users	Cater for transport needs of special users	To provide increased mobility and access and to transport for passengers with special needs
Modal Integration	Integration of services	To integrate public transport facilities and services with development to enhance economic development
Institutional Design	Build capacity	To enhance institutional capacity for public transport planning and development
	Promote co-ordination	To bring about better co-ordination with different
		Spheres of government and other stakeholders
Regulation and enforcement	Increased levels of compliance	To ensure high levels of compliance with operating licences and traffic laws

Source: *SDM ITP Update 2004*

3.5.1 URBAN PUBLIC TRANSPORT MODES

Flowing from above, the literature review cited that although there are a considerable variety of modes of transport in the SDM; chief amongst them include rail, buses, minibus taxis, metered taxis and learner transport. For the goal of this study, rail, buses and minibus taxis dominate the public transport market and also constitute the major road-based public transport modes in the District.

3.5.1.1 Rail Transport

All policy sources acknowledge a role of passenger rail within a hierarchy of transport modes. On this note, the important aspect of this research is focused on the rail system. Significantly, *White Paper on National Transport Policy* (1996) in its vision states that: “*Rail is seen as an essential long-term component of the network for both freight and passenger transport*”.

Municipalities, on the other hand, differ in their acknowledgement of the role of rail. In this situation, due to the fact that the rail functions still reside within national government. At the same time, the current official policy is for rail passenger planning to be done at the municipal level as part of their ITP. In SDM, rail transport is the most important sector since it provides for an effective operation of the whole District’s economic system. In turn, its services are under-utilized in spite of it being the cheapest of transport due to the lack of connectivity to major road infrastructure such as N1, R558, R82, R54, R59 and N3 within the District-wide. In this view, some of the obvious symptoms experienced in the District are the closure of the rail lines in the west-link, operational delays and unreliable services. Furthermore, preliminary findings from the *Gauteng Household Travel Survey* in 2007 showed that about 29% of the Sedibeng households have access to the train services. Notably, this indicates that the District should engage into an ambitious strategy to promote the quality of rail service to the public transport patronage. In spite of development of other modes

of transport, rail transport still realizes most of the freight haulage and passenger carriage in the national scale. In this case, the commuter rail services are operated by MetroRail on a concession. At present, urban rail services in the District are extremely limited. As a sequence, only two CBDs, namely: Vereeniging and Meyerton are served by suburban rail systems. Using the network service approach, the *Gauteng Rail Passenger Transport Status Quo Overview 2001* identified only two rail commuter services operated within the jurisdictional area of Sedibeng. In this case, these services are operated on double lines as follows:

- Germiston – Klipriver – Vereeniging
- Vereeniging – Stretford – Johannesburg – George Goch

From the rail network to rail corridors, the above defined Priority Rail Corridors in the District have contributed very substantially to the local rail transport planning. This has contributed to the *White Paper on National Transport Policy* (1996) objective of seeing responsibility devoted to the lowest competent level. It has also help implement the *Moving South Africa* objective of local authorities' examining specific corridors on their own merits. Both above services are partially within the SDM as both areas of Johannesburg and Germiston fall with the City of Jo'burg and Ekurhuleni respectively. Against this background, the revitalization of the railway line and its stations should be supported so that it can adequately service the people who live in southern Gauteng but work in its economic core. Similarly, a rail system that is efficiently and effectively that serve large number of Sedibeng residents will be an answer to their mobility and accessibility.

3.5.1.2 Buses

In the past, bus services within SDM area were operated by a municipal bus company, Vaal Transport Company (VTC). Although, cities like Joburg and Tshwane still have their own municipal bus services, currently the District does

not have a subsidized municipal bus services. However, since August 1998, Department of Public Transport, Roads and Works (Gautrans) have adopted a policy to encourage operators to become more commercially aware. As a result Gautrans decided that such service should be subjected to an open tender system to give access to interested bus operators. The scheduled bus services within SDM were then divide into four contracts, namely; Comuta Bus Service, Gauteng Coaches, Ipelegeng Transport Trust and Mggibelo Bus Operators. Since the primary responsibility of Gautrans with regard to bus service is the management of the state subsidized tendered and interim bus contracts in Gauteng. Many of the contracts have expired and are renewed on a month-to-month basis, since the National Department of Transport applied a moratorium on new bus tenders in 2002.

The *Strategic Agenda for Transport in Gauteng* (2006) undertakes to review all bus routes and assess whether they should be eligible for subsidy. It will also develop a new approach to subsidization, focusing on the most vulnerable communities, and not duplicating subsidy on parallel road and rail routes. The subsidy system should also aim to reduce the high percentage of household income that poor households spend on transport and to increase access of the poorest to social and economic activity. The local government – the primary agents of change of delivering policy objective in the SDM have had relatively little control over the provision of bus services within its area of jurisdiction. Consistent with this, the empirical evidence gained in the *Gauteng Household Travel Survey in 2007* suggests that bus services are available to most residents in Sedibeng; almost 75% of the households have access to bus services. This emphasizes that buses are still the best answer to provide mobility in the District. In spite of this, SDM still has a role to play in supporting bus services, and one way of doing this is through marketing and promoting bus service. Acknowledging this, Dommermuth (1989:16) indicates that promotion incorporates any technique, under seller's control, that communicates positive and persuasive information about the product to the potential buyer. In this case, local

authorities need to communicate information to both users and non-users of bus services. This aggressive marketing strategy (of which promotion is a key part) is only witnessed in Sedibeng during once-off event in October each year as part of a Public Transport Month. In this view, improving efficiency of operation and subsequently, making this mode of transportation a more appealing will be an answer to the Sedibeng commuting public.

3.5.1.3 Minibus Taxis

Given the size and dominance of the taxi industry, no urban strategy can be effective without addressing the regulatory issues. The minibus and midibus taxi industry dominate the South African road public transport landscape and accounts for 65% of current public transport. In Sedibeng, a taxi service is very important mode for work trips and is predominately utilized by the District's residents as compared to other modes of transport. The *Moving South Africa (MSA): The Action Agenda* emphasizes formalization of the taxi industry as a critical step. Included in the MSA notion of formalization is the notion of efficient control of routes and permits within a corridor, effectively managing the supply of taxis through appropriate entry barriers. This is a conformation of the National Taxi Task Team (NTTT) recommendations.

The taxi industry in the SDM area constituted of eighteen Taxi Associations that are affiliated to both Sedibeng Taxi Council and Top Six Vaal as their regional and federal structures which are generally operated on the same routes within the study area. The national and provincial legislations required mini-bus taxi operators to be both registered with the provincial registrar, and hold a valid, road based operating incense for each vehicle operated. The study findings from the *SDM Pro Poor Policy* (2005) showed that minibus taxis are responsible for 19% of trips, while many of taxi routes are operating at capacity which indicated increased demand. As a general rule, there should not be an increase in service capacity on any route due to the introduction of larger vehicles on any such route

of corridor, as this may directly influence the viability of the particular service. The Taxi Recapitalization Programme (TRP) is one intervention to start addressing challenges prevalent in the taxi industry. This TRP aims to achieve the following:

- Set acceptable vehicle standards that are aimed at addressing road safety;
- Ensure only legal operators ply their trade;
- Ensure operating licenses are issued in accordance with Integrated Transport Plans (ITPs) that support transport and spatial development; and
- Promotion of accessibility for people with special need.

The built formalization aspects of the recapitalization programme, discussed above as well as the delivery of safe and quality fleets make it a major opportunity and a central component of a mainstreaming strategy for SDM taxi industry.

3.5.1.4 Non-motorized Transport (NMT)

Public Transport Action Plan Phase 1(2007 – 2010): Catalytic Integrated Rapid Public Transport Network Projects demonstrated that Non-motorized Transport (NMT) has traditionally been excluded from the transport planning process. However, recently there is a need for NMT planning at both strategic level in terms of vision and goals for a City or District Area, as well as a more detailed local area level – begin to identify specific NMT infrastructure projects required.

Internationally, throughout the United State of America there is a desire to mainstreaming of transit, pedestrian and bicycle projects into planning, design and operation of the U.S's transportation system. In addition to knowing what the levels for automobile users, the quality of service to transit, pedestrian, bicycle and truck users along U.S roadway is also desired (Mc Leod, 1999:221). The *SDM Pro-Poor Strategy* (2005) noted that although walking and cycling are utilized as major transport modes; they receive little or no attention in the SDM.

Furthermore, this strategy noted that walking and cycling account for 47% of all commuter trips. Currently, there is no urban transport policy in determination of transportation quality of service that encourages the needs for high quality NMT network in modes like cycling and walking through the cycle tracks and pedestrian paths.

3.5.1.5 Modal Integration

Integrating Public Transport Network package comprise a standard basic package that can be adapted for local city and district conditions. In this situation, it is becoming increasingly obvious that the integration of different means of transport plays a fundamental role in the success of a transport system. Hence, the old concept of train, bus or taxi stations is no longer valid today. In this view, the *Public Transport Action Plan Phase 1 (2007 – 2010): Catalytic Integrated Rapid Public Transport Network Projects* indicated that in general, especially for the larger cities, this will require city-wide controlled network of rapid public transport corridors together with a fine grained feeder system for smaller buses, taxis, bicycles, pedestrian access as well as metered taxis and park and ride facilities. This Network will prioritize public transport, walking and cycling over private car travel and will dedicate road space to these priority modes. Mezghani (2005:47) emphasized that the collaboration of authorities and operators involved in the supply of public transport service offers a guarantee for enhanced interoperability and intermodality which is a critical factor in the quality of the whole transport system. A good documented example is in Germany where encouragement of the integration of tickets, timetables, information, payment methods in a specific area contributed considerably to improvements in the quality of public transport systems. In Sedibeng' s case, users suffered the inconvenience of having to tackle multiple transfers and different fares based on location, depending on the form of transport they wish to use. As a sequence of this, a notable lack of co-ordination is apparent in the District. The effect of this situation were strongly felt by the Sedibeng public transport users themselves, while also affected by the public transport system costs, being passed to the users

in the form of higher fares. Thus far, McLeod (1999:221) cautioned that the determination of transportation quality of service for the automobile, bus, pedestrians and bicycle modes on urban arterials could be structured to take a multimodal analysis approach instead of an automobile approach.

Public transport is an essential aspect of society and offers considerable opportunities as an integrating factor, along health, education, employment leisure, which ultimately leads to better social and economic systems and an increasingly high quality of life for all. In this sense, *Gauteng Integrated Public Transport Network* (2006) shows the integrated network of SDM captured on the areas of origin of the subsidized bus contract services namely, Gauteng Coaches, Ipelegeng and Comuta Vaal Buses. In this fashion, taxi services also capture the same areas of origin as that of subsidized services. As a sequence, these subsidized bus services operate from the peripheral townships in the north to the main Central Business Districts (CBDs) of Vanderbijlpark and Vereeniging, as well as the industrial areas around Meyerton and key residential areas. There are also fairly strong cross-border movements into Joburg, particularly on rail.

The Metro-rail line from Kwaggaström joins with the Soweto Priority A line into the Joburg CBD. This integrated network of SDM will largely be based on Strategic Public Transport Network (SPTN) and developed on optimal links between the two CBDs, the industrial areas and key residential areas. This design is currently well-advanced, but NMT is still excluded.

3.5.1.6 Transport Modal Quality of Service

Passengers' expectations with respect to the quality of a service and the extent to which they are satisfied with the service they receive are dependent upon the price they pay. The passengers' willingness to pay a specific service will thus notably be a measure of whether or not the service meets their expectations. If a price is lower, they will be even more satisfied and vice versa (Mezghani, 2005:64). Evidently, 23% of the Sedibeng households spend more than R200 on public

transport as reflected in the *2007 Gauteng Household Travel Survey*. Again, overcrowding in the public transport system is more pronounced in the Midvaal Local Municipality where buses which are supposed to carry 50 - 60 passengers generally carry double of their capacity during peak hours. As a result, bus transport competes with the minibus taxis for the same commuter market. In this study, a customer-orientated approach to transportation service planning is rooted in the assumption that the observed transit ridership and transit market are the result of the mode choices made by each individual commuter. It has therefore become essential from the transit agency perspective to measure the level of transit service being offered in order to identify the potential strengths and weaknesses *vis a vis* competing modes (Mezghani, 2005).

In order to examine link that exists in urban public transport and quality of service, an enhanced focus on quality will be more successful if it is based on a sound understanding of quality determinants as shown in *Appendix B* in *Chapter 2*, as well as on the most appropriate tools for assessing and enhancing them. For each individual journey, Sedibeng residents have choice between different transport modes, each with specific characteristics, advantages, disadvantages and costs. In other words, public transport compete with other modes and will only be used if it can meet the expectations of the traveling public, that is, if it can deliver attractive, accessible, reliable, responsive (at the tactical level: adapting promptly to market changes, competitors and general environment; at operational; level: customer oriented and quick to react and minimize inconveniences when service disruptions occur) and yet affordable (Mezghani, 2005:17).

3.5.2 URBAN PUBLIC TRANSPORT PLANNING

Transport policy has undergone major review, particularly after the election of the first democratic government in the country. The genesis of the new policy approaches in transportation is the *White Paper on National Transport Policy* (1996) followed by *Moving South Africa* which provides a 20 year strategic framework for transport in South Africa. The new transport policy, in keeping

with the provisions of the Constitution of South Africa, places premium on co-operation between three spheres of government in the delivery of transport services. They also have culminated into legislation which articulates the type of plans that have to be prepared by the municipalities. At the municipal level, the *Integrated Transport Plan (ITP)* is the principal plan that gives direction on transport matters to set out vision, goals and objectives and strategies to address all aspects of land transport in the area and to include proposals for multi-modal transport, private transport and freight. Once completed, the ITP becomes a transport sector input in the IDP (*SDM ITP 2004 Update*).

The first ITP for SDM was developed during November 2000 by the following consortium of consultants, namely: Phumelela Africa Professional Engineers, Van Der Schyff Baylis Shai Town Planning, Upstart Business Strategies and Kgatelopele Consulting Engineers. Subsequent to the development of this ITP document, the SDM identified certain areas for refinement in order to incorporate new information on developments and projects. In December 2003, Karabo Consulting was appointed to undertake the update of the ITP document as a framework for identifying and assessing the District's transportation needs and priorities. This ITP was updated in 2004 and has been forwarded to Province for their consideration but has yet to attain Province and consequently National Department of Transport approval. On a positive note, regardless of the local situation, there are many strategic challenges encountered in transportation planning process. Within the focus of this research, in SDM topic of interests will focus spanning land use, law enforcement, environmental impact, discouragement of private vehicle usage, crime and funding, among many others.

3.5.2.1 Land Use and Transportation Planning

The land use and transport planning are two sectors which need to be integrated horizontally and vertically within and between the spheres of governments in order to achieve the developmental goals, objectives and duties of local

government set out in the Constitution of South Africa. In the context of rapid urbanization, *A Strategic Agenda for Transport in Gauteng (2006)* indicated that development has not been guided by a comprehensive land use or transportation planning process, continuing historical pattern of urban sprawl and low residential densities compared to other cities of similar size. The above Strategic Agenda further insisted that the land transport functions must be integrated with related functions such as land use and economic planning and development, through, among others, the development of corridors, densification and infilling, transport planning must guide land use and development and vice versa.

Importantly, the rapid growth of Sedibeng population as in other developing countries has generated an enormous need for effective and efficient public transport services to carry high volume of passengers through dense, congested urban areas. Since the District's population is far more dependent on public transport, the need for public transport service has increased faster than overall population growth. The lack of effective planning has resulted in rampant sprawled extending rapidly in all directions, far beyond old CBDs boundaries into the distant District-wide. That has greatly increased the number and length of trips for most Sedibeng commuters, including those by public transport. However, urban centres like Vanderbijlpark, Vereeniging, Meyerton and Heidelberg play a critical role in addressing exclusion by linking the urban poor to the remainder of the District particularly through the effective operation of transportation hubs and the creation of residential spaces within these urban centres.

The establishment of new shopping malls in the SDM such as Three Rivers Square, River Front and Vaal Mall caused a shift in the consumer pattern. Low-income consumers dependent upon public transport were less able to access secondary nodes and increasingly focused their expenditure on accessible urban centres. Moreover, the District has permitted scattered commercial and residential development in outlying sub-urban areas such as Vanderbijlpark, Meyerton and Heidelberg without the necessary public transport and infrastructure such as

roads, utilities, shopping and schools. That generates along trips between residences and almost other trip destinations. Accordingly, urban renewal interventions seeking to address area-specific decline in urban centres, informal settlements and exclusion areas should not be undertaken as stand-alone activities. Instead, they must be allocated within the context of broader District Development Strategies, IDP, ITP and regional development framework. A documented example implies that if one of the spatial strategies is to concentrate growth in a particular major urban area, the ITP should include specific transport policies to support that goal. In the long-run, there needs to be effective land-use planning and the introduction of the new public transport systems to keep Sedibeng moving and a smart District.

3.5.2.2 Effective Law Enforcement

The provision of effective law enforcement mechanisms is important to avoid that those quality requirements become a mere formality as was the case in the recent past. Many countries had this experience with the first service contracts in which performance criteria were explicitly or implicitly included without provision for any effective incentive or enforcement procedure (Mezghani, 2005:44). In this light, *Section 122 of the National Land Transport Transition Act (NLTTA)* (No. 22 of 2000) requires all municipalities to take active steps to develop system to improve land transport law enforcement in their area of jurisdiction. In terms of *Section 123 of the same Act (NLTTA,2000)*, for the purpose of enforcing land transport law and monitoring compliance with this *Act (NLTTA,2000)*, “authorized officers” include municipal or provincial traffic police, SAPS members and employees of the province designated by the MEC as inspectors. In this definition, the *Gauteng Public Passenger Road Traffic Act (GPPRTA)* (No.7 of 2001) further added a person in the service of the Department or a municipality, whose duty is to inspect motor vehicles, motor vehicles licenses of control traffic. In this study, the *Gauteng Intergovernmental Transport Charter* (2006) provides that the law enforcement agencies of the municipalities will be

fully designated and empowered by the MEC to carry out the full range of law enforcement that provincial inspectors are empowered to do so.

The SDM is therefore legally empowered by both the *National Land Transport Transition Act (NLTTA) (No. 22 of 2000)* and the *Gauteng Public Passenger Road Traffic Act GPPRTA (No. 7 of 2001)* to enforce public transport law and matters relating to operating licenses and permits. Currently, the District does not have neither public transport related by-laws nor traffic department but the three local municipalities have traffic departments that have been inherited from the previous local authorities' regime. In this view, the Directorate: Public Safety coordinates the activities of the law-formations within the District. The *SDM ITP 2004 Update* revealed that the traffic departments are largely focused on enforcing the traffic law than public transport law. However, the traffic departments of the local authorities have serious problems of resources needed for executing their duties efficiently. According to the *Law Enforcement: Achieving Excellence Through Quality by Greg J. Barnett (1999:1-2)* indicated that these agencies are not unlike commercial enterprises in their needs to employ new and innovative techniques to deliver services at lower prices. He further emphasized that to exploit that full potential; the processes by which those services are delivered must be improved. One method of process improvement is to involve employees at all level of decision making in which law enforcement does business to improve overall agency effectiveness.

Given the fact that the poorest of the Sedibeng poor who are largely concentrated in Bophelong, Sebokeng, Sharpeville, Boitumelo, Meyerton and Ratanda cannot even afford to use public transport, they resort to cycling or walking. Pedestrians and cyclists are often the most vulnerable in Sedibeng, since they are the victims of road accidents especially along the notorious R558 (Golden Highway), Moshoeshe, Lebohang Mahata, Welgevonden, R59 and R554 (Heidelberg) corridors. An examination of literature in the field of quality improvement reveals an increasing number of such programs in law enforcement which should be

integrated in the public transport planning process such as public transport safety strategy. The enforcement of the municipal by-laws and policies is a very high priority. Similarly, areas of high priority enforcement are the by-laws, especially in response to illegal ranking, informal trading, taxi violence that have mushroomed in the District, particularly in the urban foci. In this response “*The Standard Operating Procedure for Taxi Conflicts*” which is ready for approval by the Council is an answer to this chronic taxi violence.

3.5.2.3 The Environmental Impact

The quality of a transport system can be measured through its effect on its environment (externalities). Globally, the externalities produced by public transport systems are often considerably lower than those caused by the private transport system (Mezghani, 2005:43). In a paper prepared for the Conference entitled “*Refocusing Planning for the 21st Century*” in February 1999, Martin Wachs calls that transportation investments have historically been among society’s most important contributors to environmental improvement, but today transportation programs and projects are more often of concern as source of major environmental problems. Similarly, the arrival of the automobile was understood to be an environmental blessing of enormous proportions. At the same conference, he further elaborated that the cities could be freed from the environmental insults of house manure, diseases carried by horse flies and the need to remove from the streets ten thousands of carcasses of dead horses which has expired in the course of their work.

Many towns and cities suffer from traffic jams and polluted streets and, as a result, are less attractive places in which to live and do business. Reducing the negative impact of traffic on the quality of people’s lives is a key element of improving the urban environment impact assessment as part of planning as set out in the *Gauteng White Paper on Transport Policy (1997)*. As time change so does the understanding of the facts about the linkage between transportation system

and the environment. The goals of public policy regarding transportation and the environment similarly evolve. SDM is faced with serious environmental challenges. From being the source of major smokestack driven heavy industrial air pollution (Steel and chemical industrial activity) to coal and wood smoke from the townships. Although the pollution levels do not always exceed South African more lenient guidelines, health hazards are exceeded quite substantially which poses real health risks to communities, particularly, in Midvaal and Emfuleni municipalities (*SDM IDP 2007- 2011*). Empirical evidence reveals that nothing is known about the impact of urban transport planning on the environment within the study area.

3.5.2.4 Discouragement of Private Vehicle Usage

Transportation in the urban context assumes great economic significance, as the production is maintained only if mobility requirements in the cities are fully met. However, this production in increasing number of vehicles causing congestion, and thus slower speeds on roads. In addition, *A Strategic Agenda for Transport in Gauteng* (2006) drew attention to the fact that while cars are giving great personal convenience to individuals, they are limited in urban application as a system. They cause congestion at relatively low traffic volume, the social costs and negative environmental impacts are high.

One consequence of insufficient service quantity and terrible service quality is that public transport has been losing market share in the SDM. Dissatisfied public transport passengers are increasingly turning to the private cars which have experienced a boom in ownership and use in the past years. However, the *SDM Pro Poor Policy* cited that private vehicle transport is low at 23% as compared to other municipal areas. *The Gauteng Household Travel Survey* (2007) indicated that about 23% of the Sedibeng households earn more than R 3,000 per month while approximately 30% have access to a car. This implies that percentage of households having access to a least one correlates with household earning more

than R3, 000 per month. This *survey* further showed that 17 % household in SDM spend more than 20% of their monthly income on public transport. In addition households in Sedibeng experience the most exclusion from public transport – 9% of these households have no access to trains, buses or taxis. For affluent SDM residents, the private car offers an even higher level of comfort and greater prestige, although it is more likely to be slowed down by roadway congestion. The deteriorating quality of public transport service reinforces the impact of the rapid decentralization of the Sedibeng main CBDs. Both trends encourage a shift away from space-saving public transport towards individualized motorized transport. This is evident in the suburban areas of Jamesonpark, Henley-on-Klip, Risiville, Three Rivers East, Roshnee, Waldrift, Sonlandpark and Vanderbijlpark near the bank of the Vaal River. Furthermore, if there is no worthwhile public transport in Sedibeng, then it will still need to be reinvented to promote a better quality of life. Of paramount important is that 39% of the households in Sedibeng spend nothing on public transport – these are mostly high-income car owning households (*The Gauteng Household Travel Survey, 2007*). The need is therefore a sound urban transport policy. The major thrust of such policy should encourage greater use of public transport instead of personal vehicles. This requires both public transport system and a quantum improvement in the quality of public transport.

3.5.2.5 Crime and Urban Public Transport

Public transport is vital to preserving energy resources and to minimizing pollution in urban areas. It is fundamental to the economic wellbeing of an area and provides access for residents to essential services. As the poorest persons in communities are often “*captive*” to the use of public transport, vehicles and facilities that are perceived as unsafe may provide a significant barrier to social exclusion (www.crimereduction.gov.uk/toolkits/pt0202.htm).

The majority of poorer people stay relatively far from their places of employment, requiring them to spend a considerable amount of time when traveling. Commuters are exposed to victimization on buses, trains and minibus taxis, while changing from one mode of transport to another at station, or when walking from drop-off points to their places of work or their homes. Furthermore, despite a very large proportion of the population not owning motor vehicles, most areas are not designated to accommodate pedestrian satisfactory. Provision is often not made for pedestrian traffic in the form of, for instance, walkways, pedestrian bridges or lighting, thus exposing the poor in particular situations where they are vulnerable to victimization (Kruger & Landman, 2006:4). This is evident in Sedibeng, as the data from the *Gauteng Household Travel Survey (2007)* undertaken for SDM on walking to the nearest public transport facility reveal that among households that do not have access to public transport, those in Sedibeng are the furthest away from the routes. Public transport users in the District rated safety from accidents, security from crime, lack of facilities at ranks and roadworthiness as the most important contributors when traveling.

The conclusion that might be drawn from this research and closer analysis of these surveys reveal that there is a clear indication about the feeling of safety in the District. South African approach to crime combating aims to reduce the causes of and opportunities for criminal events and address the fear of crime by applying sound planning, design and management principles to the built environment. This approach incorporates the following (Kruger & Landman, 2006:4):

- **Physical/spatial planning:** urban planning approaches used at strategic level and dealing with the form of the city, e.g. promotion of mixed land, reduction of vacant land, promoting pedestrian use of infrastructure, ensuring the equitable and efficient provision of facilities and infrastructure and supporting urban renewal

- **Design:** the detailed designing of physical urban elements, such as the movement system and roads, open spaces, building and lighting;
- **Management:** spatial management of the city and its different functions including infrastructure maintenance, by-law enforcement, implementing crime prevention strategies and initiatives, etc.

With respect to public transport, initiatives involving the planning, design as well as management components could be employed to reduce crime.

3.5.2.6 Funding of Public Transport

During the pre-July 2006 era the Regional Service Council (RSC) levies were an important source of revenue for district municipalities. By definition, “RSC levies” is a system of channeling resources to collapsing townships and the redistributive capacity was based on their access to additional income stream which were based on two new taxes on businesses – an establishment levy on turnover and service levy on wages. With this financial muscle, the district municipalities were able to fund and influence prioritization of projects by local municipalities and monitor the implementation of projects identified in the IDPs. In July 2006, following a widespread criticism of this tax instrument, it was repealed because it was urged that RSC levies were largely inefficient, inequitable and poorly administered tax instrument. The current funding of districts comes mainly from transfers (equitable share allocation and conditional grants) with limited service charges of those municipalities with water authority. Without this revenue source, districts now have to plan, budget and operate on the basis of allocations from national government (*National Treasury, 2006:19*).

Considering the financial health of various levels of governments, it is evident that the SDM now has to plan, budget and operate on the basis of equitable share allocation and conditional grants from national government. However, these sources of funding are not adequate to address all the service backlogs in the

SDM settlements, especially in the light of the phasing out of the RSC levy. From a public transport viewpoint, Mezghani (2005:24) indicated that this part of research outlines the connection that exists between quality and financial performance as a result of the impact of quality on the system's revenue and operating costs. The idea is that quality management does not only bring extra users (and revenue) in the system and increases the willingness to pay for the service provided, it may also result in improved process and reduction of non quality costs. However, poverty is not only problem at the individual level, but also in the public sector, with cities and transport system desperately lacking the necessary financial resources for investment in infrastructure, vehicles, new technologies and fare subsidies.

Affordable public transport is one of the key quality determinants of public transport. Similarly, subsidizing the transport costs of the end-user is a major pro-poor policy. As such the ITP policy to use subsidization of public transport to provide basic levels of mobility for all the Sedibeng citizens is supported by the *SDM Pro-Poor Policy* (2005). The *National White Paper on Transport Policy* (1996) redirects the thinking that no household should spend more than 10% of disposable income on transport. The *Gauteng Household Travel Survey* (2007) also found that 17% of public transport users in Sedibeng belong to households who spend more than 20% of a monthly income. To achieve the *National White Paper* (1996) vision, the existing annual subsidy needs to be increased and minibus taxis would need also to receive subsidy as the most mode of transport used by the Sedibeng commuters. For bus subsidies, *Gauteng Integrated Public Transport Network* showed that there are 149 buses on tendered contracts in SDM, on the other hand these bus contracts in the District account for 8% of the daily subsidized bus passengers in Gauteng Province excluding the municipal bus service (16 466 passengers) and about 4% of the total bus subsidy expenditure in Gauteng (R51, 006, 353.05). At this stage the responsible authority for subsidized bus contracts is the Provincial Government, but this responsibility would be devolved to the District if a Transport Authority (TA) is established. Similarly, no

government level has any dedicated taxes whose proceeds would be automatically earmarked for public transport. Thus financial support for public transport is tenuous at every level, depending on annual budgetary appropriations. With critical shortages of revenue at every government level, public transport must compete each year with many other urgent needs for public funds.

3.5.3 PUBLIC TRANSPORT INFRASTRUCTURE

Public transport infrastructure is a critical component to the supply chain of providing an effective, reliable and quality public transport system. It further refers to both quantitative and qualitative feature of the urban environment that supports the movement of people within the District. Hence, the fundamental premise is that effective and efficient transport infrastructure is seen as an essential requirement for economic development and growth. For the purpose of this research, “*infrastructure*” as defined in *chapter 2*, supports quality of life and is the foundation of a healthy economy. Inadequate infrastructure is a major hindrance to the operation of public transport services, and a cause of danger and discomfort to the users. In this context, the *White Paper on National Transport Policy* (1996) calls for the development and maintenance of transport infrastructure and priorities its development in accordance with sustainable economic and development principles. It indicates that this should happen within the context of a sound financial base. In fact, these interchanges are public transport infrastructures that must be researched and designed with great care if they are to be a success. Targeted infrastructure investment in railway stations, bus termini, taxi ranks and roads within SDM are discussed below.

3.5.3.1 Interchanges

Within the intent of this study, relevant public transport authorities should ensure that all the interchanges are built in a manner that makes them convenient and also to ensure effective pedestrians and cyclists linkages from interchanges into

the urban precincts. In this case, interchanges will be discussed as the railway stations, bus termini and taxi rank within the SDM jurisdictional areas.

- **Railway Stations**

Stations are seen as the primary interface between commuters and the rail system. As such, they present the gateway to rail and it is imperative that these facilities meet FIFA standards in terms of information, security and environment. Reliability and quality are key fundamentals of high quality rail operations. The SRCC identified the need for the development of a *National Rail Passenger Plan* at the end of 2004. This plan aimed at giving strategic direction to the development of commuter rail. It identified that rail transport infrastructure and service level have deteriorated to such level as to threaten the future existence of this strategic national asset and that a major effort would be required to turn the business around. *SDM ITP* (2004:132) articulated that within the jurisdictional area of SDM is served by sixteen stations. Some of these stations offer ticket sales facilities while others are utilized as halt and do not have ticket sales facilities.

Since the rail planning function is a national competence, MetroRail, a business unit of Transnet Limited, operates rail commuter services within the area of Sedibeng. The one service is from Vereeniging to Joburg and the other service is from Vereeniging to Germiston via Meyerton. The former is operated on a SARCC line while the latter is on Spoornet line respectively. Similarly, in SDM upgrading of the rail infrastructure lies with Intersite Property Management which is a property wing for the SARCC. In addition, regional rail plans have been developed in consultation with Provinces and Metropolitan Authorities taking into account strategies set out in the metropolitan authorities' Integrated Transport Plans. These plans quantify the specific infrastructure and rolling stock intervention. The *2007 – 2011 SDM IDP* has a flagship project for urban regeneration and precinct development in redeveloping Taxido Junction and

Vereeniging Station into a multi-modal public transport facility in partnership with SARCC or Intersite Property Management.

- **Bus Termini**

Bus transport differs from rail transport in that it is more flexible. In this of this study, the quality of the public transport system specifically focuses on the public transport termini and stops. In the same context, there is a range of bus termini which constitute a crucial component of any transport system and provide support to transport development. In addition, though the bus operations have fixed routes and schedules, they have more frequent stops within the study area. The earlier reported experiences explained the increased use of buses in Sedibeng.

In the same breath, many bus stops are poorly marked and causing potential traffic hazards and there are no waiting facilities within the District. There is also a considerable concern about the danger of traffic accidents given the location of some bus stops and close proximity of vendors' stalls at key transport intersections. Furthermore, they provide inadequate protection against the sun and heavy rain. Although, drawing from literature indicated that less is known about bus ranks, holding areas and their stops within the jurisdictional study area. To this end, the increased bus volumes provide initial capacity ranges that are suitable for general planning purposes.

- **Taxi Ranks**

Public transport interchanges such as taxi ranks constitute a crucial aspect of the public transport system by enabling travellers to undertake a wide range of trips in a convenient and pleasant manner. In terms of the taxi ranking facilities, the *2002/3 Current Public Transport Record (CPTR)* cited that there are approximately forty-four (44) mini-bus taxi ranks operating within the area of Sedibeng. In this case, of these taxi ranks only five (5) are considered as formal while the remaining taxi ranks are informal. There are also a large number of

unknown mini-bus-taxi stopping places that are used as ranks for some part of the day. Drawing from the literature indicated that these formal ranking facilities are generally better developed in the major employment nodes such as Vereeniging, Vanderbijlpark, Sebokeng, Meyerton and Heidelberg. It is envisaged that an audit of these existing minibus-taxi ranks should take place to assess their state of readiness to accommodate the new mini/midi-buses. In July 2008 such an audit of the District's Taxi Ranks took place to assess the state of the formal public transport facilities, and found that none of the four formal facilities were fully ready to accommodate some of the recapped vehicles (*see Appendix D*). The study did not assess in detail the extent to which each facility would require upgrading, but assumed that when any facility was considered for upgrading, a detailed assessment and costing of the elements affected would be carried out. With regard to the provision of new facilities, a "*Report on Control and Management of Public Transport Facilities*" (2006) ensures that the future development of all public transport facilities provides for recapped vehicles. As these vehicles are introduced onto the District's routes, affordability for passengers should also be monitored.

▪ **Management of Public Transport Facilities**

The management of public transport facilities by various stakeholders is crucial aspect of its day to day functioning. This is another aspect that must continue to be studied in great depth. In this point, some of the challenges the SDM experience as it continues to provide new public transport facilities. These concern the appropriate procedure to designate facilities, allocation of facilities, the management of facilities, and how management and maintenance can sustainably be finances. The procedures about how to designate facilities either on-street, off-street or on privately owned land and consultation processes before deciding on the allocation and the nature of facilities have been developed and approved by the Council.

Regarding allocation of facilities to operators, a “*Policy on Control and Management of Public Transport Facilities*” (2006) referred to above has already been developed and approved by the Council. The thrust of this policy is the process of allocating ranking space in new facilities should be built into the planning stages for the facility. Prior to detailed design, an agreement can then be reached and signed about the operators that will be entitled to use the facility once it is built. The management of facilities and user agreements with operators, requiring the payment of user fees which has presented mayor challenges to the District. The Directorate: Facilities Management is primarily responsible for the cleaning, maintenance and refurbishment of the ranking termini and informal trader facilities. Although it was found that in many instances cleaning and maintenance was undertaken without sufficient funding and manpower. Comparably, the public, business and media increasingly complain about the negative impact of some of the prevailing conditions at the toilets. In this note, theft and vandalism are among the biggest challenges to the upkeep of facilities. Notably, the Directorates: Public Transport and Infrastructural Planning, Facilities Management together with users of the facilities will investigate the effective and efficient management of ranks. The choice of a model will depend on the nature of the rank and its needs, which will differ between ranks across the District.

▪ **Intermodal Facilities**

In line with *Public Transport Action Plan Phase 1 (2007 – 2010): Catalytic Integrated Rapid Public Transport Network Projects* the District has identified key intermodal facilities to be upgraded that originated in SDM. As a result of this, *Appendix E* shows both the *SDF* and “*A Draft Report on Identification of Intermodal facilities*” (2008) identified the below-mentioned public transport facilities for upgrading as precincts or economic hubs:

- Vereeniging Taxido Junction
- Vanderbijlpark Taxi Rank
- Bophelong Taxi Rank

- Motlalepula Taxi Rank (Sebokeng Plaza)
- Mpumelelo Taxi Rank (Devon)
- Residentia Station
- Stretford Station (on the border of SDM and City of Joburg)

The focus by the District is to provide additional facilities that may be needed and to improve the environment in which public transport services (rail, bus and taxis) operate. “*The Turnaround Strategy for the Taxi Rank (SDM IDP, 2008)*” provides a framework for the Council’s policies and activities relating to public transport provision. This strategy is based on consultation with key stakeholders and alignment with the overarching framework the Council’s IDP. This strategy establishes the Council’s vision for maintaining and enhancing Sedibeng District Municipality (SDM) as a safe city for public infrastructural provision. The advantage of concentrating the public transport in one precinct is to allow the SDM to create a specialized environment in the area for passenger and operator needs – luggage storage and integrated transport information and passengers would have a full range of choice of mode and different service quality and price. Noting the above need, as part of the overall planning process consideration for integrating NMT into multimodal facilities for upgrading have been lacking due to the quiet nature and lack of knowledge of bicycle and pedestrian modes, in particular.

3.5.3.2 Road Infrastructure

Within the road sector there is a need to not only preserve existing primary and urban road networks, but also to expand networks to cover rural communities and previously unserved black townships. *SDM Pro-Poor Strategy* (2005) indicated that in general the state of transportation infrastructure is good although there is empirical evidence to suggest that there is a gradual decline in the condition of road infrastructure. In addition, the *SDM Spatial Development Framework (SDF)* (2008) also emphasized that there is a lack of alignment in infrastructure and

development planning. This *SDF* further highlighted that the national roads and freeway network in Sedibeng ensures good regional accessibility and links the District to all major centres in Southern Africa. In this scenario, these major networks include the N1, R59, N3 and N17. In this perspective, the north-south road network which links with Joburg, Ekurhuleni, Metsimaholo (Sasolburg area) and west Rand is stronger than the east-west linkages. Additionally, other prioritized list of regional roads for urgent development in line with *SDF* includes R82, R59, K11 and R42.

Notably, *SDM SDF* calls that there are a large number of roads within historically disadvantaged areas which are in poor condition requiring upgrading and regular maintenance. *SDM Pro-Poor Strategy* (2005) also confirmed that the road infrastructure in rural, marginal and low income areas such as Sebokeng, Evaton, Sharpeville, Boipatong, Bophelong and Ratanda are in poor condition. It has been estimated that 14 000 households in Sedibeng are without adequate roads. In this context, the Evaton Renewal Programme and Gauteng Premier's Top Twenty Township Programme in Sebokeng, Evaton, Sharpeville, Boipatong, Bophelong and Ratanda aimed to upgrade roads; storm water and engineering services; identify development corridors in order to provide high order social facilities and services to enhance the quality of roads.

3.5.4 URBAN PUBLIC TRANSPORT FOR SPECIAL NEEDS

The public transport system has generally paid very little attention to the needs of passengers with disabilities, and many are excluded from traveling by a combination of design barriers, prohibitive discomfort and unaffordability. The *SDM* is under a legal obligation to improve public transport accessibility. Its accessibility strategy is to provide increased mobility, access and to transport for passengers with special needs. In deciding on the focus of this strategy, the District has to decide whether to prioritize the integration of people with disabilities by mainstreaming public transport more accessible.

Through the above gradual awareness, *Sedibeng Growth and Development Strategy (SGDS)* (2007) cited that the most prominent disability in Sedibeng is sight-related, followed by people with physical disabilities who are mainly located in Emfuleni. Also, the needs of the physically disabled are not recognized and there is a need to address accessibility for this segment of the population. In response to this, the District has to provide a dedicated service such as *Dial-a-Ride*. In addition to this, the most effective path seems to adopt a “*Family of Service*” approach which recognizes the diversity of needs among disabled passengers, and that a variety of transport solutions are needed to serve their needs. In this context, Hemily (2004:27) indicated that this provides transit system with the flexibility to address the different needs of, for example, commuters vs. the eldest seniors. The aim would be to prioritize improvements to selected mainstream public transport corridors, served by rail, bus or taxi modes, and doing it in such a way that improvements to vehicle, infrastructure, street crossing and operations all work together to deliver actually accessibility to key origins and destinations along the corridor.

3.5.5 URBAN PUBLIC TRANSPORT STAKEHOLDERS

Establishing partnership between stakeholders to tackle and improve the public transport system would offer considerable potential, but much depends on whether there is sufficient trust; transparency, professionalism and capacity to carry the initiative forward. To improve the communication between the stakeholders, forums are required to bridge the gap between various parties. Stakeholder collaboration could be achieved by the formation of owners’ association for operators to co-operate on raising standard; users’ association in which users could formulate a voice to both operators and regulators, and stakeholder forum through which all could exchange views and experiences. It also enables inclusiveness to be developed, giving a voice to the poor, disabled, women and other disabled group (Sohail *et al.*, 2003:34). In addition, attention was drawn to the fact that users, operators and regulators should recognize that

they all have a vested interest in ensuring that the provision and quality of public transport service remains on the policy agenda.

Part 12 of the Gauteng Public Passenger Road Traffic Act (GPPRTA) (No. 7 of 2001) urged the MEC to recognize groupings of users or operators of public passenger road transport services, or drivers of vehicles used for such services, such as Metropolitan Taxi Councils, for the purpose of this *Part*, as being representatives of users, operators or drivers. In addition to the forums and committees established by this *Part*, the MEC may prescribe the establishing of the similar structures, either to represent a particular public passenger road transport mode, or a group of such modes. Furthermore, both *Section 90* and *91* of the same Act (*GPPRTA*, 2001) empowers every metropolitan and also every municipality other than the metropolitan authority to establish both the Metropolitan Transport Forum and a Local Taxi Liaison Committee in respect of its area of jurisdiction or for defined areas within that area. In this case, the main thrust of these establishments is to act as a liaison between the relevant planning authority and the public passenger road transport industry.

3.5.5.1 Regional Public Transport Stakeholders

Within the jurisdiction of the SDMs partnership has increasingly been pursued to meet the objectives of promoting better co-ordination between spheres of government and other stakeholders. To explore this possibility, the key objective is to attain the integration of different modes of transport to improve the efficiency of service delivery and comfort for commuters. In Sedibeng there is a Regional Transport Forum (RTF) chaired by the MMC: Transport and Infrastructure while the Taxi Liaison Committee (TLC) as per mode as well as the Regional Commuter Organization which is chaired by the officials on rotational basis and they are currently dysfunctional. Therefore, adding mechanisms for citizen involvement and strategies to push for needed policy change at higher levels may further increase the District's capacity to restructure to meet the needs

of its diverse constituents. Another view of community involvement is that of citizen in transportation planning and service activities, demonstrates Sedibeng's commitment to a participatory planning. However, designated groups, especially people with disabilities as well as Drivers' Union are not represented in these structures. Beside this, these structures do not meet regularly to formally identify and discuss other transport needs and requirements in all SDM jurisdictions. Although these structures do not have final decision-making powers, they nonetheless submit recommendations to the Mayoral Committee. In noting the above, the MMC sometimes chaired the above structures (Taxi Liaison Committee and Regional Commuter Organization) such action is in contrary to the current prevailing legislation. The most remarkable example is demonstrated by Hologram Research in a document titled "*Political Administrative Interface*" a data from this study reveals that appointment of full-time Councillors is problematic, as they tend to intervene in administrative matters. Furthermore this study also indicated that full-time Councillors are so desperate to do something that they end up concerning themselves with administrative matters. Notably, there is also a duplication of powers and function between the District and local municipalities within the jurisdiction of the study area. In addition, authority for transport matters corresponded to the local councils, which led to considerable differences due to the diverse range of criteria applied as well as available resources. In this situation, some local municipalities convene their own transport related meetings without involving the District; this is evident especially at Emfuleni and Midvaal. Yet, in the existing legal and regulatory context that the management of public transport operations is the competency of the District.

3.5.5.2 Intergovernmental Transport Forums

The relationship between the SDM and the Provincial government is governed by the *Gauteng Inter-Governmental Transport Charter*, which was signed in October 2006. The Department of Transport and Infrastructure Planning and the Provincial

Department of Public Transport, Roads and Works meet under the following working groups:

- Gauteng Intergovernmental Transport Forum – to jointly discuss transport-related policies in the Province
- Gauteng Strategic Consultative Committee – to *inter alia* promote liaison and co-ordination of transport related matters that are of joint significance
- Technical Working Teams, which are inter-governmental working, structures viz.:
 - Transport Governance Technical Working Team
 - Transport Planning Technical Working Team
 - Transport Infrastructure Technical Working Team
 - Transport Investments Technical Working Team
 - Public Transport Technical Working Team

The SDM through its Directorate: Public Transport and Infrastructural Planning also engage with the National Department of Transport on the planning and implementation of its projects.

3.6 TQM INITIATIVES IN URBAN PUBLIC TRANSPORT OPERATIONS

TQM needs to gain ground rapidly and become a way of life in many organizations. In order to provide better quality service, to deal better with fiscal stress and to improve efficiency, a growing number of city and country governments have adopted quality-oriented management process. However, TQM cannot become a way of life in organizations as each organization has molded it (TQM) to fits its particular circumstances and needs. Time is needed in order to integrate the appropriate quality principles and techniques into the culture of the organization (Psychogios, 2007:1). In this article, “*Top Quality Transportation Through Deming’s Fourteen Points*”, Bhimaraya A. Metri indicated that

transportation organizations have not followed the lead of manufacturing or other services in adopting TQM. He further calls that quality has become an important competitive strategy in the job market. In the near future, due to World Trade Organizations agreements, globalization and competitiveness, transport organization have no choice other than adopting TQM for their survival.

3.6.1 TQM PRINCIPLES IN URBAN PUBLIC TRANSPORT OPERATIONS

This section is intended to contribute to the understanding of the relationship between TQM and urban public transport operations. On a positive note, there are certain TQM principles which can be implemented to secure greater market, increase profit and reduce cost. Hence, these key principles most commonly found in TQM literature. In their close examination, the researcher connects and links them to urban public transport operations within the focus of this study as follows:

3.6.1.1 Customer Focus

As earlier noted, TQM is an organizational philosophy that stresses meeting customer requirements and expectations the first time and every time (Kline & James, 1992:2). In an article entitled *“Top Quality Transportation Through Deming’s Fourteen Points”*, Bhimaraya A. Metri indicated that the customer is the most important part of the transport service. Customer demands are always changing. It is mistake to presume that services offered at present can keep an organization solvent and ahead of competition. The *White Paper on Transformation of Public Service Delivery* (1997) signalled very strongly government intention to audit a citizen-approach to service delivery, informed by the eight principles of *consultation, service standards, access, courtesy, information, openness and transparency, redress and the value for money*. The above *White Paper* values entrench a culture which values the ideal of *“putting the people first”* to ensure that Batho Pele is woven into the very fabric of SDM.

A Strategic Agenda for Transport in Gauteng (2006) in promoting Batho Pele in Public Transport and meeting customer needs calls for the strategic objective to meet customer needs in terms of affordability, convenience, safety, comfort and choice of transport services.

It further insisted that this should involve that transport plan and operations meet the needs of commuters and passengers through consulting and involving them by ensuring that Batho Pele principles are adhered to in all aspects of service delivery. Yet, the TQM application in Sedibeng is gradually gaining recognition as an innovative managerial tool to empower employees and to provide quality service to citizens by emphasizing the slogan “*putting people first*” Similarly, in the District by focusing on people first - in particular, on employees, passengers and people in the community. To explore the customer focus further, Blumner *et al.* (1998:15) postulated that TQM focuses on the needs and wants of two types of customers: “internal” customers – the next people down the line in the work process – and “external” customers – those who purchase or utilize a good or service. Blumner *et al.* (1998) further indicated that TQM seeks to improve the quality of both internal and external customers goods and process by identifying the type and quality of goods desired by both and providing what each customer wants. In this perspective, Barnett (2003:1) defines user satisfaction as the ultimate requirement that everyone must strive to meet whether the user is an internal or an external customer.

- **Internal Customers**

To promote the notion of “*putting people first*” and principles of Batho Pele, for the purpose of this research, internal customers of the SDM are political office-bearers (MMC’s), management and labour. Hence, TQM believes that workers are assets to be developed rather than a cost to be controlled. In addition, *TCRP* (1993:15) reinforced that their values must be protected and enhanced. This means training employees to identify and solve problems that cause customer

dissatisfaction. Thus, to effectively implement a TQM program and achieve the paradigm shift required for success, training is essential (Blummer *et al.*, 1998:15). In this research, empowering employees to take decision to satisfy customers; and recognizing employees for their efforts and contributions that improve performance. In term of the *TCRP Report 8 in 1995, Quality Journey: A TQM Roadmap for Public Transportation* systems, procedures and responsibilities are transformed to support the employee's desire to serve passengers and the community. In this case, TQM creates an environment where employees are proud for their work. Again, Joubert (2002:44) indicated that teamwork inevitably leads to easier identification and resolution of problems as more people take interest in the entire process. To this end, it implied that empower employees by giving them the authority to do what it takes to satisfy customers.

- **External Customers**

The external customers are known by Bain *et al.* (2000:1) as the “outside-in” concept which involves looking outside the organization to understand citizens’ and key stakeholders’ views and needs and to respond by developing policies and programs that reflects these needs and expectations. Literature review indicated that the transportation organization’s highest priority must be to provide the best transportation services to its community at the lowest cost possible. This study sets an important context to begin engaging external customers in the Council decision-making process. By so doing, the SDM can achieve productive relationship with external customers. To a large extent, key public transport stakeholders are Owners’ and Users’ Associations as well as the Drivers’ Union in order to meet the access and mobility needs of the Sedibeng communities and ultimately, the quality of service provided. To addresses the link between employee and customer satisfaction, then one solution should be to customer: surveys, complaints’ data, feed-backs and other systems for testing level of employee satisfaction as an early warning for the levels of customer satisfaction.

Bearing this in mind, another very important consequence emerged from the customer focus point of view as part of the vision for the Department of Public Transport and Infrastructural Planning is an organization that operates from outside without taking into account its employees. Furthermore, it is an envisioned District that focused on core business by ensuring quality service to the public not to its own asset, namely: employees.

3.6.1.2. Worker Involvement and Empowerment

Numerous writings result in identification of the TQM principles, indicated that the most commonly found in quality literature involve everyone in an organization. As previously discussed, Powell (1995) points out that it is widely accepted that the increase of employee participation in brings an increased flow of information and knowledge and contributes in the distribution of intelligence to the bottom of the organization for resolving problems. Bhimaraya A. Metri (<http://www.nctr.usf.edu/jpt/pdf/JPT%209-4%20METRI%pdf>. 09.11.2007) cited that everyone working in a transport corporation can find ways to promote quality and efficiency, to improve all the aspects of the transportation system, and to promote excellence and personal accountability. In addition, *TCRP Synthesis 71: Paratransit Manager's Skills, Qualifications, and Needs* (2007) found that employees expect to be heard; to be involve in carrying out the organization's mission; and to work in a culture of inclusion, respect and appreciation. Similarly, consistent open communication – upwards, laterals and downwards – is critical to employee's feeling that there is part of the organization. At SDM, the relationship as well as communication between management and operational staff is poor and the two groups are not on speaking terms except for absolute required interaction. In another study, management stresses an open-door policy and values partnering with employees to solve issues of concern. Yet, in SDM there is an open-door policy but senior management are too position conscious and their overall commitment is driven by a philosophy of a protocol. On record, to date the

Executive Director only held two staff meetings. In this case, how employees will raise their workplace concerns?

TQM may empower employees by delegating functions that were previously the preserve of more senior organizational members and as a result institutionalize participation on a permanent basis (Hill, 1991; Vouzas, 2004). In this case, in SDM an employee is empowered by attending senior management workshop only as a substitute and not to transfer skills permanently. Similarly, situations are encountered especially if they were prior reservations without any option for cancellation. In addition, (Hill, 1991; Vouzas, 2004) were no incentives for promotional position in the Department of Transport and Infrastructure Planning during reorganization process. To this end, becoming a quality organization SDM established organizational teams at the level of management, but at divisional level such teams are dysfunctional. Such a team converged when a need arises for a required interaction.

3.6.1.3 Cultivate Organizational Learning

Becoming a learning organization is an ongoing journey. It is about making learning part of what is done in the workplace on a daily basis. Early in implementation of the TQM initiative, it became clear that a strategy for identifying learning needs and gaps would be required to support its successful implementation (Bain *et al.*, 2000:17). As earlier noted, Blumner *et al.* (1998:15) cited that to effectively implement TQM program and achieve the paradigm shift required for success, training is essential. Similarly, Oakland (1989:263) holds promise that quality training must be continuous to meet not only changes in technology, but also changes involving the environment in which an organization operates, its structure, and perhaps most important of all people who work there. Study findings from a *TCRP Synthesis 71* (2007) cite customer/client is one of the skills aspiring managers has to possess. In turn, this means that those managers need to understand the customer, have sensitivity to passengers, and focus on the

customer service. In the same, *TCRP Synthesis* (2007) TQM was the most requested additional skill that paratransit manager should have to improve his or her effectiveness. The SDM is an institution borne out by the receipt of the 2004 Gauteng Vuna Award. In this circumstance, this award has developed, offered and helped SDM to make strides in increasing employees' sensitivity to and appreciation for working in a diverse workplace. This award modeled and engaged SDM to build organizational capacity for future assessment and continuous improvements activities of a quality learning organization.

- **Management-Development Training**

A *TCRP Report 77* (2002) found that Management-development training is one resource for helping managers develop skills needed to make employees feel they are getting the support they needed to perform their jobs well. In a number of instances, SDM began a partnership with institutions of higher learning wherein these universities offer courses at their facilities. In additions, these programs are especially beneficial to managers who to advance in the District to gain management and leadership knowledge and skill requires of managers and supervisors in the District. On this note, SDM provides an example of a District with a comprehensive management-development focus.

- **Employee Training**

Training staff help the transit agencies to transfer skills and also identify and address problems at early stage. The goal of diversity training are to encourage and promote harmony, to help employees to benefit from strength that comes from individual working together to create an environment in which differences are respected and recognized and encourage commitment to growth *TCRP Report 77* (2002:27). International literature reveals that several agencies have established onsite training programs much like the corporate-university approach to educating staff. The University of South Africa (UNISA) Centre for Applied

Communication was responsible for systematizing the SDM Report Writing Skills training effort. One of its principal objectives was to develop and implement a competency-based training approach and administer a curriculum of standardized courses aimed at levels of SDM employees.

3.6.1.4 Manage and Improve Processes

Alongside the basic tenets of TQM is to manage and improve processes which are an ongoing effort to improve mobility and quality of life. According to Oakland (1989), in order to maintain a wave of interest in quality, it is necessary to develop generations of managers who...are dedicated to pursuit of never-ending improvement. In addition, Juran (1988) noted that a quality improvement requires the establishment of a quality council, which is the driver, to ensure that improvement is continuous and never-ending. In public transport service, Mezghani (2005:22) argued that public transport authorities and operators need to be quite clear about their own field of responsibility and action. Any potential service improvement is in their hand. Furthermore, he indicated that they need to understand that it is their responsibility to provide better service and to promote the expansion of each mode in relation with its individual and collective advantages, disadvantages, costs and urged that the transportation organization must strive to maximize efficiency and effectiveness through constant improvement. He further said that quality can be built into all transportation activities and services can be assured by continuous examination to identify potential improvements. This requires close corporation between those who provide the service and those who consume them

Out of this collaborative effort, *TCRP* (1995:19) indicated that most organizations use Quality Improvement Team (QIT) to address improvement projects. Drawing from international literature on TQM in local government reveals that in Fort Lauderdale in Florida (USA), there are fifty teams looking at problems throughout the city. Some examples are street teams that look at the safety equipment in

vehicles, ensuring that the proper equipment is always present. Similarly, the forestry team is concerned with reducing mortality rate of newly planted trees (Kline, 1992:2). In supporting the operational mandate of SDM, there are no QIT who monitor those public transport operators (rail, bus and taxis) to comply in terms of satisfying the commuting public. At present, the departmental team consisted of two employee headed by the Manager who meet at randomly without adhering to a meeting schedule.

3.6.1.5 Manage by Fact

TQM encourages steady data collection and rational decision making based on data rather than on impressions or uninformed opinion (Blumner *et al.*, 1998:15). On this note, Kline (1992:2) argued that Governments have traditionally not sought data on the customer, beyond those issues that relate to productivity. In addition, they demonstrated that rarely do public servants go out and ask the customer what they want, or how well are doing. Given that one of the basic tenets of TQM is data-driven decision-making, we have had a great deal of trouble developing good data. From the transport service, with passage of the *White Paper on Transport Policy* (1996) and the *Moving South Africa: Action Agenda*, both place a premium on planning authorities to develop transportation plans and programs to accommodate mobility needs for persons and goods within their regions. In this case, planning authorities must estimate future travel demand and analyze the impacts of alternative transportation investment scenarios using travel demand forecasting models. These models are used to estimate how urban growth, proposed facilities and associated operational investments in transportation policies will affect mobility and the operations of the transportation system. In this case, the *Transportation Research Board (TRB) Special Report 288, Metropolitan Travel Forecasting: Current Practice and Future Direction* (2007) indicated that the forecasts derived from these models enables policy-makers to make informed decisions on investments and policies relating to the transportation system. Furthermore, this *TRB Report* found that many

Metropolitan Planning Organizations (MPOs) have inadequate data to support their modeling process.

In noting the above, as the suburban areas expand and the suburban population grows, it is increasingly apparent that the traditional public transport service will not be suited to meet suburban mobility and accessibility in SDM. Similarly, traditional fixed route may not meet passengers' mobility and accessibility needs. For this reason, because of the age and unsuitability of the existing District's 2002/2003 *Current Public Transport Records (CPTR)*, the lack of land-use data and travel patterns of the service area, the operational characteristics of the public transport service and the service's performance in a District-wide. Consequently, these inhibit senior managers and politicians to respond and represent the dynamic conditions for the efficient and effective public transport operations in SDM. From this perspective, *CPTR* is concerned with the collection of information about existing ridership volumes in relation to the supply of service quantified. To this end, the information required dealt with public transport capacity and capacity utilization of different public transport modes.

3.6.1.6 Improve Labour – Management Teamwork

For Kursat & Calicchia (in Blumner *et al.*, 1998:14) TQM represents a shift in management philosophy from autocratic hierarchical decision-making structures to flatter organizational structures and shared decision-making responsibility. In addition, the above authors further emphasized that TQM programs typically establish formal structures such as labour-management committees for sharing decision making between managers and front-line employees. Notably, a *TCRP Report F-3* (1994:15) argued that in many transit agencies, more attention is paid to the arbitration of grievances than working together to improve performance and satisfy customers. Hence, the recent *TCRP Report Synthesis 47: Corporate Culture as the Driver of Transit Leadership Practices* (2003) heighten the importance of positive labour-management relations to the effectiveness of a public transportation system. The empirical evidence on this report concluded that

the transit industry is one of the most heavily unionized industries in the United States, in this case, this study did find that labour-management partnership that emphasize collaboration in retaining employees were beginning to take hold. Another *TCRP Report 2* (1997:7), also indicated that a changing labour agreements can be a difficult and long-term task that requires a development of trust between management and organized labour. However, by creating forums for communication and participatory decision making, SDM enhances its ability to identify and implement programs for service improvement. At the level of both the District and three local municipalities, Local Labour Forums (LLFs) are being held inclusive of the major stakeholders such as management, elected officials and the labour.

Prior to the implementation of the internal restructuring process, this research found that these cooperative workplace structures have improved communication and broadened participation leading to a greatly improved labour-management relations and employee morale within the District. By profiling local governments where internal restructuring process and organizational cultural change has been enhanced, it is evident that Lesedi Local Municipality experienced a crisis which led to an uneasy even hostile environment between management and labour. As a result, lowered employees' morale and fears about job security has led to eleven week industrial strike which has resulted in significant negative effects on the potential for co-operative relationship. Under these circumstances, in Sedibeng resistance to co-operative practices is substantial since many fundamental decisions about organizational structure and work processes remain in the domain of upper management. Elected officials have been hesitant to accept the political risks of instituting change due to rigid budgeting and fiscal crisis. In turn, employees' felt betrayed by their own union representatives who use this process as a stepping stone to grab newly anticipated positions. Notably, in the District-majority of employees refused to sign performance agreements and acceptance letters for new positions and job titles. By so doing, they perceived to put their jobs in jeopardy. Similarly, in the Cluster: Transport, Infrastructure and

Environment in general and Department of Transport and Infrastructure Planning in particular, this process has been a ploy to weaken labour and service delivery quality has been compromised and this was commonly cited drawback to programs such as TQM.

3.6.1.7 Lead the Change in Organizational Culture

With the publication of the *United Nations New York Report, 2003: Leadership and Social Transformation in the Public Sector: Moving from Challenges to Solutions*, the United Nations gave voice to a growing body of research on the design and implementation of the public service leadership programme. This paper acknowledged that leadership is clearly one issue that public sector organizations have to realistically address if they are to survive and succeed in today's environment. The public sector in particular needs a corps of individuals who, while operating within the framework of the rule of law, are able to apply visionary leadership skills in tackling extraordinary difficult challenges. In addition, Thompson (2005:168) indicated that leaders are responsible for creating a culture for quality. Apart from visible actions, they are responsible for making sure that employees' work is interesting. In this case, the organization's quality of work-life is an important responsibility of managerial and administrative leaders.

In this respect, Psychogios & Priporas (2001:42) explore the concept of TQM as both a philosophy and a set of management guiding principles for managing an organization. This implies top management commitment and support. Accordingly, in Sedibeng the Executive Director: Transport, Infrastructure and Development as the accounting officer for this cluster has to take charge personally, lead the process, provide direction and exercise forceful leadership. At the same time, leadership must exist at political level as well, MMC: Transport and Infrastructure as the political head must also create appreciation among constituents to get political support and backing of other MMCs in his portfolio committee. In this scenario, with his team of senior managers, the Executive Director need to define the quality objectives of the organization to provide

direction, clarity and to communicate these continually within the organization. The portfolio committee, in turn, must be fully committed to the senior management to take the risk of being change agents within SDM.

- **Organizational Change**

A clear message from a *TCRP Report 21* (1997) is that as a leader and change agent, the general manager also must reinforce and motivate employees who fear to learn new ways of doing their jobs. Leadership also must be sustained for change to become institutionalized. A change in leadership can also mean a change in direction. In reality, Sinclair & Collins (1994) support the view that culture acts as a force for cohesion in organizations and therefore can support or inhibit the process of change towards TQM applications. In this respect, Farazmand (2002:12) cited that the culture of TQM is a comprehensive one, integrated, holistic and philosophically embedded in the basic assumptions of the organizational culture that believes in, and promotes, that quality culture not only in its manifest words but in deeds and actual product and services.

Early in its organizational redesign process, SDM committed to a strategic planning process as an integral design of its quality approach with the focus on a close organizational re-alignment of the District. This new era of transformation has gone beyond that level of change to a rethinking of basic principles. In instilling quality service into the SDM culture had to really come to mean reorganizing and redesigning the District and its process at the most fundamental level. This restructuring process is a result based approach to continuous improvement linked to business planning, individual performance contracts and performance pay. It has set goals for the District to improve public satisfaction and becoming more “customer” focused with SDM services. While the scope of discussion for this research lies with the Transport, Infrastructure and Environment cluster, the emphasis is on the Department of Transport and Infrastructure Planning which is charged with providing public transportation services in the District. When examined closely, this cluster moved aggressively

to implement this change agenda. In this case, the Departments of Technical Services and Environment were decentralized by creating two new directorates, Directorate: Transport and Infrastructure Planning and Directorate: Environment. The Manager: Technical Services position was eliminated and automatically become a Director: Transport and Infrastructure Planning while a newly created Director: Environment position remains vacant.

On Divisional level, both Assist Management positions for Transport and Project Management were absorbed, then Assistant Management: Transport was placed under a new position Manager: Transport and Infrastructure Planning. Not surprisingly, the Transport Operations Division consisted of two positions for Senior Technical Assistants: Taxis, Urban and Rural Planning had been phased out, subsequently replaced by a new job title, Professional Officer: Public Transport Co-ordination managed and headed by both Manager and Director: Transport and Infrastructure Planning, respectively. Again, there was no available operational position for Senior Technical Assistant: Urban and Rural Planning, it is currently placed with a new position Assistant Administrator: Taxis in the Directorate: Facilities Management. On its own, this fundamental change is still a challenge to SDM. Towards this end, the journey is not yet finished, but the District has laid a firm foundation for the changes the SDM could move forward.

3.6.2 IMPLEMENTING TQM

TQM represents a participatory decentralized approach to quality and productivity approach. Nevertheless, the emphasis for the TQM style of management must begin at the top and must be embraced empathetically and in detailed fashion (William, 1993:27). Earlier on, *International Organization for Standardization (ISO)* reinforced that “TQM is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society”. Indeed, Farazmand (2002:7) points out that the public sector has done this and moved towards a more output-oriented, customer-

focused approach to service delivery. Furthermore, he criticized that output orientation is not enough in government, it must be quality-outcome orientated. In this scenario, he argues that the application of TQM is a long-range process, with challenges and opportunities.

The government provides challenge in implementing TQM because of problems in securing commitment in the context of political turnover at executive level, problems of identifying customer, problems in measuring outputs and product, personnel systems that limit empowerment and use of teams. Once TQM is identified as a solution, the government must take steps to accept it as a guiding philosophy. Thus far, indicated that implementation of TQM can now have profound positive effects William (1993:30).

3.6.3 TQM TOOLS AND TECHNIQUES

The quality management literature provides a wide range of quality management tools, techniques and systems. Some of them are quite simple, while others are more complex (Psychogios & Priporas, 2007:42). On this point, Kline (1992:2) cautioned that because many of these tools were developed in manufacturing or production-orientated organizations, not all are fully applicable to other solution, such as service-orientated groups and government operations

3.6.3.1 Statistical Process Control (SPC)

Goetsch & Davis (2001) defined SPC as a statistical method through which managers can control the production or the service delivery process, in order to make shifts attempting to improve it. Similarly, Bhimaraya A. Metri in *“Top Quality Transportation Through Deming’s Fourteen Points”* view that organizational environment in which statistical method will be effective intended to create strong management commitment to quality, process design, and control through statistical tool, continuous search for and correction of quality problems. that organizational environment in which statistical method will be effective

intended to create strong management commitment to quality, process design, and control through statistical tool, continuous search for and correction of quality problems.

Flowing from the above, he (Metri, 2004) argued that lasting quality comes not from inspection, but from improvements in the system. From the public transport perspective, to achieve best economy and productivity, transport agencies should know what quality they are delivering. Importantly, organizations managers must be knowledgeable in the statistical control of quality. In this scenario, he cited that they must proceed under the new philosophy: *“the right service quality characteristics must be built in without dependence on inspection”*. Furthermore, he cited that this model is designed to remove all barriers to employee participation and teamwork. It stresses effective communication between supervisors and employees eliminate of numerical goals and quotas for employees, and company-wide training and education (<http://www.nctr.usf.edu/jpt/pdf/JPT%209-4%20METRI%pdf>. 09.11.2007).

3.6.3.2 Customer Surveys

A *TCRP Report 8* (1995) points out that an established customer focus early in a quality journey can help employees “feel good” about themselves. In this report, to establish a customer focus is to have employees develop and conduct customer surveys. In this case, Mezghani, (2005:55) cited that the overall quality of public transport is composed of a large number of elements. In turn, these factors should be included in a quality index will depends upon local conditions. These aimed to define areas where customers or potential customers may have certain expectations or demands, where they can express a degree of satisfaction from the use of the service. However, another point of view is that the survey of transit agency staff shows an increasing supportiveness by local government at the city level has potential for promoting success at mobility management (*TCRP Report 21*, 1997: 10).

- **Employee Surveys**

The executive team uses surveys results to reinforce current strategy or to make adjustments that will move agency towards its strategic goals. A good example is demonstrated by Metropolitan Atlanta Rapid Transit Authority (MARTA), which conducted a random-sample survey of ten (10) percent of staff who had more than five years service. In this case, the most frequent responses were that employees like what they do, working relationships, management team and job security (*TCRP Report 77, 2002*). In this point, there are no employee surveys conducted at Sedibeng. As earlier reported, due to re-organization most employees have experienced greatest source of dissatisfaction and have shown a sign of low morale.

- **Community Surveys**

Generally all relations between the authorities and operators are a contract, and although no legal framework for quality in public transport exists, these contracts do include some quality standards relating to accessibility, availability, comfort, security, information, heating and lighting and driver behaviour. The inclusion of these elements necessary implies their follow up in terms of management and control. Furthermore, he calls that certain cities reported to have offices for complaints and regular customer surveys (Mezghani, 2005:48).

Although some elements of quality control are already present in the urban public transport, and more visibly in interurban public transport. At this point, it must be understood that the standard of quality control in SDM essentially depends on the relationship between the authorities and operators, as most public transport are not in the municipal ownership. In this view, SDM has to ensure compliance amongst public transport operators in the District-wide. In this case, Sedibeng relies on the passenger surveys conducted from various operators (rail and buses) to determine

the land-use characteristics and travel pattern of the service area, operating characteristics of the service and the services' performance in a range of the study area. In turn, these relationships provide guidelines that transit operators and policy makers may use to inform their decisions on where to operate service and what characteristics the service should have, given different expectations (*TCRP Report 116*, 2006).

3.6.3.3 Performance Management

The SDM has selected an electronic or computerized system called Strategically Aligned Management System (SAMS) for monitoring performance at both an individual and organizational level. The purpose of the SAMS system is:

- To assist in giving structure of the strategy of the organization
- To align the organizational structure to strategy development
- To manage the execution of the strategy, including strategy focused on people development management
- To provides feedback on current performance and to target future performance

Importantly, SAMS allows management to consider the required business outcomes on each organizational level, derived from strategic business objectives. These outcomes are allocated to relevant Departments elements for execution. Each activity, organizational element and individual – down to the lowest level in the organization – is aligned with the execution of key strategic goals. This approach ensures that individual performance is measure in terms of measurable contribution the objectives of the Organization. To This end, SAMS allows the SDM to specify key performance indicators for each outcome and to link these outcomes to the organizational structure.

- **Performance Appraisal**

SAMS provides the necessary Performance indicator and measurement results that are needed in both the Performance Appraisal (PA) process and the Performance Feedback process. The Performance Feedback (PF) process lets employees know how well they are performing against the standards of the organization

3.6.3.4 Balance Score Cards

SDM is responsible for ensuring that performance management systems are developed within its area of jurisdiction. To facilitate this process, a guide has been published entitled *SDM Batho-Pele Handbook* (2004). This handbook states that the Balance Score Card is a simple but extremely effective approach to providing customer satisfaction by concretizing organizational visions and missions in a balanced and measurable way; it stipulates that the SDM, including its local municipalities should attempt to develop an institutional scorecard covering the four areas of performance perspective. The following weights have been allocated to each of the four perspective of the Balance Score Card model:

- Service Delivery perspective
- Financial perspective
- People – Centered perspective
- Growth and Learning perspective

In this perspective, SDM has also linked SAMS to a model of the Balance Score Card to allow the objectives that have been entered into SAM to reflect organizational performance at a strategic level. SAM allows a printout of the performance of the organization based on these four perspectives.

3.6.3.5 Peer Review Process

Peer Review Process aims to assist the municipality to assess its current achievements and capacity in order to achieve its goals and objectives. It is a joint programme between the Department of Provincial and Local Government (DPLG) as well as South African Local Government Association (SALGA). These assessments focus on the following;

- Sustainable development,
- Leading and learning,
- Democracy,
- Good governance, community engagement, performance management and resource management

This particular review will take the learning from the Peer Review and integrate these into process to ensure improved service delivery.

3.6.3.6 Benchmarking

Benchmarking is an organizational change process directed towards continuous improvements – a focus of much change in the transit industry today. Benchmarking gives Human Resources (HR) chances to look at what other organizations are doing, what works, and why it works (*TCRP Report 77*, 2002: 13). Similarly, *Bain et al.* (2000:20) viewed benchmarking as an important way organizations can improve their services and processes.

As earlier noted, SDM is a recipient of Gauteng Vuna Award in 2004. This provincial award, rewards beyond standards to give their communities excellent service and governance. Based on the provincial recognized management model for excellence, SDM model articulates desired organizational performance on the following:

- There is a functional organizational structure in place,
- Establishment issues have been completed
- Workplace Skill plan in place,
- Job descriptions have been completed, about 95% of them. These are subject to evaluation
- Occupational health and safety workshop was held for Executive Managers and Managers
- Performance management is in place

In turn, these are evaluated criteria that outline the benchmark SDM has met. As a result, Sedibeng has become a provincial public service to benchmark against.

3.7 CONCLUSION

Total Quality Management (TQM) at the urban interface is one of the means to deliver improved value of the tax payers' money, but efficiency enhancement is only one step along the road to a better quality of urban life in general. For many cities the lack of an effective public transport system is a major impediment to local economic growth, job creation, new investment and expansion of the tourism industry. Each organization has adopted TQM to fit its particular circumstances and needs. The connectivity and the link between TQM and urban public transport operations requires the setting of clear visions, missions, objectives and measurements to deliver the expected levels of customer satisfaction. For this reason, everyone in the organization should be committed to its vision, mission and needs to work towards its common objectives.

To successfully implement TQM, principles need to be identified to ensure that there is a fit between TQM and the effective urban public transport system. Hence the fundamental objective of this study is to attempt and describe the best fit would be between TQM and the urban public transport operations in Sedibeng

District Municipality. In order to describe this fit, this chapter has focus on TQM initiatives at the Department of Transport and Infrastructure Planning to meet and exceeds mobility needs of Sedibeng commuters with an efficient and effective public transport system. Finally, by adopting TQM as a guiding philosophy its implementation can know profound positive effects for survival of the SDM. Chapter 4 would provide an overview of the research methodologies used to empirically examine the link that exist between TQM and Urban Public Transport Operations at SDM.

CHAPTER 4

EMPIRICAL STUDY ON THE EFFECTS OF TOTAL QUALITY MANAGEMENT (TQM) ON URBAN PUBLIC TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY (SDM)

4.1 INTRODUCTION

This chapter provides an overview of the methodology used to study the relationship between TQM and effective urban public transport operations. It begins by highlighting a distinction between quantitative and qualitative study, proceeds with a discussion of research methods such as literature review, semi-structured interviews, focus group discussions and observation.

The summaries of the data collected through these methods by means of a questionnaire would be analyzed and described. This analysis of data would be followed by the validity and reliability aspects of the data measurement. Thereafter, ethnical consideration relevant to this study would be taken into consideration.

4.2 QUANTITATIVE AND QUALITATIVE METHODOLOGIES

The quantitative and qualitative paradigms have their roots in the 20th century philosophical thinking. The quantitative approach is termed traditional, the positivist, and the experimental or empiricist paradigm. The qualitative paradigm is termed the constructivist or the naturalistic approach and it is interpretive. To understand these two paradigms authors have contrasted them on several assumptions (Mahapa, 2003:55). The fundamental difference between the two is addressed in terms of the ontological, epistemological and methodical approaches. *Firstly*, Williams (1999:6) mentioned that the designs of the two kinds of research presume different realities; this is called the ontological assumption. Whereas

quantitative researchers typically assume a single objective world, qualitative researchers typically assume that multiple subjectively derived realities can coexist. Similarly, in terms of the ontological issue of what is real, Creswell (in Mahapa, 2003:55) states that the quantitative researcher views reality as objective. In this view, researchers are independent and can use instruments and questionnaires to measure objectivity. Variables can be identified and relationships measured. For the qualitative researcher, on the other hand, reality is socially constructed. Variables are complex, interwoven and difficult to measure. Hence, the qualitative researcher needs to report faithfully the realities in a given situation and to rely on the voices and interpretations of informants.

Secondly, Williams (1999:6) cited that these two forms of research presume different roles for the researcher and this is termed epistemological assumption. In this case, quantitative researchers commonly assume their independence from the variables under study, whereas qualitative researchers commonly assume that they must interact with the studied phenomenon. On the epistemological question, that is, on the relationship of the researcher to that which is being researched, the two paradigms also differ. In this context, Mahapa (2003:55) further reinforced that the quantitative approach holds that the researcher should remain distant and independent of that which is being researched. Thus in surveys and experiments, researchers attempt to control for bias, select a systematic sample, and remain objective in assessing a situation. The qualitative stance is different. Researchers interact with those they study, whether this interaction assumes the form of living or of observing informants over a prolonged period of time, or through actual collaboration. To this point, numerous studies viewed that the manifestation of these two sets of assumptions is the relation between the knowing subject and the studied object.

Thirdly, the other distinct is in the area of methodology. One approaches a quantitative methodology by using a deductive form of logic, wherein theories and hypotheses are tested in a cause-and-effect order. This cause-and-effect relationship is the stated relationship between the independent and dependent

variables. Concepts, variables, and hypotheses are chosen before the study begins and remain fixed throughout the study. The objective is to develop generalizations that contribute to the theory and that enable one to better predict, explain and understand some phenomenon. In a qualitative methodology, on the other hand inductive logic prevails. Arguments supporting qualitative inquiry indicate that human behaviour is significantly influenced by the setting in which it occurs; thus one must study that behaviour in situations (Mahapa, 2003:56).

To this end, by comparing quantitative and qualitative methodologies, the researcher tried to establish the most appropriate method for conducting this study. The key difference between them is their flexibility. Generally, quantitative methods are fairly inflexible. With quantitative methods such as surveys and questionnaires, for example, researchers ask all participants identical questions in the same order. The response categories from which participants may choose are “close-ended or fixed. On the other hand, qualitative methods are typically more flexible – that is, they allow greater spontaneity and adaptation of the interaction between the researcher and the study participants. In turn, participants have the opportunity to respond more elaborately and in greater detail than is typically the case with quantitative methods.

4.3 STUDY METHODOLOGY

Taking into account the above-mentioned limitation in quantitative research, this study accepts the realization that the use of a qualitative approach is considered more appropriate (Creswell, 2003). In addition, Gilmore & Carson (1996) pointed out that qualitative research methods are well suited for the nature of service industry. Hence, this study has approached the investigation of TQM initiative and effective Urban Public Transport Operations from a qualitative research viewpoint.

4.3.1 A qualitative Approach

This study is an exploratory qualitative research because not much has been written about the topic or population being studied, and the researcher seeks to listen to participants and build an understanding of their ideas (Creswell, 2003). Adams & Schvaneveldt (1985:103) cited the purpose of this exploratory research as to seek out new insights ask questions, and assess phenomena in a different perspective. Similarly, one advantage of qualitative methods in exploratory research is the use of open-ended questions and probing gives participants the opportunity to respond in their own words, rather than forcing them to choose from fixed responses, as quantitative methods do. This is the case of the present study.

It is broadly agreed that central to the long-term success of TQM within an organization is the implementation process (Reger *et al* (1994). Notably, Motwani (1997) proposed that TQM will nearly always work when the proper methods to execute it are employed. Nothing has been written on how TQM has been applied in SDM. That is why; the aim of this qualitative study is to investigate TQM initiative and effective Urban Public Transport Operations at SDM with specific reference to the Department of Transport and Infrastructure Planning. When this study is empirically examined it becomes clear that TQM can be classified based on key principles from Deming's fourteen points for quality improvements:

- Management and Leadership
- Customer focus
- Worker Involvement and Empowerment
- Cultivate Organizational Learning
- Teamwork
- Tools and Techniques

Having these principles in mind, a better understanding is required to investigate the current status of TQM implementation at SDM. In this case, the current work

has focused on the Department of Transport and Infrastructure Planning and attempt to gauge how far this department has moved towards implementing TQM in order to meet and exceeds customer satisfaction. With better understanding of this process, it can be seen as the basis for the development of an appropriate TQM framework for future practical implementation by the SDM.

4.3.2 Qualitative Research Design: Survey Design

Numerous studies found that a number of researchers and authors have noted that for all the attention TQM has received, there appears to be an apparent neglect of the design issue. That is to say, there appears to have little research attention devoted to the development of empirically grounded, practically diagnostic tools, which can provide guidance to the TQM designers in the endeavours to appropriately customize their organization's TQM implementation efforts (Ghobadian & Gallear, 2001:5).

To a certain degree, completing successful research depends on having a clear purpose and access to pertinent data to that purpose. Certainly, various problems require that different strategies be employed in successful research. The strategy employed, the approach, or the particular research tools involved relate to the idea known as a design or research design. A research design refers to a plan, blueprint, or guide for data collection and interpretation. With the concept of exploration, preliminary findings found that researchers should be locked into a rigid design or ultimate income when seeking new information and insights (Adams & Schvaneveldt, 1985:103).

Similarly, Williams (2006:85) view that this study is the choice and motivation for a researched design, which must not only fit the personal ontology and epistemology of the researcher, but the research design in a triadic relationship, must be congruent with the phenomenon being studied. At the same time the fit must exist between the researcher's world view, the phenomenon being studied,

and the choice of research design. This is particularly true if the researcher is to ensure that the principles of credibility, transferability and dependability are to be entrenched. In this context, a survey research is an appropriate research design to fit the connectivity and link between TQM and effective Urban Public Transport Operations at SDM. This means that the interpretative character of this exploratory qualitative research study is linked to the survey method.

4.4 DATA COLLECTION

There are a variety of ways to use exploratory and descriptive designs to obtain data and many methods of data collection can be used within each type of design. As earlier reported that survey design has been chosen to test the research hypothesis. In this point, data collection involves applying the measuring instruments to the sample or cases selected for the investigation. In this case, before collecting data in qualitative paradigm, Babbie & Mouton (in Williams, 2006:56) argued that two important procedures need to occur. There needs to be a sampling process before data collection.

In order to get at the experiences, motives, meaning and perceptions of those being studied, the survey instruments help the researcher to interact with participants. In examining the relationship between TQM and effective Urban Public Transport Operations at SDM, semi-structured interviews, focus group discussions, and participant observations seemed to be the best choice. At this point, each of these mentioned research methods would be discussed in more detail as how data was obtained during this study.

4.4.1 Sampling

While in the process of collecting data, it is in the researcher's interest to first determine the population sample for this study. For this reason, Adams & Schvaneveldt (1985:175) define sampling as a process whereby one makes

estimates or generalizations about a population based on information contained in a portion (sample) of the entire population. It is the goal of this qualitative research to have a sample that is truly representative of the total population from which the sample has been selected. The study's research objectives and the characteristics of the study population (such as size and diversity) determine which and how many people to select. The survey population selected for this research will be discussed in the next sections.

4.4.2 Research Techniques

The most common research techniques for gathering survey data in this study included a combination of extensive literature review, semi-structured interviews, focus group discussion and participant observation. These techniques had an advantage in that they offered the opportunity to probe issues and to explore respondents' views and perspectives in their own terms and frameworks of understanding.

4.4.2.1 Literature Review

By obtaining data to determine how quality of urban public transport operations can be improved using TQM as a philosophy, an extensive review of literature revealed that data was collected to form documentary evidence. Documents, books, legislations, journals, dissertations (published and unpublished), seminar papers and internet documents were examples of literature that were reviewed and analyzed by the researcher to obtain data about the relationship between TQM and effective Urban Public Transport Operations at SDM. Amongst other documents consulted were *International Standard Organizations (ISO)*, *American Society for Quality (ASQ)*, *Transit Cooperative Research Program (TCRP)* to scan literature about TQM.

Furthermore data collected from the *White Paper on National Transport Policy* (1996), *Moving South Africa: Action Agenda*, *National Passenger Rail Plan* (2005), *Taxi Recapitalization Programme* (1998) and *Transit Cooperative Research Program (TCRP)* (1994-2007) were examined to reveal public transport strategy in South Africa and international. These documents contain information and statistics in the form of transport planning and development, public transport system and infrastructure. Similarly, data on household surveys and population census kept by Statistics South Africa (Stats SA) were also utilized.

Importantly, the researcher also surveyed a large volume of operational documentation from the SDM website. These include reports to the Mayoral Committee, Council Resolutions, policies and other strategic planning documents such as *Integrated Development Plan (IDP)* and *Integrated Transport Plan (ITP)*. These documentary data enabled the researcher to pay particular attention to evidence describing the TQM and effective Urban Public Transport Operations in the study area.

4.4.2.2 Semi-structured interviews

Semi- structured interviews are usually interviews between two extremes that are between the completely structured and on the other hand and the completely unstructured interviews on the other. This type of interviews offers a versatile way of collecting data (Welman & Kruger, 2001:161). Similarly, Lee (1999: 62) cite that semi-structure interviews usually have an overarching topic, general themes, targeted issues, and specific questions, with predetermined sequence for their occurrences. *Appendix F1* reflects a formal request made to the Municipal Manager to conduct this study, subsequently a verbal approval was granted by the Manager: Department of Infrastructure and Planning after several enquiries and attempts by the researcher from the Executive Director: Transport, Infrastructure and Environment.

For the purpose of this study, semi-structured interviews with top managers were used as a data collection tool. This method reduces the distance between the interviewer and the interviewee. In *Appendix G1*, a quantitative data was obtained by means of a questionnaire was compiled and used to guide semi-structured interviews with these politician and officials, who were selected according to the extent to which they participated in both the senior management and portfolio committee meetings of the District. The people whom semi-structured interviews were held are:

- **Councillor Simon Maphalla** (the former MMC for Finance and is currently a political portfolio head for Transport and Infrastructure)
- **Ms. Lisa Seftel** (the Municipal Manager, former Deputy Director-General for Gauteng Department of Public Transport, Roads and Works)
- **Mr. Sorrious Manele** (Executive Director: Transport, Infrastructure and Environment)
- **Mr. Conrad Netshivhale** (Former Acting Executive Manager: Infrastructure Development, then Acting Executive Director: Transport, Infrastructure and Environment, then Manager: Technical Services and later Manager: Airports)
- **Mr. Meshack Manqa** (former Assistant Manager: Transport and currently Manager: Transport and Infrastructure Planning)

As the sample for this study, the above listed politician and managers were purposeful and selected on the basis of participating in developing and promoting processes, systems, method and tools into organizational culture in order to meet and exceed customer expectations. Notably, William (2005:22) indicated that public transport authorities play a critical role in managing the place and level of priority awarded to public transport in the city or town they administer. In addition, **Monica Kgalema** (former Assistant Manager: Project and Facilities Management and **Hennie Korb** (Manager: Licensing) were also drawn in the above sample since they also both attended the senior management team meeting. Five people who stood slightly apart from the process since they fall within the

Directorate: Environment in the Cluster: Transport, Infrastructure and Environment, but who had a significant influence on this study, namely **Councillor Dorcas Raditsela** (MMC: Environment), **Zias Van Zyl** (Manager: Public Health Services), **Sylvester Dube** (former Assistant Manager: Waste Management), **Lizette Venter** (former Assistant Manager: Environmental Management, currently Manager: Environmental Management), **Jennette Senokoane-Malay** (former Assistant Manager: Environmental Management), were also interviewed.

4.4.2.3 Focus group Discussion

In addition to the above-mentioned research methods (literature review and semi-structured interview), this study also utilizes focus group discussion as a vehicle for data gathering. In this context, Lee (1999:51) defines focus group as a small group of individuals (e.g., 4-12) from a theoretically meaningful population (e.g., organizational members, product consumers, graduating college seniors) are assembled and asked to respond to a series of questions. Similarly, Mack et al. (2005:51) also viewed focus group as a qualitative data collection method in which one or two researchers and several participants meet as a group to discuss a given research topic. The richness of focus group data emerges from the group dynamic and from the diversity of the group. A distinctive feature of focus group is that they create research data by generating social interaction. This is done by assembling a group of participants to discuss a specific topic and then observe how ensuing discussion evolves.

Given the aforementioned perspective, conducting focus group interviews was a valuable tool for gaining insights about the link between TQM and urban public transport operations. As a result of the data collected from the semi-structured interviews, the researcher conducted three focus groups with SDM's employees, public transport operators and users. These three focus group discussions allowed the researcher to gather information that verified the relevancy of the literature

search findings to the urban public transport industry. For the purpose of this study focus group discussions would be conducted as discussed hereunder:

- **Group 1: Internal Customers**

One group consisted of participants who were randomly selected from the SDM's employees specifically within the Cluster: Transport, Infrastructure and Environment. As earlier noted, these employees are referred to as internal customers, which are operational staff such as Co-ordinators, Professional Officers, Office Manager, Admin Assistants, Receptionist and Contracted workers. This list of employees was selected from the new organo-gram approved by the Council. Although approval was granted to conduct this study, SDM was not aware of who would be in the group or where the group's discussions would be held. Before contacting employees for participation in this study, it was necessary for the researcher to obtain the consent of the employees participating in this research (*see Appendix F1*). Similarly, to encourage honest and free participation, the researcher assured participants that the departmental head (Executive Director) would also not know who participated and who did not. In turn, the researcher told participants that their names would not be used in any way. This helped to increase confidentiality and anonymity. In this study, this focus group discussion was conducted by means of a questionnaire to solicit insight, knowledge, learning skills and experience to gain better understanding of customer expectations as depicted in *Appendix G*. In turn, to ensure that every employee has a thorough understanding of customer needs and expectations so as to examine the process of TQM implementation within the District.

- **Group 2: External Customers**

Concurrent with the collection of data from the Group 1 focus group, a second round of public transport operators' contact was made within the jurisdictional area of SDM, previously indicated as external customers. The participants from

this focus group were recruited from rail, bus and mini-bus taxi operators through a convenience sampling of those participating in Regional Transport Forums representing their various constituencies. At the level of public transport operator, quality in urban public transport results from the capacity of the operator to manage and develop its organization. However, it is also the result of the conditions in which the operator is working (William, 2005:9).

Having this in mind, the researcher would collect qualitative and quantitative data through a questionnaire (*see Appendix G3*) to capture the experiences of these diverse groups (rail, buses and mini-bus taxis) of public transport operators. By interacting with focus group members, this study provides insights on provision of the quality of service to potential users and new users of the public transport service. This means how a number of public transport operators' needs and expectations are met in the District.

- **Group 3: User Surveys**

A third focus group discussion was conducted among public transport users. Participants from this group were randomly selected from the Sedibeng Regional Commuter Organization affiliated to Gauteng Commuter Organization (GCO) also indicated as external customers. This regional structure serves as a voice for potential users per mode in order to raise aspirations and needs of the commuting Sedibeng residents. For this study, a sample of the representatives from the rail, bus and mini-bus taxis would be sufficient to demonstrate the usefulness of the methodology for this research purposes.

Appendix G3 show one common questionnaire was developed to collect the data to accommodate the differences between rail, bus and mini-bus taxi users. The empirical evidence exists from the user surveys would support the link between quality improvements and customer satisfaction. Thus, an aim is to examine the effect of different quality improvements among users of public transport services.

However, the primary data collected from this study by means of questionnaire would add value to existing documentary literature such as National Household Travel Surveys and would not be used to substantiate or negate result from prior research in the District.

4.4.2.4 Participant Observation

Semi-structured interviews and focus group discussion were supplemented by participant observation as methods of collecting data in this study. This qualitative study of investigating the relationship between TQM and Urban Public Transport Operations at SDM was borne out of my interest in improving performance of local municipalities towards realizing the goal of meeting customer satisfaction in the urban setting. To provide better quality transportation service, I specifically chose Department of Transport and Infrastructure Planning in SDM as locus of this study. Moreover, I personally presented TQM in this research as a model to provide effective Public Transport Operations so that customer needs are not only met but also exceeded. The research upon this study, is based on my own perspective as a Traffic Inspector, Transport Economist and partly from my experience as a Senior Technical Assistant for Taxis (learner transport, metered, mini-bus and sedan taxis) as well as providing supporting services for rail and bus services at SDM. It is also worth mentioning here that working in a local municipality serving urban communities recognizes that effective and efficient service delivery has to be the main priority of the public servant in urban setting.

For this study, more specifically, I see myself as the participant-as-observer who not only viewed events as they happened, but also participated in the object of my study. In turn, I made careful objective notes about what I saw, recording all accounts as field notes. As a participant – observer, Adams & Schvaneveldt (1985:235) implied that the researcher is located in an intimate relationship with his subjects. Participant-as-observer was the appropriate method I followed, since it provided me with a way to work closely with the participants, while still

gathering rich and detailed data. Lee (1999:98) attached the specific category of observer applicable to me as a “*complete participant*”, that is I participate fully as a researcher but covertly as an organizational member. In turn, this means as a researcher I had to take precautions to hide my scientific intentions, role and observational activities. As a participant observer, I felt that I was probably better positioned than any external observer or researcher to expose the actual reality behind the sequence of actions that constituted the TQM initiatives in Urban Public Transport Operations at SDM. This method grants the researcher the accessibility to the utmost important information that will create more understanding and expedite the development of the study.

4.4.3 QUESTIONNAIRE

Amongst these methods of obtaining research survey; namely: literature review, semi-structured interviews, focus group discussion and participant observation. A more quantitative study with a structured questionnaire was used as a common instrument for data collection to investigate the relationship between TQM and Urban Public Transport Operations at SDM. Adams and Schvaneveldt (1985:202) define a *questionnaire* as a list or grouping of written questions which a respondent answers. Similarly, the term *questionnaire* suggested as a collection of questions but an examination of a typical questionnaire will probably reveal as many statements as questions. This design is not without question. Research often focuses on determining the extent to which respondents hold a particular attitude or perspective. If a brief statement regarding attitude or perspective can be expressed, the respondent can be asked to indicate the degree to which respondents agree or disagree (Babbie, 1995:141).

4.4.3.1 Administration of Questionnaire

The questionnaire may be administered in these ways, namely: group administered, self-administered, mailed, long, short, open-ended or closed ended

style questions. The purpose for which a questionnaire is used can range from exploring-probing type research to a highly structured lab experiment Adams & Schvaneveldt (1985:202). In this context, Babbie (1995: 141) referred self-administered questionnaire as a situation in which questions are sometimes asked by the interviewer; sometimes they are written down and given to respondents for completion. In this study, a survey was conducted using self-administered questionnaire is typically recognized to point to other techniques for improving completion rates while reducing costs. As a result of these factors, self-administered questionnaire was used to fulfill the need of this research.

4.4.3.2 Design of Questionnaire

As earlier indicated, to facilitate data collection the survey method was used. Towards the end, a questionnaire was developed. A lot of preparation goes into a survey. Therefore, the questions must be tailored in such a way that encompasses the scope and objectives of the research. For this study, the survey is designed to investigate the relationship between TQM and Urban Public Transport Operations at SDM. The questionnaire was structured and based on an extensive literature review of international and local surveys.

Most researchers found it difficult to design a reliable and suitable questionnaire to gather information from the sample population. There are a number of additional guidelines which should be followed during the construction of the questionnaire. *Firstly*, the questionnaire items should be clear and unambiguous. *Secondly*, double-barreled should be avoided. Double-barreled statement describe items which typically contain two questions and, but allow for only one response which would apply to the entire statement. Based on the comprehensive review of literature, Rensis Likert has greatly formalized this procedure through the creation of the Likert scale, a format in which respondents are asked to *strongly agree* or *strongly disagree* or perhaps *strongly approve* and so forth (Babbie, 19995:143).

Two options may be used in the construction of questionnaire. First option is to present what we call “*open-ended*” questions which require the respondent to provide his or her own answer to the question. Second option is “*closed-ended*” questions, the respondent is asked to select an answer from among a list provided by the researcher. For the focus of this study, these two options were considered for data collection.

4.4.3.3 Parts of Questionnaire

The survey questionnaire is constructed into four main parts which intended to focus on the seven primary tenets of TQM. Hence, these tenets are presented in seven individual sections as follows: Management and Leadership, Customer Focus, Employee Involvement and Empowerment, Cultivate Organizational Learning, Teamwork, Tools and Techniques. These seven primary tenets comprise the principles used to guide this study.

In *Appendix G1, Part I* of this questionnaire constituted of Management and Leadership which focuses on two sections (1 and 2) in selecting Senior Management Team members at SDM. At the same time, Section 1 provides the background information, while Section 2 documented the core competencies and additional skills required for Senior Management Team within locus of this study. A total of nine questions are provided to be answered by the respondents. In this part, respondents are merely asked “*open-ended*” and “*closed-ended*” questions. As earlier noted, some questions are designed in Likert scale, a format in which respondents are asked to *strongly agree* or *strongly disagree*.

In *Appendix G2, Part II* of the survey questionnaire finds out the six most principles that are vital and necessary for the TQM implementation at SDM specifically. This type of questionnaire seeks to gather information on the opinion, feeling, attitude and perception of employees pertaining to the level of TQM implementation at SDM. Section 3 focus on the organization’s customers. By keeping close to the internal (employees) and external customers (public

transport stakeholders – operators and users), SDM can establish customers' needs; gather information on their perception, attitude, and expectations. Section 4 examines the level in which employees feel involved and empowered in the Total Quality initiative. Section 5 looks at the SDM's effort to develop and utilize the full potential its workforce. Hence, a comprehensive training programme and must be institutionalized within the entire organization. Section 6 provides for the employees' involvement in teamwork. To this end, Section 7 provides for tools and techniques and examines the scope, management and use of data that facilitates the organization's ability to improve public transport service. Within this part, thirty-one questions are also designed in Likert format while five questions are "*open-ended*" for any comments.

Finally, *Part III* of the questionnaire allows for an "*open-ended*" response. The instructions advises that this part offers the respondent an opportunity to express any opinion they may have pertaining to TQM initiative in the organization. For the intention of this study, *Appendix G2* caters for both *Part II* and *III*. Hence, the next section would provide an analysis of the data collected.

4.5 DATA ANALYSIS

This section presents the information provided by the respondents and the survey result about the link and connectivity between TQM and Urban Public Transport Operations at SDM. The intention of this study specifically focused on the Department of Transport and Infrastructure Planning in the Transport, Infrastructure and Environment Cluster. A total of seven primary tenets were proposed, which were felt to be the important principles for TQM implementation at SDM.

In relation to this, key conclusions from the literature review were used to provide context for interpreting and understanding the findings from this research. Again, semi-structured interviews with Senior Management Team members' were collected by means of a quantitative questionnaire for statistical analysis to explore

their background information. Similarly, focus group discussions were held with employees, operators and users. In addition to collecting data, a firsthand experience of some of the initiatives was gained through participative observation. By analyzing survey results, the researcher expected to give an ideal on the lack of implementation and the potential weaknesses within the study area. In so doing I would be able to identify setback that SDM face in adopting TQM. To this end, some discussions on these findings will help to explore future research direction.

4.5.1 Management and Leadership

The first concept of TQM used in this research is “Management and Leadership.” This key primary tenet is measured with the use of nine questions in which respondents were asked to provide answers by indicating *strongly agree* or *strongly disagree* with regard to each question. For the purpose of this study, Management and Leadership are Senior Management Team as being the highest-ranking persons in the organization with direct responsibility to develop and promote strategies, systems, processes, decision making and tools for effective public service delivery. In urban public transport, there will put in place strategies under the existing structure, processes, systems, methods and tools for continuous improvement of service quality in urban public transport operations at SDM. From SDM viewpoint, individuals who responded the survey questionnaire in *Part I* have identified themselves as Senior Managers had a range of titles and reporting relationships, including: Member of Mayoral Committee (MMC); Municipal Manager (MM); Executive Director; Directors and Managers. Similarly, the Executive Director and departmental heads form the Senior Management Team. *Appendix H* profiled the Senior Management Team. In this respect, these upper-level management personnel are considered as a census of the survey population.

Indeed, the demographics of the survey questionnaire respondents reflected the characteristics of a Senior Manager. *Appendix G1* shows a survey questionnaire

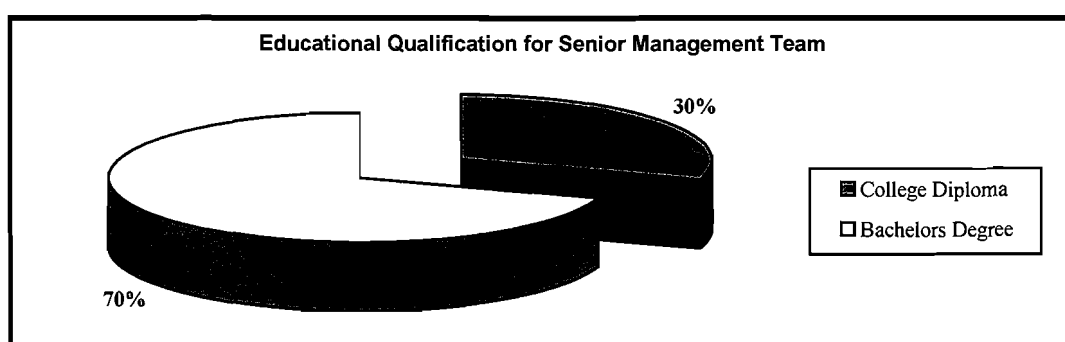
used to collect background information in topics such as education, years of experience and skills. It was hand delivered and also e-mailed to the Senior Management Team with the instructions to forward the questionnaire to the high-ranking person at SDM with the responsibility of a Senior Manager. A total of twenty survey questionnaires were completed and returned from ten respondents. These study documents semi-structured interviews with Senior Managers to gain a deeper understanding of their background, philosophies regarding Management and Leadership, and the types of skills that they feel are needed to be truly effective.

Based on the analysis of data provided by the respondents, the following are some of the key issues to provide an insight into the characteristic of SDM's Senior Management Team. Of those ten persons who responded to the survey, all were in departmental or divisional jobs. Again, there were six males and four female respondents from this management echelon.

4.5.1.1 Education

When Senior Managers were asked to specify their highest level of formal educational completed, 30% of Senior Management Team member have a college diploma qualification, while 70% of these respondents have a bachelors degree. In *Figure 4.1* survey results show that the current senior manager is highly educated and has managerial experience. Point worth nothing for this research is that the Municipal Manager has vast years of managerial experience in the public sector. Furthermore, she is a former Director: Minimum and Standards and Chief Director: Labour Relations at the National Department of Labour, later Chief Director: Policy Development and Co-ordination in Gauteng Premier's Office and then Deputy Director-General for Gauteng Department of Public Transport, Roads and Works (<http://www.sedibeng.gov.za>).

Figure 4.1: Educational Qualification for Senior Management Team



Source: Own Information

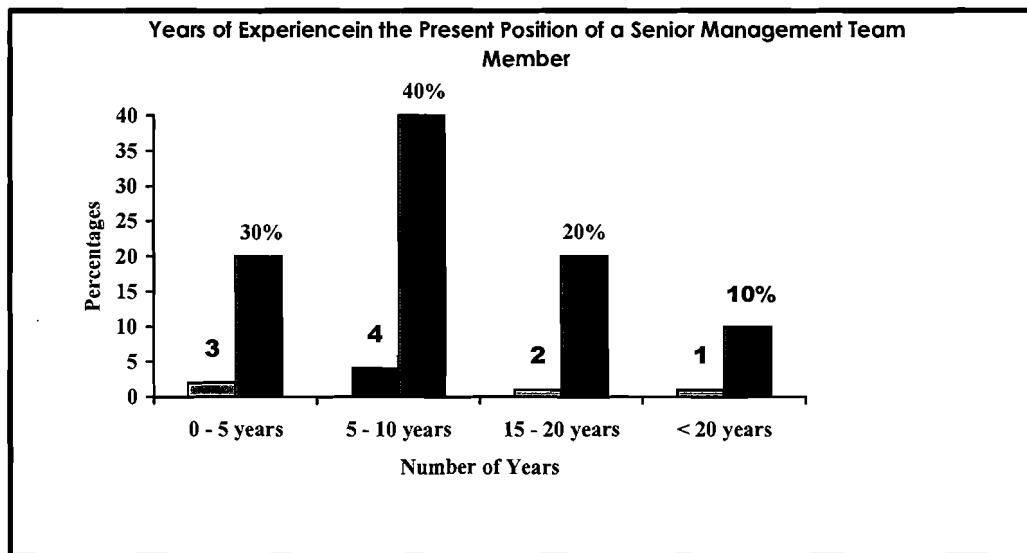
4.5.1.2 Years of Experience

Similar to the formal educational level completed, of the ten Senior Managers surveyed *Figure 4.2* below shows that 30% reflects fewer than five years of experience, 40% showed between five to ten years of experience and 20% have ten to fifteen years of experience. Only 10% of the current Senior Managers had been in their current position for more than 20 years. Their time is quite long in local government.

4.5.1.3 Core Competencies

Using core competencies developed for Senior Team members by the SDM, the survey questionnaire requested that respondents rank the importance of the core competencies required for Senior Management Team member. Both *Appendix G1* and *Table 4.1* enlist twelve different skills seems to be important to senior managers at SDM. However, respondents identified the core competencies using the following rankings: *strongly agree* or *strongly disagree* with regard to each question.

Figure 4.2: Years of Experience in the Senior Management Team in present position



Source: Own Information

The survey results on the importance of a senior manager having certain core competencies show that an overwhelming majority of the senior managers *strongly agree* that job specific (60%); managing vision and purpose (80%), priority setting (60%) and team building (60%) were deemed to be very important. Similarly, Senior Managers also *agree* and reviewed problem solving as a very important core competency. Again, respondents also agree that managing and measuring (60%), problem solving (60%), labour relations (60%) and customer focus (70%) as very important. In addition, half of the respondents (50%) agree that management and supervision; strategic agility; developing others; motivating others as very important. Inter-structural relations, staff well-being and communication skills are added competencies identified by individual Senior Managers as shown in *Table 4.1* below.

Table 4.1: Core Competencies Required from a Senior Management Team Member

Skills Required of Senior Management Team	SA	A	DK	DA	SD	TOTAL
Job-specific skill	6	3	1			10
Management and Supervision	5	5				10
Strategic agility	5	5				10
Priority Setting	6	4				10
Managing Vision and Purpose	8	1				10
Building effective Teams	6	4				10
Developing Others	5	5				10
Motivating Others	5	5				10
Managing and Measuring work	2	6	2			10
Problem Solving	4	6				10
Labour Relations	2	6	2			10
Customer Focus	3	7				10
Additional Core Competencies Identified by the Respondents: ▪ <i>Inter-structural Relations</i> ▪ <i>Staff well-beingness</i> ▪ <i>Communication Skills</i> ▪ <i>Project Management</i>						

Source: Own Information

Note: That the number of Respondents (N = 10), those core competencies in bold are deemed to be important. The last column reflects the additional core competencies identified by Respondents.

4.5.1.4 Additional Skills

In responding to the survey questionnaire that requested the respondents to indicate the additional skills senior managers should have to improve their effectiveness, *Appendix D* provides a survey list of those additional skills. By analysis of survey result, the most requested additional skills a Senior Manager should have to improve his or her effectiveness were Total Quality Management (70%); followed by team building (60%) and customer service (60%) respectively. Senior managers cited these additional skills as their top three, but those respondents who agree with skills in labour relations (30%) are respectively only three and two Senior Managers. *Project management* and *conflict management* were additional skills specified and commented on by the respondents.

Figure 4.3: Additional Skill required for a Senior Management Team member



Source: Own Information

4.5.2 Level of TQM Maturity

The purpose of this study is to determine the perceptions of employees, public transport operators and users regarding TQM initiative at SDM. In so doing, *Part II* of the survey questionnaire was conducted using a self-administered questionnaire through focus group discussions. The main focus of these groups as referred in Section 4.4.2.2 were to explore and analyze more in-depth the customers' perceptions, attitude, needs and expectations regarding the level of TQM implementation within the organization. Responses to the questionnaire reflect the level of TQM involvement as perceived by both the "internal" and "external" customers of the SDM. In this case, William (1993:75) strongly agreed that these answers would allow for the determination of the level of maturity regarding TQM within the study area. As maturity is directly proportional to success in terms of its implementation. The results of the survey will allow for confident evaluation of the TQM initiative in Urban Public Transport Operations at SDM. In this study, respondents were clustered into three groups based on their attitude, feelings, perceptions and expectations. *Part II* of

the questionnaire intended to focus on other six concepts that cut across all three focus groups of customers (*internal* and *external*) to reflect the other primary tents of TQM as follows:

4.5.2.1 Customer Focus

The second concept of this study used to measure the perceptions of TQM is customer focus. As earlier noted, the main thrust of this section is to explore more in-depth the customers' perceptions, attitude, needs and expectations regarding the TQM implementation within the organization. Section 3 of *Part II* reflects one common questionnaire used to cover customer satisfaction from a diversity of customers (employees, public transport operators and users) within the District. Again, seven questions were asked under this main principle of TQM. Moreover, employees, operators and users were asked to respond on Likert format and also to solicit any comment. Specifically, data was analyzed through focus group discussions (*Group 1, 2 and 3*). A total of 29 (N=29) customers, both internal and external completed this questionnaire. The responses were content analyzed with the intention of identifying consistent answers to be used to investigate the relationship between TQM and Urban Public Transport Operations at SDM. As previously mentioned, listening to the "customers" and responding quickly to their changing needs, perceptions and expectations is one of the basic TQM approaches. Logically, *Appendix II* enlists the survey results which would be analyzed as follows:

The first question states "*The organization as a whole is not customer orientated*". In their respond, 60% of *Group 3* strongly agreed at most 59% of *Group 1* agreed. About 9% of *Group 1* and 2 participants don't know followed by more that 30% of *Group 2* respondents who strongly disagreed.

The second question asked respondents whether "*The organizations promote the use of customer feedback loops to improve its process*". In this statement, 40% of

Group 3 participants strongly agree, more than 20% of *Group 1* respondents agree; about one-quarter of both *Group 1* and 2 didn't know or didn't respond; half of *Group 1* respondents disagreed and 17% of *Group 2* respondents strongly disagreed. In support of this, survey respondent cited the "lack of feedback and lack communication mechanisms in place".

The third question reads, "Surveys are commonly used as a tool to improve our understanding to customer expectation". More than 30% of *Group 1* respondents strongly agreed with the statement; 42% of *Group 2* respondents agreed, 17% of both *Group 1* and 2 don't or resist to provide answers; 8% of *Group 2* participants disagreed and 60% of *Group 3* respondents strongly disagree

The fourth question, *Employees continually strive to satisfy their internal customers*". In their response to this statement; 25% of *Group 1* respondents strongly agreed; over 40% of *Group 2* participants agreed; 25% of *Group 2* respondents don't know or didn't provide answers. Again, 59% of *Group 1* participants agreed. 60% of *Group 3* respondents strongly disagreed.

The fifth question, "Problems expressed by internal and external customers are not quickly resolved". In response to the statement, 60% of **Group 3** participants strongly agreed; more than 40% of *Group 2* respondents agreed; 8% of *Group 1* participants don't know or refrain from giving answers; 20% of *Group 3* participants disagreed.

The sixth question, "Methods to measure and monitor external customer satisfactions have been implemented." Only 40% of *Group 3* participants strongly agreed; 17% of *Group 2* respondents agreed; 33% of *Group 1* participants don't know or didn't respond. About 17 % of both *Group (1 & 2)* disagreed; 60% of *Group 3* participants strongly disagreed.

The seventh question, "A system for managing customer complaints is not being developed in my organization". Approximately, 60% of *Group 3* participants

strongly agreed; a half of *Group 2* participants agreed; at most 9% of *Group 1* and 2 respondents don't know. Again also about 9% of *Group 1* and 2 respondents disagreed and strongly disagreed respectively to the above statement. *Generally, survey respondents commented on SDM commitment to customer focus by saying that "the organization needs to improve on how customers should be treated. They go on to reinforce that the responses to the questions are from an external customer perspective".*

To this end, these value statements were extracted from the comments received pertaining to SDM's commitment to customer focus. Through analysis of the data, the researcher listed them chronologically as below:

- *Responses to the questions are from an external customer perspective.*
- *Lack of feedback, no communication mechanisms in place.*
- *The organization need to improve on how customers should be treated.*
- *As a junior employee some of the things are not discussed with us only the management and senior staff are able to discuss matters.*
- *I don't know too much as TQM.*
- *Through teamwork positive solutions are met.*

- **National Household Travel Survey (NHTS) Add-on Sample**

In January 2007 the National Department of Transport (NDoT) commissioned a NHTS preliminary survey for Gauteng Province at SDM which was conducted with 782 respondents with 247 279 households. This NHTS data provided appropriate weights to enable population-level analysis. The main objective of this secondary data is to increase the primary data collected from the user surveys (Group 3) for the sample size. The NHTS asks information on Sedibeng commuters' concerns about public transport in these ways. It reveals the following:

▪ **Transport Problems**

In terms of the most important transport problems experience by Sedibeng households when commuting public transport. Based on this survey results:

33% of households experienced that public transport is not available or is too far. Again, 17% insisted that public transport is too expensive. Furthermore, 15% is worried about their safety. Therefore, the most important safety factor is safety while driving. In addition, commuters expressed their greatest concern on safety within and around public transport facilities, namely: rail station, bus termini and taxi ranks. Subsequently, people generally feel much less secure in isolated public transport facilities.

▪ **Access to public transport**

The NHTS data also provide evidence on how Sedibeng commuters' access to public transport. The analysis of data for concern on accessibility shows that households in the District experience the most exclusion from the public transport. 9% of households have no access to trains, buses and taxis. Those household not having access to public transport are furthest away from the routes. Against this background 75% of Sedibeng residents commute every day.

▪ **Monthly Expenditure on Public Transport**

The cost of transport is considerable for those living in the urban areas. Typically, food costs are assessed to take high percentage of the total income for the poorest urban population. Equally significant was the level of expenditure on public transport. Despite having incomes that are little more than subsistent level, transport cost often compromise a considerable proportion of expenditure for many citizens (Sohail, 2003:44). In Sedibeng, commuters spend more than 10% of their monthly disposable income on public transport.

- **Participant Incident and Discussion Group**

Taking the taxi industry group participants on an escorted journey through public transport infrastructure was found on the 23 June 2008 study to make a first hand observation experience “come alive” and fine tune the discussion to elicit views in greater detailed. In that study tour the choice of public transport facilities was chosen specifically to advance our understanding of perceptions on the basis of seeking the public transport facilities users’ opinion to solicit.

We jointly decided that the escort journey should target the formalized public transport facilities such as, Vanderbijlpark, Vereeniging Taxido Junction, Meyerton, Heidelberg and Shalimar Ridge Taxi Ranks. Specifically, it was decided that we should target these facilities where initiatives had been introduced as depicted in the “*Turnaround Strategy for Taxi Ranks (SDM IDP, 2008)*”. In *Appendix E1, “Report on Taxi Ranks Visit”* 2008 amongst others reveals the following:

- Anticipated demand exceeds supply in terms of the vehicular movements
- Overall height restrictions
- Over-capacity of vehicles
- This areas needs decent shelters
- Obstruction of the fire dehydrates
- Restriction on the mobility of emergency vehicles
- Ablution of the nearby un-used buildings
- Leaking underground pipes and communal taps

These defects would assist the Council in reviews for the upgrading and maintenance at the transport nodes. Furthermore, provides a more detailed analysis for continuous improvement of service quality within public transport facilities.

4.5.2.2 Worker Involvement and Empowerment

The third concept of this research examines the level in which employees feel involved and empowered in the TQM initiative. In Section 4 of *Appendix I2*, seven questions were asked to seek employees' opinion and comment on their involvement and empowerment at SDM. A total of twelve (N=12) completed the third part of this qualitative and quantitative questionnaire. About half of the respondents *strongly agree* with a number of statement(s) in this seven item section. A system for managing customer complaints has not been developed in my organization (42%). Again, approximately half of respondents *agreed* with these statements:

- Participation in TQM is not endorsed throughout the organization (42%).
- Management's delegation of authority to employees has not increased with TQM (42%).

More than 30% of the respondents *do not appear to support rating* given to the statements: "As a result of TQM, employees now have more authority to make decision". The respondents *strongly disagreed* to the statement that the organization has a process for receiving and evaluating employees' improvement ideas (42%). These statements showed potential area of weakness. Again 33% of respondents *strongly disagree* that employees are empowered to pursue quality improvement ideas (33%).

4.5.2.3 Cultivate Organizational Learning

This fourth concept investigates the organizational effort to develop and utilize the full potential of the workforce. In *Appendix I3*, about three of the respondents tend to *strongly agree* to the following three statements that:

- Employees have not been trained in the use of statistical tools and process control charts (25%)
- Employees are not encouraged to use Total Quality concepts to improve their work processes (25%).

In contrast, the *agree rating* for this statement was also considerably lower: *The organization provides across training opportunities for its employees* (25 %). However, about half (50%) of the respondents seems don't know or don't respond when asked to provide answers whether *employees are not encouraged to use Total Quality concepts to improve their work process*. This means that positive feedback is not the norm amongst employees of the SDM. Although the responses showed some degree of agreement, but the results reflected definite areas of challenge. Other statements about to Cultivate Organizational Learning within SDM, the respondents *disagreed* with the following

- The organization has an ongoing TQM training for the entire workforce (33%)
- The organization looks for the areas where job training is still needed (25%)
- TQM training has helped employees in the performance of their jobs (25%)

Therefore, more that 30% of the respondents also *strongly disagreed* to the above mentioned statements as reflected in *Appendix I3*.

4.5.2.4 Teamwork

This fifth concept of TQM examines the employee's involvement on teams as well as organizational approach to teamwork. In *Appendix I4*, one-quarter of the respondents *strongly agreed* that *quality team improvement ideas typically do not receive positive consideration*. Probably most telling was the level of agreement with these statements:

- Management encourages employees to become member of teams (42%).
- My workload prevents me from spending time on teams (42%).

More than 30% of the respondents didn't know or *didn't bother* to provide responses for the statement which relate that *quality team improvement ideas typically do not receive positive consideration*. Thus far, *only two* respondents *disagree* with the following statements:

- The entire organization becomes involved in quality efforts (17%).
- My workload prevents me from spending time on teams (17%).

As a result, more than 40% of respondents *strongly disagree* with the following statements:

- Management encourages employees to become member of teams (42%).
- Management considers the team concept as a reliable and useful means of resolving (42%).

4.5.2.5 Tools and Techniques

For this study purposes, tools and techniques regarded as the sixth and last concept under the TQM principles. This concept is examined by posing six questions from the study survey. In their responses in *Appendix I5*, five (42%) of participants *strongly agree* that statistical tools and process control charts are typically not used or understood by employees. In addition, 17% of respondents *agreed* and support the above view.

More than 30% of the respondents refrain to respond or express their “don't know” opinion when asked if the organization uses tools and measures to evaluate its progress towards Total Quality implementation. A half of respondents *disagreed* to the statement that the organization does not ensure that reports are accurate and useful. Again 25% of respondents strongly disagreed that the organizational processes are continually reviewed in order to discover areas needing improvements

4.6 VALIDITY AND RELIABILITY

Both validity and reliability are required when research instruments are to be used. In conventional usage, validity, defined as the extent to which an empirical measure adequately reflects the real meaning of the concept under construction. In abstract terms, reliability is a matter of whether a particular technique applied repeatedly to the object in order to yield the same result each time (Babbie, 1995:127). In order to ensure validity and reliability of the data, strategies such as triangulation and feedbacks were used Mahapa (2003:74) as mentioned-below:

4.6.1 Triangulation

For the purpose of this study, triangulation is a mixed method of research for data collection. Furthermore, both inductive (qualitative) as well as deductive (quantitative) investigation of analysis were used. Therefore, for data gathering purposes both qualitative data through literature review, semi-structured interviews, focus group discussions and observation and quantitative data by means of questionnaire were selected as data collection methodologies to empirically examine the relationship between TQM and urban public transport operations at SDM.

4.6.2 Feedback

Soliciting feedback from others was used as a strategy for identifying validity threats, the researcher's biases and assumption, and on methods and logic (Mahapa, 2003:74). Data collected through the above-mentioned methods of research were presented from a diversity of participants. In this study, participants were Senior Management Team, customers: employees; public transport operators and users within the jurisdictional area of SDM. They provide invaluable responds and comments for the furtherance of this research.

4.7 ETHNICAL CONSIDERATIONS

Before commencing this research study, a letter requesting permission to conduct this research and hold semi-structured interviews, focus group discussions and observations with the employees was written to the Municipal Manager of SDM. The Manager: Transport and Infrastructure Planning granted the researcher a verbal permission after several enquiries from the Executive Director: Transport, Infrastructure and Environment. The thrust of the discussions were clearly indicated as shown in *Appendix F1*.

Appendix F2 show a second letter which was read to the SDM's employees requesting their participation. Similarly, *Appendix F3* display another letter with the same contents which was addressed to public transport operators and users also requesting their voluntary participation. All the participants were informed about the ethnical issues applicable to the research study. These ethnical issues were addressed and accepted by them (participants) were voluntary participation explicitly expressed that they can withdraw from the research any time. The confidentiality and anonymity of the respondents (employees, operators and users) were protected at all the times.

4.8 CONCLUSION

This chapter outlined an overview of the main methodology relevant to empirically examine the relationship between TQM and effective urban public transport operations at SDM. It begins by highlighting a distinction between quantitative and qualitative study, proceeds with a discussion of research methods and data analysis procedures and presents summaries of the data collected.

These data were collected by means of literature review, semi-structured interviews, focus group discussions and observational behavior. These data collected were obtained by means of a questionnaire using a quantitative analysis

approaches. Validity and reliability in terms of the methods of research were described. To this end, this chapter concluded with the discussion on ethnical issues pertaining to this research study. The next chapter will present the research findings.

CHAPTER 5

SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This final chapter summarizes the research in terms of the research questions and objectives and the process embarked on to answer the questions, by realizing the objectives. Furthermore, a summary of the report is outlined, followed by the discussion on the research and its findings.

This chapter concludes with the recommendations for TQM implementation as well as for the research and the development for further work. A summary of the results in response to the research question of how the quality of urban public transport operation can be improved by using TQM as a philosophy is represented in this section.

5.2 SUMMARY

The aim of this study was to investigate the link between TQM and effective Urban Public Transport Operations at SDM. **Chapter one** provides an overview of TQM and Urban Public Transport Operations, the discussion of the study objective and hypothesis. It further explores the subsequent research methodology and the organization of the research project to complete this study.

Chapter two provides a foundation for understanding the primary tenets of the TQM philosophy as well as the urban public transport operations. The fundamental theme explored in this study is the synergistic effect of the TQM approach on Urban Public Transport Operations. Hence, the information

discovered during the development of this chapter is what provides a basis for the theoretical exposition of the link between TQM and Urban Public Transport Operations at SDM.

Chapter three presents the vehicle for understanding the setting in which this research is accomplished. It is here that an overview of TQM in Urban Public Transport Operations is described and the specific organization under is examined. The fundamental purpose of this study is to explore the essential principles of TQM initiative at SDM and the authority it receives in terms of the Urban Public Transport Operations.

Chapter four provides an overview of the methodology used to empirically study the relationship between TQM and effective urban public transport operations. It begins by highlighting the research methods utilized for data collection. These collected data would be analyzed, described and be followed by the validity and reliability aspects of the data measurement. Lastly, ethnical consideration relevant to this study was taken into consideration.

5.3 FINDINGS

The aim of this study was to investigate synergy between TQM and effective Urban Public Transport Operations at SDM. To empirically examine the link that exists between TQM in Urban Public transport Operations, research questions were to test the hypothesis that urban public transport sector at SDM seems disorganized and would require a TQM approach to improve its effectiveness. It was the purpose of this investigation to address these pertinent research questions:

- What does TQM in urban public transport operations entail?
- What processes, systems, methods and tools does SDM have in place for the continuous improvement of service quality in urban public transport operations?

- What progress has SDM made in the implementation of TQM in urban public transport operations?
- What recommendations regarding the effective implementation of TQM in urban public transport operations at SDM?

To address the above pertinent questions, the findings in this survey would help to assess the level of TQM implementation at SDM. In this view, the summary analysis would gauge the concepts and principles that this organization is exploring the TQM journey. At this point, summary analysis would be discussed in the next section of this chapter.

5.4 SUMMARY ANALYSIS

Evaluating the success of Total Quality Management approach within the Department of Transport and Infrastructure Planning in the Transport, Infrastructure and Environment Cluster at Sedibeng District Municipality; requires an in-depth understanding of the criteria. A cursory initial examination of the documents revealed the primary tenets of TQM, which were used to develop the concepts by which TQM could be measured. Fundamentally, it became clear that the guiding principles to guarantee this success are: Management and Leadership, Customer Focus, Employee Involvement and Empowerment, Cultivate Organizational Learning, Teamwork, Tools and Techniques.

5.4.1 Management and Leadership

Some principles and practices of TQM may differ among firms and industries, but there is unanimous agreement as to the importance of leadership by top managers when implementing TQM. This requires management actively to participate in quality transformation. Management has to outline the quality goals, quality

policies and quality plans so that employees are constantly reminded that the customer, not the product, is the top priority (Besterfield *et al.*, 1995).

In this key concept of TQM, an in-depth face-to-face semi-structured interview was conducted with SDM's Senior Management Team members through a survey questionnaire to collect the background information in topics such as education, years of experience and skills. Only seven persons responded to the survey questionnaire. Therefore, based on the response from the current Senior Managers at SDM, the survey results revealed that:

- **In review of their highest level of formal educational background:**

A substantial majority of current Senior Managers (70%) have a bachelor degree or higher, while (30%) had a college diploma qualification. This was consistent with the education requirements found in their job descriptions.

- **The survey responses on actual experience of Senior Managers showed that:**

Of those ten Senior Managers responded, only 20% reflects fewer than five years of experience and another 30% have between five to ten years of experience. Again, 40% have between ten to fifteen years of experience. Only 10% of the current Senior Managers have been in the current position for more than 20 years. The majority of current Senior Managers (80% in total) had considerably more experience than their position description requires.

- **The survey results on the importance of a Senior Manager having certain core competencies showed that:**

An overwhelming majority of the Senior Managers *strongly agreed* that managing vision and purpose (80%). 60% of respondent also *strongly agree* that specific skill, priority setting, building effective teams were deemed to be very important competencies.

- **By analysis of survey result on the additional skills to improve effectiveness:**

The most requested additional skills a Senior Manager should have to improve his or her effectiveness were Total Quality Management (70%), followed by team building (60%) and customer service (60%) respectively equally important.

Clearly, in terms of educational background and longevity these respondents can credibly represent the perceptions of local government Senior Management Team. Their responses to the survey questions can logically be taken as a representative of Senior Management Team with solid experience within the local government. From a public transport viewpoint, MMC: Transport and Infrastructure, Municipal Manager, Executive Director: Transport, Infrastructure and Environment, Director and Manager: Transport and Infrastructure Planning would be the best fit to the organizational culture in order to describe the strategies under the existing structures, processes, systems, methods and tools put in place for the continuous improvement of service quality in urban public transport operations at SDM.

5.4.2 Level of TQM Maturity

As it was the purpose of this study to find out where SDM especially Department of Transport and Infrastructure Planning in the Cluster: Transport, Infrastructure is in the quality race, internal and external customers were asked to solicit their responses about the level of implementation of TQM within the locus of this study.

5.4.2.1 Customer Focus

As earlier identified, listening to the “customers” and quickly responding to their changing needs, expectations and perceptions is one of the TQM basic approaches. In this view, one common survey questionnaire was sent to SDM’s

internal (employees) and external (public transport operators and users) customers. Three focus group discussions were held and conducted by means of a common questionnaire to gauge opinion, attitude, perception of the SDM;s customers. In this study focus groups were categorized as follows: *Group 1* (employees); *Group 2*: (public transport operators – rail, buses and mini-bus taxis) lastly *Group 3*: (public transport users). Survey responses were collected, tabulated, summarized and data were organized by the survey subject area. The survey results were summarized as follows:

Customers believe that SDM as a whole is customer orientated, although some employees based their opinion on the general line of thinking to say that this organization is not customer-orientated. One of the employees emphasized that *“the organization need to improve on how customers should be treated”*. However, based on the survey results, the data analysis reveals that the majority of the commuters perceived SDM is not customer orientated. On the other hand, they (users) also strongly agreed that the District promotes the use of customer feedback loop to improve its processes, employees agreed. In this case, overwhelming majority of public transport operators strongly agreed that problems expressed by internal and external are not quickly resolved. Similarly, most of commuters stated that they are not aware of a system within SDM which is used to monitor and measure customer satisfaction.

5.4.2.2 Worker Involvement and Empowerment

After an understanding of the focus to the customer satisfaction, it was felt important to identify the involvement and empowerment of employees at SDM. In their responses, employees generally *disagreed* that they are empowered to pursue quality improvement ideas and this opinion received a rating of 33%.

On the one hand, employees further agreed that authority is not delegated to them by their principals (42%). Consistent to this, 42% of the employees call the researcher’s attention that participation in TQM is not endorsed throughout they

are given the responsibility and encouraged to improve their work processes. Based on the above findings, employees are not involved and empowered at SDM. Consistent with this perspective, a respondent commented that “*as a junior employee some of the things are not discussed with us only management and senior staff are able to discuss matters*”.

5.4.2.3 Cultivate Organizational Learning

The SDM employees insisted that their municipality still provides across training opportunities for its employees. When responding to a question if as employees they are not encouraged to use Total Quality concept to improve their work process, about half of these employees refrain from offering answer(s). Similarly they show some disagreement pertaining to whether their organization has an ongoing TQM training for the entire workforce.

The slight majority of employees *strongly disagreed* that the organization looks for areas where job training is still needed. Through observation, most contracted employees never undergoing any training and development session within this municipality. They even drew the researcher’s attention to the point that they have a blurred future in SDM, since their job prospects are secured through a month-to-month contract.

5.4.2.4 Teamwork

SDM’s employees *strongly agreed* that the quality team improvements ideas typically do not receive positive consideration. Although 42% of management encourages employees to become team members, their workload prevents them from spending time on team. An employee postulated that “*through teamwork positive solutions are met*”.

As they earlier responded that SDM is not customer, these employees also *strongly disagreed* that the team concept is reliable and useful means of resolving problems and improving work processes. Due to the organizational re-alignment,

only two employees are left in the Department of Transport and Infrastructure Planning. To focus the readers' attention, only the Manager: Transport and Infrastructure Planning and the researcher are permanently employed in that department.

5.4.2.5 Tools and Technique

Although employees initially *disagreed* that they have never been trained in the use of statistical tools and process control, 42% of them (employees) *strongly agreed* that statistical tools and process control charts are typically not used or understood by employees. Similarly, 50% of respondents disagreed to the statement that the organization does not ensure that reports are accurate and useful.

5.5 RECOMMENDATIONS

Responses from the empirical study show gaps in application of TQM principles vis-à-vis efficient urban transport operations at SDM. The following recommendations are consequently offered for management consideration and action:

- *Senior Management Team can lead staff by:*
 - Developing a cohesive clear internal vision and mission of inclusiveness through a formal strategic planning process for the continuous improvement of service quality for customer satisfaction;
 - Consulting, involving and maintaining employees' presence where strategies, processes, systems, methods and policies are being formulated;
 - Sharing power and decision-making authority with employees;
 - Attracting and supporting good personnel through training in tools and techniques needed to manage their performance;

- Involving employees at all levels and cultivate the spirit of team work with them.
- *With public transport operators and users, Senior Management Team can:*
 - Build trust with the public transport service providers, users and community organizations by maintaining their presence where strategies, processes, methods and policies and issues are being formulated;
 - Maintain a high level of urban public transport operators, users and community as a priority.
 - Cultivate partnership with private sector;
- Integration of land use planning and to transport planning in the public transport networks and nodes;
- Ensure high quality public transport modes (rail, buses and mini-bus taxis), mainstream, and for non-motorized transport (walking and cycling) and special category needs (young, women and elderly);
- Promote high quality public transport infrastructure (interchanges and roads) as well as facilities;
- Integration and linkage of transport planning and the environmental regulations and procedures.

5.6 CONCLUSIONS

Having described the findings, this section would attempt to conclude the survey results. The evidence suggests that SDM Senior Managers are far from being fully aware of TQM concepts and principles, and, consequently apply them in their day-to-day work. Similarly, TQM has affected the employees; public transport operators and users' perception on several aspects of their day-to-day work.

The overall conclusion restating that the study has succeeded in finding answers to the research questions, objective and hypothesis. The empirical research highlighted TQM as a whole new management philosophy with set of concept and tools for further research in this area.

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APPENDIX A: **DEMING'S FOURTEEN POINTS AND SEVEN DEADLY DISEASES**

Deming's Fourteen Points for Quality Improvements
1. Create a plan; publish the aims and purpose of the organization. 2. Learn and adopt the new philosophy of quality. 3. Understand the purpose of inspection; stop depending on inspection. 4. Stop awarding business based on price alone. 5. Improve the system constantly. 6. Institute training. 7. Teach and institute training. 8. Drive out fear, create trust, and create a climate for innovation. 9. Optimize the effort of teams, groups and staff areas. 10. Eliminate exhortations, and targets for the work force; provide method of achievements. 11. Eliminate numerical quotas for the work force. 12. Remove barriers that rob people of pride for workmanship. 13. Encourage education and self improvement. 14. Make action to accomplish the transformation.
Deming's Seven Deadly Diseases
1. Lack of constancy of purpose to plan products and service. 2. Emphasis on short-term profits. 3. Personal review systems for managers and management by objectives. 4. Job hopping by managers. 5. Using only visible data in decision making. 6. Excessive medical cost. 7. Excessive costs of liability driven up by lawyers that works on contingency.

Source: Quality and TQM

(<http://www.Referenceforbusiness.com/management/PrpSa/Quality-and-Total-Quality-Man>)

APPENDIX B: Hierarchy of Quality Determinants in Public Transport

QUALITY	1. Availability	1.1 Network	- Distance to C/D points - Need for transfers - Area covered
		1.2 Timetable	- Operating hours - Frequency
	2. Accessibility	2.1 External Interface	- Pedestrians - Cyclists - Taxi users - Private car users
	3. Information	2.2 Internal interface	- Entrances/exits to C/D points - Internal movement at C/D points - Access to vehicles - Internal movement in Vehicles
		2.3 Ticketing	- Home ticketing - Ticketing within system - Ticketing at other locations
		3.1 General information	- Availability - Accessibility - Time - Customer care - Comfort - Security - Environment
		3.2 Travel information in normal conditions	- Street directions - C/D points identity - Vehicle direction - Route - Time - Fare - Type or ticket
			- Current network status - Suggested alternative - Refund/redress - Suggestions and complains - Lost property
	4. Time	4.1 Length of travel time 4.2 Punctuality 4.3 Reliability	
	5. Customer care	5.1 Commitment 5.2 Customer Interface	- Enquiries - Complaints - Redress - Suggestions
		5.3 Staff	- Availability - Attitude - Skills - Appearance

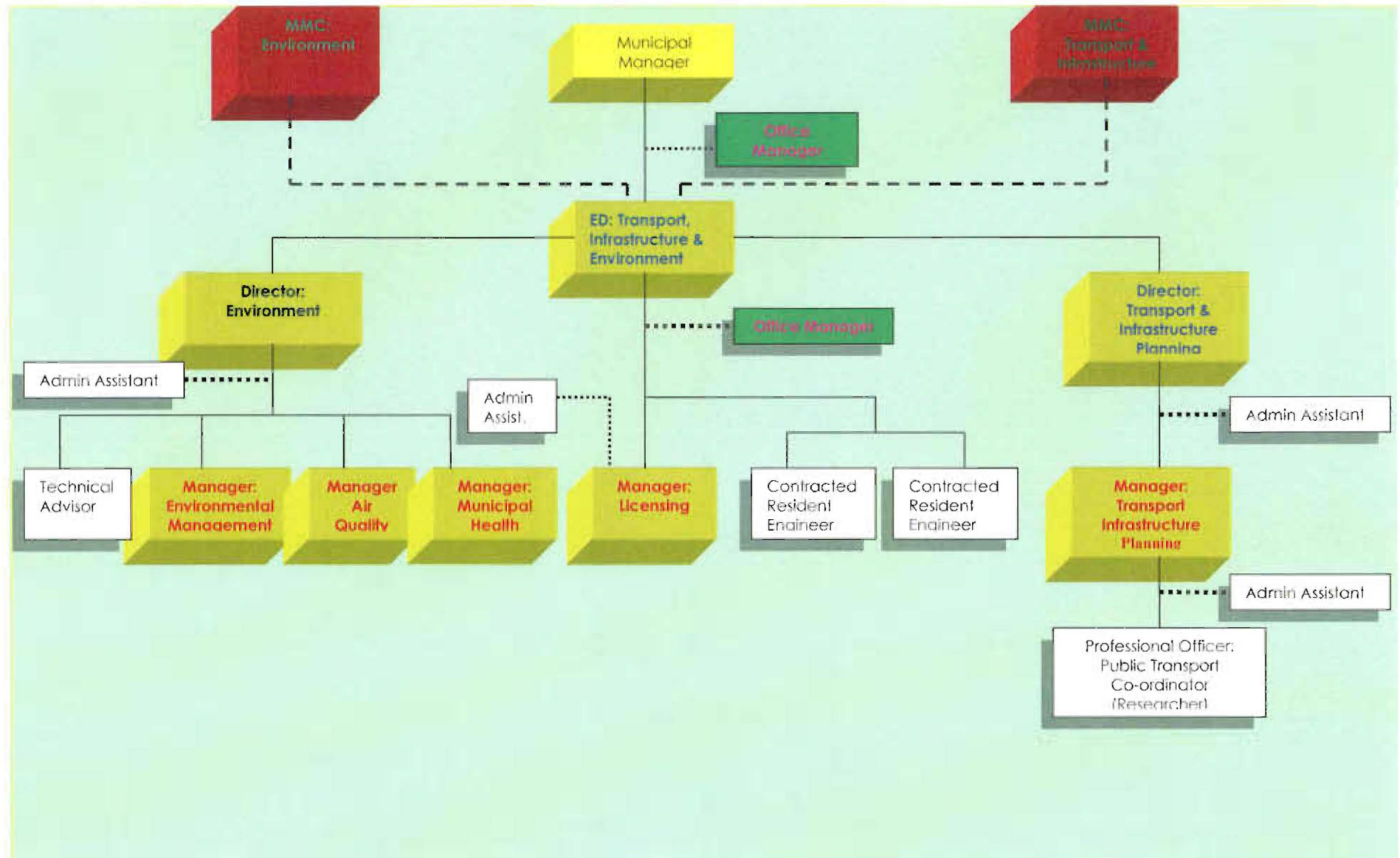
Source: Mezghani (2005:77)

**APPENDIX C: SIX DIMENSIONS OF CHANGE LEADING TO A NEW PARADIGM IN
TRANSIT AGENCIES**

DIMENSION	SCOPE
1. Mission Shift	A change in the strategic mission of the organization from "capacity" and "an operator of owned assets" to a "manager of mobility", regardless of whose assets might be used to provide capacity
2. Customer Focus	A change in measure of success from service output to measures of the quality of life customer experience and outcomes of service investment and across the community
3. Collaboration	An expansion of sustained relations and communications across modes, agencies, organizations, and jurisdictions with mobility and community quality of life.
4. Integration	an expansion of formal and informal arrangements that integrate facilities, equipment, systems, services, functions and resources across agencies and organizations with responsibility for mobility and community quality life
5. Information Technology	Full-scale introduction of the state-of-the-art information to support focus and integration across organization – that is, universal fare media, real-time on-street customer information, shared dispatching and scheduling systems, and so forth.
6. Organizational Structure	Introduction of new or altered functions, business units, skills, support systems and so forth to support the new strategic mission.

Source: TCRP on Support for Fundamental Change in Public Transportation (2002)

APPENDIX D: THE NEW ORGANOGRAM OF THE CLUSTER: TRANSPORT, INFRASTRUCTURE AND ENVIRONMENT



SOURCE: OWN INFORMATION

APPENDIX E1

A REPORT ON TAXI RANKS VISIT (2008)

File No.: 4/2/4/7

Cluster: Transport, Infrastructure and Environment

Portfolio: Transport & Infrastructure

1. PURPOSE

This report seeks to inform the Council about the current status of the public transport facilities during a recent visit to conduct an on-site inspection to five formal ranking termini.

2. INTRODUCTION

The Council is required to provide and manage safe, efficient and effective public transport facilities for all users and in order to achieve this it also relies on the users to inform about the problems encountered. As part of regular consultation with the public transport operators and users at the Public Transport Forum the issue of the maintenance of public transport facilities has been the subject of debate. This has resulted in criticism by the users on the way the Council manages the facilities.

On receipt of these complaints pertaining to the current status of the ranking termini several options were discussed. The most measured option at this stage has been on the basis of seeking the public transport users' opinion to solicit comments and assist the Council in reviews for the upgrading and maintenance at the transport nodes.

3. DISCUSSION

This has led to discussion to form a Taxi Ranks Task Team led by the Council's MMC for Transport and Infrastructure in consultation with the Directorate: Facilities Management, Local Municipalities, and Representatives from the Taxi Industry. The Task Team undertook a tour on the 23 July 2008 to various public transport facilities. The facilities visited were Vereeniging, Heidelberg, Vanderbijlpark and Meyerton. The tour also looked at how these facilities should be best controlled and managed. What follows is a brief summary of the tour.

3.1 Vereeniging Taxido Junction

This taxi rank was designed to provide taxi bays to cater for local, inter-metro as well as long distance taxi and bus operations. This facility is in

the vicinity of the railway station, Intersite Offices and the nearby retail outlet. Within its vicinity is a bus-terminal, Hawkers' Office, Satellite Police Station, bus-tickets Office and three different Taxi Offices were catered for. It is the largest and busiest rank and requires consistent maintenance and upgrading. This existing rank is covered by the Council's CCTV camera system to monitor it during its hours of operations. For easy reference conditions will be explained in blocks and locations.

Block A: Sharpeville Taxi Rank

Initially this site has been considered previously for a trial period of advertising. It was never being earmarked and anticipated as either a ranking or a holding bay. There was a gentlemen's agreement amongst taxi operators to consent for this space to be utilized but not formally introduced to the Council as a ranking facility. However, the Taxi Task Team reveals that:

- Anticipated demand exceeds supply in terms of the vehicular movements
- This area needs decent shelters
- Obstruction of the fire hydrates
- Restriction on the mobility of emergency vehicles
- Damaged nearby un-used buildings

Bus Terminal

These bays were provided to offer services for the bus operators. It has been revealed that this facility is also been utilized as a holding bay for taxi operators during off-peak period. By allowing taxis to use this facility traffic flow volumes along Union Street could be reduced

Block B: (Roshnee-Ruster-vaal and JHB Platform)

Hawkers' Office

This Office is close to the SAPS satellite Office. It was designed to cater for the needs of the Hawkers Committee but it also needs in depth investigation in terms of its ownership and usage. It also needs necessary refurbishment.

SAPS Satellite Office

This Office space has been initially allocated to curb any criminal element which crops within this ranking facility, but currently it has not been fully utilized for its intended purpose that is visible policing. The police vacated

this office when during reviewable of satellite police station. It also needs necessary renovations.

Changing Room for Contracted Workers

This space seems to be extremely too small for the workers. Although a complain has been registered that an allocated nearby Taxi Office is been used for other business purposes not for its intended needs.

Block C: Local operations

This site caters for local taxi operations to different township areas. However, the Taxi Ranks Task Team noted the following:

- Leaking underground pipes
- Leaking communal taps
- Height restrictions
- Over-capacity of vehicles

Block D: Long-distance operations

The above facility intended to cater for inter-provincial and cross-border the long-distance taxi operations. During the current visit the Taxi Ranks Task Team complement this facility for its cleanliness.

However attention was drawn to the nearby holding bay which seems to be under review to be utilized as a ranking terminal and a washing bay for future needs.

The general view was that there is a constant collision with the structural designed of this facility whereby some polls have been skewed due to the negligent driving behaviour which caused a malicious damage to the Council's property. The structural design of the Taxido Junction did not cater for the informal structures built within this facility. The possibility to relocate them has been anticipated.

3.2 Vanderbijlpark Taxi Rank

This facility was designed with the intention to complement bus operations. Currently, there are two ranks exist in this vicinity that is a bus terminal and a nearby Park Square taxi rank which is in close proximity of the retail outlets . The Taxi Industry has a long-standing request for consideration to be given to increase ranking bays as this facility is too small for its needs.

They even expressed concern on the proposed housing development on the adjacent land which was previously earmarked for a ranking terminal. Although land has been seen as a contentious issue, a revisit and review of both Urban Regeneration and the Spatial Development Framework has been brought on the spotlight.

As this facility is completely disorganized and is not clear as to which mode has the right to operate. This has caused congestion and created pockets of tension in the city centre. It is proposed that the possibility to bring these two ranks into one integrated modal facility has been anticipated in order to improve levels of mobility. The Taxi Ranks Task Team further revealed that the physical constraints encountered which exhibit vehicular movements should be attended to as a matter of urgency.

3.3 Meyerton Taxi Rank

This taxi rank is overcrowded due to the tremendous demand for public transport service in the area. Although this facility belongs to a private operator, the demand has risen significantly. There is a widespread concern that there has not been a corresponding increase in supply particularly during busier periods. This facility would require possible opportunities for modal integration between taxis and buses along with economic hubs.

It has been noted that immediate and thorough investigation in terms of the ownership of the rank should be accelerated. In addition, a provision should be made for the open land opposite this facility to be utilized as a ranking terminal.

3.4 Heidelberg Taxi Rank

This taxi rank is located in Heidelberg comprised of the beer salon (tavern) which operated privately within its vicinity. In addition to the taxi rank, sixteen lockable community market stalls, a Taxi Association's Office, public toilets and makeshift wash bay were also constructed. It also allows passengers to take taxis to a variety of destinations, which are not provided by both the bus and rail line.

Transportation demand estimation for a taxi rank highlight that it is currently too small for its needs, but there is no enough land to make provision for further taxi bays.

Taxi Association's Office

In the light of the shortage of the land, the Taxi Ranks Task Team recommended that other avenues should be explored to renovate the boardroom for the executive committee.

Hawkers' Stalls

The Taxi Ranks Task Team also noted a concern from hawkers that the Council should install the below-mentioned items:

- Gutters
- Burglar-doors

However the Taxi Ranks Task Team expressed a particular safety concern pertaining to the presence of the tavern within the vicinity of this rank in order to beef-up security personnel.

3.5 Shalimar Ridge Taxi Rank

This terminal caters for both short and long-distance taxi operations and it is surrounded by the shopping complex. The status of this ranking facility seems to be informal but the possibility to formalize it is still underway.

Public Toilets

Generally public amenities such as toilets in the District varied significantly in terms of standards, with some rated fairly and others very poor. It was established that in many instances cleaning and maintenance under the short-term poverty alleviation projects was undertaken without sufficient funding and man-power.

The Taxi Rank Task Team found that most of these facilities were poorly maintained and managed by people appointed on *ad hoc* basis by either the Council or the Taxi Associations. Cleaning was done in a disorganized manner with a minimum of cleaning material and equipment used.

It was further established that the ranking terminal and public toilet need:

- To be upgraded and refurbished
- To upgrade the pipeline system
- To install barriers and burglar proofing
- To install solid granite tops to stop thieves from taking basins
- To keep theft and vandalism to minimal
- Toilet sets, basins and taps

- Littering bins
- Electricity supply
- Visible posts and signage
- Road markings
- Taxi Association's Office Space

4. ALIGNMENT WITH COUNCIL STRATEGIES

The Turnaround Strategy for the Taxi Rank will provide a framework for the Council's policies and activities relating to public transport provision. This strategy is based on consultation with key stakeholders and alignment with the overarching framework of the Council's IDP. This strategy establishes the Council's vision for maintaining and enhancing Sedibeng District Municipality (SDM) as a safe city for public infrastructural provision.

5. FINANCIAL IMPLICATIONS

This report would be given to the Facilities Directorate to estimate the cost of repairing or attending to critical areas

6. LEGAL IMPLICATIONS

The pieces of legislations made provision for the promotion and implementation of modal integration.

6.1 At National Sphere

Both the *White Paper on National Transport Policy* (1996) and *Moving South Africa: Action Agenda* (1999) very strongly support and promote modal integration as National Government Policy.

In addition, the *National Land Transport Transitional Act* (NLTTA) in 2000 urges planning authorities that they must ensure in their plans that integration within and between land transport modes so as to optimize the accessibility and utilization of public transport services, facilities and infrastructure.

6.2 At Provincial Sphere

The *Gauteng White Paper on Transport Policy* (1997) came out very strongly to promote modal integration in the Province

6.3 At Local Sphere

There is no co-ordinated uniform modal integration policy for Metropolitan Government in Gauteng. But these planning authorities have all voiced their support for modal integration. Furthermore, the *NLTTA* as referred to in (6.1) above has empowered planning authorities in terms of modal integration.

7. CONCLUSION

As the data collection exercise and on-site inspection of the above public transport facilities has been undertaken. The high cost of maintenance and upgrading especially to public amenities meant that alternative funding options should be explored. Amongst the suggestions made in this report is to carry the cost where joint refurbishing ventures undertaken by the Council in partnership with private concerns. Another suggestion was for private companies to adopt public conveniences, using the facility for advertising. The turn around strategy with updated CPTR will be the basis on which long term planning on public transport facilities will be developed. There is a need of making provision for upgrading and major repairs in the current or next financial year.

RECOMMENDED

1. THAT the report regarding an on-site inspection by the Taxi Ranks Task Team be noted.
2. THAT the Executive Director: Transport, Infrastructure and Environment consult with Executive Director: Corporate Services to look at how some of the infrastructural defects can be attended in the short-term.

APPENDIX: E2

IDENTIFICATION OF KEY INTERMODAL FACILITIES FOR UPGRADING (2008)

File No.:

**Cluster: Infrastructure Development
Portfolio: Public Transport**

1. PURPOSE

This report seeks to examine and identify key intermodal facilities for upgrading to unpack the broadly different contexts within which urban renewal is practiced, so that the Council can practice and gain better understanding of the current urban public transport policy reform.

2. INTRODUCTION

Modal integration is a concept more often associated with public transport referring to the integration of the different public transport modes (mainly taxis, buses and trains) into the public transport system in such a way that these modes support and complement each other and that they operate as a co-ordinated public transport system. Although the concept has been promoted and accepted some time and it has been isolated in certain areas.

The vision is to provide an integrated public transport system where taxis, buses and trains operate in a single seamless system:

- within an integrated network
- with integrated schedules
- with proper transfer facilities
- a common ticketing and fare system
- a combined information system, including call centers

It is also recognized that there are other transport modes and facilities affecting the modal integration of public transport which must be taken into account, such as walking to and parking at modal transfer facilities, including park and ride. Accessible transport for people with disabilities, are included in the modes above and is also recognized as a mode in itself. It is within the context of this report that there is a need to identify intermodal facility for upgrading in order to cater for these public transport modes within such facility.

3. DISCUSSION

This section comprises the evaluation of the potential of the envisaged development objectives and securing commitment for the implementation of catalytic projects that yet to be identified. In this view, all the intermodal facilities

which have been earmarked for upgrading have been included in the discussion below:

3.2 Intermodal Facilities

3.1.1 Vereeniging Taxido Junction

This taxi rank is strategically situated and has been utilized as a gate-away facility and is fairly close to the Sedibeng Technical College – Vereeniging Campus. It caters for both local and long-distance taxi operations. It is a very busy and requires upgrading in order to best utilize the available land and the modal integration opportunities between taxis, buses and trains. This rank is proximity close to the railway station and retail development, it allows passengers to take taxis and buses to a variety of destinations. A waiting area, roofs and ablution of toilet facilities at this rank needs major improvements.

This rank requires more destination lines added to it and the circulation flow and turning radius should be improved through redesign. It also serves the Vereeniging CBD very well but there are some limitations with the small amount of land available.

Due to the land limitations a holding area located south of the CBD cater for a limited number of the taxi vehicles. The feasibility study for realigning a number of platforms to cater for recapped taxi vehicles and buses is also being investigated and this project will involve a road over rail bridge which will provide a vital link in the northern section of the railway line near Rivera Hotel and the surrounding residential areas.

3.1.2 Vanderbijlpark Taxi Rank

This taxi rank involves using the possible opportunities of modal integration between the taxi and bus modes along with the current retail possibilities. This ranking terminal is situated nearby, half way and between marketing outlets such as Vaal Gate, Vaal Mall and Riverfront Mall, Park Square Retail Development and the Vanderbijlpark CBD as well as Sedibeng Technical College – Vanderbijlpark Campus. It also allows commuters to disembark to obtain employment in the mainly middle- and high-income residential suburbs.

Currently, there are two taxi ranks located in this vicinity. The viability to build one integrated modal facility should be anticipated in order to improve levels of mobility and attractiveness of the area for commercial purpose.

3.1.3 Bophelong Taxi Rank

The current taxi rank is overcrowded due to the tremendous demand for public transport service in the early peak hour. This facility would require possible opportunities for modal integration between taxis and buses along with economic hubs.

The main route to the rapidly developing Bophelong Extension area can also be accessed by both taxis and buses from this area. The bus service operations that are available, but there are no dedicated bus rank in the study area. It is also anticipated that intermodal feeder services such as lay-bys have been built to give access to this new development zones (Bophelong Extensions). This project will also serve the nearby industrial zones.

3.1.4 Motlalepula Taxi Rank (Sebokeng Taxi City)

This intermodal facility has been considered and completed a while ago and then held in abeyance especially for the bus operations as it currently under-utilized by taxi operators. However, the cost of building a bridge to serve the northern link within the Government Precincts such as Sebokeng Hospital, Police Station, Department of Social Development and Vaal University of Technology-Sebokeng Campus makes the project prohibitively expensive.

Some discussions have occurred with private developers involved with the possibility of proceeding with the upgrade of this infrastructure for taxi-related businesses as soon as possible as it will enhance the potential of the private sector development. Possibly, this facility needs to be upgraded to cope with the demand from increased passenger and vehicular traffic.

3.1.5 Mpumelelo Taxi Rank

This taxi rank is located in Devon and it would fit in with the current emphasis in the Province to built transport precincts in formerly disadvantaged areas. This rank will allow passengers to take taxis to a variety of destinations, which are not provided by the rail line.

Transportation demand estimation for a taxi rank should be undertaken. Depending on the outcome of this study such taxi rank should serve regional traffic in addition to taxi lay bye(s). Therefore, the possibility for intermodal facility in this vicinity should be investigated

3.2 Stakeholders' Forum

It is proposed that a Stakeholders' Forum be established which will drive the development around the above anticipated initiative. This forum

should be representative of all stakeholders within the study area as well as Government structures including SDM, Gautrans, Propnet and the Private sector.

4. ALIGNMENT WITH COUNCIL STRATEGIES

In line with the Council's strategic alignment as entrenched in the IDP, this report is built around the key focal area to plan and develop accessible, safe and affordable public transport systems and facilities. This report is also cemented on one of the IDP's deliverables for identification of key intermodal facilities for upgrading and development as precincts/economic hubs.

5. FINANCIAL IMPLICATIONS

Arising from the implementation of this project an amount of is secured for funding. It is prudent that the source of funding is allocated on the budget vote number to ensure that integration with IDP is indeed optimized.

6. LEGAL IMPLICATIONS

The pieces of legislations made provision for the promotion and implementation of modal integration.

6.1 At National Sphere

Both the *White Paper on National Transport Policy* (1996) and *Moving South Africa: Action Agenda* (1999) very strongly support and promote modal integration as National Government Policy.

In addition, the *National Land Transport Transitional Act* (NLTTA) in 2000 also makes provision for the compulsory promotion of public transport by all spheres of government. It further urges planning authorities that they must ensure in their plans that integration within and between land transport modes so as to optimize the accessibility and utilization of public transport services, facilities and infrastructure.

6.4 At Provincial Sphere

The *Gauteng White Paper on Transport Policy* (1997) came out very strongly in favour of modal integration in the Province. Gauteng Department of Public Transport, Roads and Works has created a specific Modal Integration Sub-Directorate in the Directorate Public and Urban Transport in order to promote modal integration in the Province

6.5 At Local Sphere

There is no co-ordinated uniform modal integration policy for Metropolitan Government in Gauteng. But these planning authorities have all voiced their

support for modal integration. Furthermore, the *NLTTA* as referred to in (6.1) above has empowered planning authorities in terms of modal integration.

7. CONCLUSION

As the assessment of the above intermodal facilities has been undertaken, it has become apparent that there is a tremendous amount of potential in the upgrading of these public transport facilities. The private sector's enthusiasm to initiate development within the jurisdiction of SDM indicates that there is a certain public transport demand in the market. This conclusion to the study highlights the need for Council to provide adequate transport infrastructure, facilities to meet the needs of the inhabitants. The Stakeholders' Forum will be a vital element in ensuring that this initiative is successfully developed in future by integrating land use planning with adequate transportation planning.

RECOMMENDED

1. THAT the report regarding identification of intermodal facilities for upgrading be hereby approved.
2. THAT the Executive Director: Transport, Infrastructure and Environment ensures that the procedure referred to in (1) above is accordingly communicated as referred to in this report.

APPENDIX F1

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Cell : +27 82 941 4748
Email : thabanqm@sedibeng.gov.za

North West University
P.O. Box 1174
VANDERBIJLPARK
1911

The Municipal Manager
Sedibeng District Municipality
P.O. Box 471
VEREENIGING
1930

Dear Madam

REQUEST OF APPROVAL FOR EXECUTION OF A RESEARCH STUDY

As part of my academic studies for the completion of a Master's Degree in Public Administration at North West University. I do request to apply my research on Total Quality Management at Sedibeng District Municipality as the locus of this study.

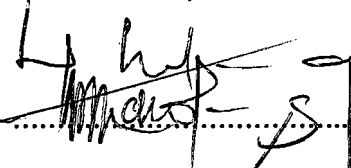
The fundamental goal of this research is to determine how to improve the quality and effectiveness of urban public transport operations in your institution. By so doing, to investigate the link between TQM and urban public transport operations specifically in the Department of Transport and Infrastructure Planning for successful TQM implementation using this action research.

Some employee will be requested to participate and form part of in this research project by means of completing questionnaire, interviews, observations, etc. These will be done with very little interruption of the learning programme without compromising service delivery. The results of my research task will be available for future application in SDM.

I would also like to assure you that all responses given will be treated with a high degree of **SECURITY** and **CONFIDENTIALITY** and will be used for research purposes only. If you need further clarification feel free to contact me or my supervisor.

I would like to thank you for your cooperation

Yours Faithfully



THABANG MACHOBANE

Professor Ernest Ababio
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North West University
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APPENDIX: F2

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16 Versveld Street
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VANDERBIJLPARK
1911

The Municipal Manager
Sedibeng District Municipality
P.O. Box 471
VEREENIGING
1930

Dear Employee

SURVEY OF A RESEARCH STUDY

You have been selected to voluntarily participate in a research study which examines the level of success of the Total Quality Management (TQM) initiative in Sedibeng District Municipality (SDM). This case study is a requirement for the completion of a Master's Degree in Public Administration at North West University (NWU). Furthermore, this study and the attached survey instrument, remains independent of SDM. No one except faculty members of NWU will see you responses.

The fundamental objective of this questionnaire is to obtain information regarding your perceptions of the TQM initiative in your organization. Your prompt responses will be used to determine whether the Department of Transport and Infrastructure Planning of SDM is experiencing successful implementation of TQM.

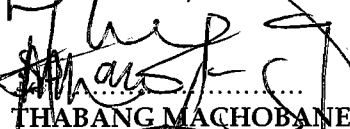
I would be grateful if you could spend a few minutes answering the attached questionnaire. As all of them are designed for quick and easy response, they require a tick or a circle only.

I would also like to assure you that all responses given will be treated with a high degree of **SECURITY** and **CONFIDENTIALITY** and will be used for research purposes only. When the results of this survey are published, readers will be unable to identify any specific individual. The survey result will be viewed in terms of overall perception. Please DO NOT sign, or in any way identify yourself.

If you need further clarification feel free to contact me or my supervisor.

I would like to thank you for your cooperation

Yours Faithfully



THABANG MACHOBANE

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APPENDIX F3

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North West University
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VANDERBIJLPARK
1911

The Regional Public Transport Stakeholder:
Rail, Buses, Mini-Bus Taxi and Commuters

Dear Colleague

SURVEY OF A RESEARCH STUDY

You have been selected to voluntarily participate in a research study which examines the level of success of the Total Quality Management (TQM) initiative in Sedibeng District Municipality (SDM). This case study is a requirement for the completion of a Master's Degree in Public Administration at North West University (NWU). Furthermore, this study and the attached survey instrument, remains independent of SDM. No one except faculty members of NWU will see you responses.

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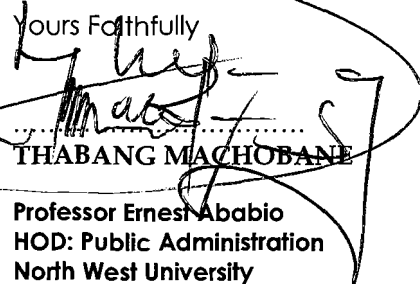
I would be grateful if you could spend a few minutes answering the attached questionnaire. As all of them are designed for quick and easy response, they require a tick or a circle only.

I would also like to assure you that all responses given will be treated with a high degree of **SECURITY** and **CONFIDENTIALITY** and will be used for research purposes only. When the results of this survey are published, readers will be unable to identify any specific individual. The survey result will be viewed in terms of overall perception. Please DO NOT sign, or in any way identify yourself.

If you need further clarification feel free to contact me or my supervisor.

I would like to thank you for your cooperation

Yours Faithfully



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: Community Services
Unions : SAMWU
IMATU

APPENDIX G1

SURVEY QUESTIONNAIRE FOR SENIOR MANAGEMENT TEAM MEMBER

RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT (TQM) AND EFFECTIVE URBAN PUBLIC TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY (SDM)

Purpose: The objective of this study is to document the relationship between Total Quality Management and effective Urban Public Transport Operations at Sedibeng District Municipality. For the study purposes, *Senior Management Team* include Portfolio Councillors, Municipal Manager, Executive Director, Directors and Managers, would find the results valuable in determining action steps needed to enhance effective urban public transport system.

Submission Instructions

The high-ranking person in your organization with direct responsibility for management and leadership acumen should complete this survey:

Telephone Survey Interview: If you would prefer to complete the survey by telephone interview, call 071 490 1397

E-mail Survey: If you would prefer to complete the e-mail survey , please e-mail your request to: thabangm@sedibeng.gov.za

Name (Optional):

Title :

Cluster :

Department :

Phone: **Fax:** **E-mail:**.....

Organization's website:

PART I: MANAGEMENT AND LEADERSHIP

Section 1): SENIOR MANAGEMENT TEAM BACKGROUND

This section of the survey contains questions of a personal nature. The information would be used solely to gather background information of the respondents in order to determine if any relationship exist between respondents who exhibit similarities in their answers.

1. What is your current job title?

2. What is the title of the person to whom you report?

3. What is your gender?

Male

☐

Female

☐

4. What is your age group?

☐ 20 – 29 years

☐ 30 – 39 years

☐ 40 - 49 years

☐ 50 – 59 years

☐ Other, please specify.....

5. What is the highest level of formal education that you have completed?

☐ Some high school

☐ Bachelor's Degree

☐ Some college

☐ Honours Degree

☐ Other, please specify:

☐ Master's Degree

6. How many years of experience in the present position?

7. How many number of employees directly reporting to you

Section 2): CORE COMPETENCIES REQUIRED OF SENIOR MANAGEMENT TEAM

8. Ranking Scale

Please rank the importance of the following skills required for a Senior Management Team Member. Respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

If you feel that a competency is of more important for certain position. Then add additional competencies for your leadership team you deem appropriate.

Skills Required of Senior Management Team	SA	A	DK	D	SD
Job-specific skill	[]	[]	[]	[]	[]
Management and Supervision	[]	[]	[]	[]	[]
Strategic agility	[]	[]	[]	[]	[]
Priority Setting	[]	[]	[]	[]	[]
Managing Vision and Purpose	[]	[]	[]	[]	[]
Building effective Teams	[]	[]	[]	[]	[]
Developing Others	[]	[]	[]	[]	[]
Motivating Others	[]	[]	[]	[]	[]
Managing and Measuring work	[]	[]	[]	[]	[]
Problem Solving	[]	[]	[]	[]	[]
Labour Relations	[]	[]	[]	[]	[]
Customer Focus	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]

9. What additional skills would you like to have to improve your effectiveness or that of a Senior Management Team? Check all that apply

- ☐ Management and Supervision
 ☐ Customer Service
 ☐ Team Building
☐ Total Quality Management
 ☐ Labour Relations
 ☐ Other, Specify

APPENDIX G2

SURVEY QUESTIONNAIRE FOR INTERNAL CUSTOMERS – EMPLOYEES

RELATIONSHIP BETWEEN URBAN PUBLIC TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY

Purpose: The objective of this study is to document the relationship between Total Quality Management and effective Urban Public Transport Operations at Sedibeng District Municipality. For the study purposes, *Internal Customers* include Co-ordinators, Professional Officers, Office Manager, Admin Assistant, Contracted Workers and Receptionist would find the results valuable in determining action steps needed to enhance effective quality service to satisfy external customers.

Submission Instructions

The operational staff in your organization with direct responsibility for day-to-day activities should complete this survey:

Telephone Survey Interview: If you would prefer to complete the survey by telephone interview, call 071 490 1397

E-mail Survey: If you would prefer to complete the e-mail survey, please e-mail your request to: thabangm@sedibeng.gov.za

Name (Optional):

Title :

Cluster :

Department :

Phone: **Fax:** **E-mail:**.....

Organization's website:

PART II: TOTAL QUALITY MANAGEMENT MATURITY

Section 3): CUSTOMER FOCUS

This section looks at the organization's customer service system, both internal and external customers. It examines the customers' perceptions, attitude, needs and expectations. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree **[SA]**, Agree **[A]**, Don't Know **[DK]**, Disagree **[DA]**, or Strongly Disagree **[SD]**.

	<u>SA</u>	<u>A</u>	<u>DK</u>	<u>D</u>	<u>SD</u>
10. The organization as a whole is not customer orientated	☐	☐	☐	☐	☐
11. The organization promotes the use of customer feedback loops to improve its process	☐	☐	☐	☐	☐
12. Surveys are commonly used as a tool to improve our understanding to customer expectation.	☐	☐	☐	☐	☐
13. Employees continually strive to satisfy their internal customers.	☐	☐	☐	☐	☐
14. Problems expressed by internal and external customers are not quickly resolved.	☐	☐	☐	☐	☐
15. Methods to measure and monitor external customer satisfactions have been implemented in my organization.	☐	☐	☐	☐	☐
16. A system for managing customer complaints has not been developed in my organization.	☐	☐	☐	☐	☐

Any Comment:

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Section 4): WORKER INVOLVEMENT AND EMPOWERMENT

This section looks at the level in which employees feel involved and empowered in the Total Quality Initiative. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

	<u>SA</u>	<u>A</u>	<u>DK</u>	<u>D</u>	<u>SD</u>
17. Employees are empowered to Pursue quality improvement ideas	☐	☐	☐	☐	☐
18. As a result of TQM, employees now have more authority to make decisions	☐	☐	☐	☐	☐
19. Participation in TQM is not endorsed throughout the organization	☐	☐	☐	☐	☐
20. Employees are given the Responsibility and encouraged To improve their work process	☐	☐	☐	☐	☐
21. the organization has a process for receiving and evaluating employees' improvement ideas	☐	☐	☐	☐	☐
22. Management's delegation of authority to employees has not increased with TQM	☐	☐	☐	☐	☐
23. A system for managing customer complaints has not been developed in my organization.	☐	☐	☐	☐	☐

Any Comment:

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Section 5): CULTIVATE ORGANIZATIONAL LEARNING

This section looks at the organizational effort to develop and utilize the full potential of the workforce. The objective is to encourage quality improvement and enhance personal skills through training and development. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

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CULTIVATE ORGANIZATION LEARNING		<u>SA</u>	<u>A</u>	<u>DK</u>	<u>D</u>	<u>SD</u>
24	The organization has an ongoing TQM training for the entire workforce	[]	[]	[]	[]	[]
25	The organization looks for the areas where job training is still needed	[]	[]	[]	[]	[]
26	Total Quality Management training has helped employees in the performance of their jobs	[]	[]	[]	[]	[]
27	Employees have not been trained in the use of statistics tools and process control charts	[]	[]	[]	[]	[]
28	The organization provides cross training opportunities for its employees	[]	[]	[]	[]	[]
29	Employees are not encouraged to use Total Quality concepts to improve their work processes	[]	[]	[]	[]	[]

Any Comment:

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Section 6): TEAMWORK

This section examines the employee's involvement on teams as well as organizational approach to teamwork. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

TEAMWORK		SA	A	DK	D	SD
30	The entire organization becomes involved in quality efforts.	☐	☐	☐	☐	☐
31	Quality team improvement ideas typically do not receive positive consideration.	☐	☐	☐	☐	☐
32	Management encourages employees to become member of teams.	☐	☐	☐	☐	☐
33	Management considers the team concept as a reliable and useful means of resolving problems and improving work processes	☐	☐	☐	☐	☐
34	My workload prevents me from spending time on teams.	☐	☐	☐	☐	☐

Any Comment:

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Section 7): TOOLS AND TECHNIQUES

This section looks at the scope, management and use of data that facilitates the organization's ability to improve public transport services. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

TOOLS AND TECHNIQUES		SA	A	DK	DA	SD
35.	The work processes of my organization have been defined.					
36.	Meaningful measures are available to employees for use in determining trends in work process.					
37.	The organization does not ensure that reports are accurate and useful.					
38.	Statistical tools and process control charts are typically not used or understood by employees.					
39.	Organizational processes are continually reviewed in order to discover areas needing improvements.					
40.	The organization uses tools and measures to evaluate its progress towards Total Quality implementation.					

Any Comment:

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PART III: TOTAL QUALITY MANAGEMENT OPEN ENDED QUESTION

Part III of this section allows you an opportunity to express any opinion you may have regarding Total Quality Management Initiative in your organization. You may use as much as you desire:



THANK YOU SO MUCH

APPENDIX G3

SURVEY QUESTIONNAIRE FOR EXTERNAL CUSTOMERS – OPERATORS AND USERS

RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT (TQM) AND EFFECTIVE URBAN PUBLIC TRANSPORT OPERATIONS AT SEDIBENG DISTRICT MUNICIPALITY (SDM)

Purpose: The objective of this study is to document the relationship between Total Quality Management and effective Urban Public Transport Operations at Sedibeng District Municipality. For the study purposes, *External Customers* include Public Transport Operators and Users for Rail, Bus and Mini-bus Taxi modes would find the results valuable in determining action steps needed to enhance effective quality public transport service to meet and exceeds their satisfaction.

Submission Instructions

A Regional Public Transport Stakeholder(s) in your organization that may be affected by public transport strategies, policies and programs should complete this survey:

Telephone Survey Interview: If you would prefer to complete the survey by telephone interview, call 071 490 1397

E-mail Survey: If you would prefer to complete the e-mail survey, please e-mail your request to: thabangm@sedibeng.gov.za

Name (Optional):

Title :

Cluster :

Department :

Phone: **Fax:** **E-mail:**.....

Organization's website:

PART II: TOTAL QUALITY MANAGEMENT MATURITY

Section 3): CUSTOMER FOCUS

This section looks at the organization's customer service system, both internal and external customers. It examines the customers' perceptions, attitude, needs and expectations. Please respond to each statement by placing an "X" in the one box to the left of each competency. Indicate whether you Strongly Agree [SA], Agree [A], Don't Know [DK], Disagree [DA], or Strongly Disagree [SD].

	<u>SA</u>	<u>A</u>	<u>DK</u>	<u>D</u>	<u>SD</u>
24. The organization as a whole is not customer orientated	☐	☐	☐	☐	☐
25. The organization promotes the use of customer feedback loops to improve its process	☐	☐	☐	☐	☐
26. Surveys are commonly used as a tool to improve our understanding to customer expectation.	☐	☐	☐	☐	☐
27. Employees continually strive to satisfy their internal customers.	☐	☐	☐	☐	☐
28. Problems expressed by internal and external customers are not quickly resolved.	☐	☐	☐	☐	☐
29. Methods to measure and monitor external customer satisfactions have been implemented in my organization.	☐	☐	☐	☐	☐
30. A system for managing customer complaints has not been developed in my organization.	☐	☐	☐	☐	☐

Any Comment:

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PART III: TOTAL QUALITY MANAGEMENT OPEN ENDED QUESTION

Part III of this section allows you an opportunity to express any opinion you may have regarding Total Quality Management Initiative in your organization. You may use as much as you desire:

THANK YOU SO MUCH

APPENDIX H: A PROFILE OF SENIOR MANAGEMENT TEAM

SENIOR MANAGEMENT TEAM PROFILE						
JOB TITLE	DEPARTMENT/DIVISION	GENDER	AGE GROUP	EDUCATION	EXPERIENCE	NO. OF SUBORDINATES
Member of Mayoral Committee	Transport and Infrastructure	Male	40 - 49	College Diploma	4	5
Municipal Manager	Office of the Municipal Manager	Female	40 - 49	BA (Honours), Diploma	2	7
Executive Director	Transport, Infrastructure and Environment	Male	40 - 49	*M.A.	7	3
Acting Director: HR Manager	Human Resources	Male	30 - 39	Honours Degree	3	5
Manager	Transport, and Infrastructure Planning	Male	40 - 49	B.A. (Honours)	8	1
Manager	Environmental Planning	Female	30 - 39	BSc	4	2
Manager	Environmental Health Services	Male	50 - 59	Diploma	25	25 indirectly 3 directly
Former Manager	Technical Services	Male	50 - 59	Diploma In Engineering	15	0
Former Assistant Manager	Projects and Facilities	Female	40 – 49	BSc	10	0
Former Assistant Manager	Environmental Waste Management	Male	50 – 59	BSc	10	0
Former Assistant Manager	Environmental Awareness	Female	50 – 59	M.A.	12	0

Source: Own Information

APPENDIX 11: SURVEY RESULTS - CUSTOMER FOCUS

SECTION 3: CUSTOMER FOCUS								
	GROUP 1		GROUP 2		GROUP 3		TOTAL	PERCENTAGES
	%		%		%			%
Question 8/10	"The organization as a whole is not customer orientated"							
Strongly Agree	0	0	3	25	3	60	6	21
Agree	7	58	0		2	40	9	31
Don't Know	1	8	1	8			2	7
Disagree	3	25	4	33			7	24
Strongly Disagree	1	8	4	33			5	17
TOTAL	12	100	12	100	5	100	29	100
Question 9/11	"The organization promotes the use of customer feedback loop to improve process"							
Strongly Agree	0	0	3	25	2	40	5	17
Agree	3	25	2	17	1	10	6	21
Don't Know	3	25	3	25			6	21
Disagree	6	50	2	17	2		10	34
Strongly Disagree	0	0	2	17		40	2	7
TOTAL	12	100	12	100	5	100	29	100
Question 10/12	"Surveys are commonly used as a tool to improve our understanding to customer expectation"							
Strongly Agree	4	33	1	8	2	40	7	24
Agree	3	25	5	42			8	28
Don't Know	2	17	2	17			4	14
Disagree	0	0	1	8			1	3
Strongly Disagree	3	25	3	25	3	60	9	31
TOTAL	12	100	12	100	5	100	29	100
Question 12/13	"Employees continually strive to satisfy their internal customers"							
Strongly Agree	3	25	1	8			4	14
Agree	7	58	6	50			13	45
Don't Know	1	8	3	25	2	40	6	21
Disagree	0	0	2	17	1	20	3	10
Strongly Disagree	1	8	0		2	40	3	10
TOTAL	12	100	12	100	5	100	29	100
Question 13/14	"Problems expressed by internal and external customers are not quickly resolved"							
Strongly Agree	4	33	5	42	3	60	12	41
Agree	2	17	5	42	1	20	8	28
Don't Know	1	8	0	0			1	3
Disagree	2	17	1	8	1	20	4	14
Strongly Disagree	3	25	1	8			4	14
TOTAL	12	100	12	100	5	100	29	100
Question 14/15	"Methods to measure and monitor external customer satisfactions have been implemented"							
Strongly Agree	0	0	1	8	2	40	3	10.3
Agree	1	8	2	17			3	10
Don't Know	3	25	3	25			7	24.1
Disagree	2	17	2	17			4	13.8
Strongly Disagree	5	42	4	33	3	60	12	41
TOTAL	12	100	12	100	5	100	29	100
Question 15/16	"A system for managing customer complaints is not been developed in my organization"							
Strongly Agree	5	42	3	25	3	60	11	38
Agree	4	33	6	50			10	34.8
Don't Know	1	8	1	8	1	20	2	7
Disagree	1	8	1	8			3	10
Strongly Disagree	1	8	1	8	1	20	3	10
TOTAL	12	100	12	100	5	100	29	100

Source: Own Information

APPENDIX 12: SURVEY RESULTS – EMPLOYEE INVOLVEMENT AND EMPOWERMENT

SECTION 4: EMPLOYEE INVOLVEMENT AND EMPOWERMENT			
	RESPONSES	PERCENTAGES	TOTAL
Question 17	"Employees are empowered to pursue quality improvement ideas"		
Strongly Agree	0	0	0
Agree	7	58.3	7
Don't Know	1	8.3	1
Disagree	3	25.	3
Strongly Disagree	1	8.3	1
TOTAL	12	100	12
Question 18	"As a result of TQ, employees now have more authority to make decision"		
Strongly Agree	0	0	0
Agree	3	25	3
Don't Know	3	25	3
Disagree	6	50	6
Strongly Disagree	0	0	0
TOTAL	12	100	12
Question 19	"Participation in TQM is not endorsed throughout the organization"		
Strongly Agree	4	33	4
Agree	3	25	3
Don't Know	2	17	2
Disagree	0	0	0
Strongly Disagree	3	25	3
TOTAL		100	
QUESTION 20	"Employees are given the responsibility and encouraged to improve their work processes"		
Strongly Agree	3	17	3
Agree	7	58.3	7
Don't Know	1	25	1
Disagree	0	0	0
Strongly Disagree	1	8.3	1
TOTAL	12	100	3
Question 21	"The organization has a process for receiving and evaluating employees' improvement ideas"		
Strongly Agree	4	33	4
Agree	2	17	2
Don't Know	1	8	1
Disagree	2	17	2
Strongly Disagree	3	25	3
TOTAL	12	100	
Question 21	"Management's delegation of authority to employees has not increased with TQM"		
Strongly Agree	0	0	0
Agree	1	8	1
Don't Know	3	25	3
Disagree	2	17	2
Strongly Disagree	5	42	5
TOTAL	12	100	12
Question 22	"A system for managing customer complaints has not been developed in my organization"		
Strongly Agree	5	42	5
Agree	4	33	4
Don't Know	1	8	1
Disagree	1	8	1
Strongly Disagree	1	8	1
TOTAL	12	100	12
GRANT TOTAL			

Source: Source: Own Information

APPENDIX I3: SURVEY RESULTS – CULTIVATE ORGANIZATIONAL LEARNING

SECTION 5: CULTIVATE ORGANIZATIONAL LEARNING				
	RESPONSES	PERCENTAGES	TOTAL	
Question 24	"The organization has an ongoing TQM training for the entire workforce"			
Strongly Agree	0	0	0	
Agree	1	8	8	
Don't Know	3	25	25	
Disagree	4	33	33	
Strongly Disagree	2	17	17	
TOTAL	12	100	100	
Question 25	"The organization looks for the areas where job training is still needed"			
Strongly Agree	1	8	8	
Agree	3	25	25	
Don't Know	1	8	8	
Disagree	3	25	25	
Strongly Disagree	4	33	33	
TOTAL	12	100	100	
Question 26	"TQM training has helped employees in the performance of their jobs"			
Strongly Agree	1	8	8	
Agree	2	17	17	
Don't Know	2	17	17	
Disagree	3	25	25	
Strongly Disagree	4	33	33	
TOTAL	12	100	100	
Question 27	"Employees have not been trained in the use of statistical tools and process control charts"			
Strongly Agree	3	25	25	
Agree	2	17	17	
Don't Know	3	25	25	
Disagree	3	25	25	
Strongly Disagree	1	8	8	
TOTAL	12	100	100	
Question 28	"The organization provides across training opportunities for its employees"			
Strongly Agree	3	25	25	
Agree	2	17	17	
Don't Know	2	17	17	
Disagree	1	8	8	
Strongly Disagree	4	33	33	
TOTAL	12	100	100	
Question 29	"Employees are not encourage to use Total Quality concepts to improve their work processes"			
Strongly Agree	3	25	25	
Agree	2	17	17	
Don't Know	6	50	50	
Disagree	1	8	8	
Strongly Disagree	0	0	0	
TOTAL	12	100	100	
GRANT TOTAL				

Source: Source: Own Information

APPENDIX I4: SURVEY RESULTS: TEAMWORK

SECTION 6: TEAMWORK			
	RESPONSES	PERCENTAGES	TOTAL
Question 30	<i>"The entire organization becomes involved in quality effort"</i>		
Strongly Agree	0	0	0
Agree	3	25	25
Don't Know	3	25	25
Disagree	2	17	17
Strongly Disagree	4	33	33
TOTAL	12	100	100
Question 31	<i>"Quality team improvement ideas typically do not receive positive consideration"</i>		
Strongly Agree	4	33	33
Agree	2	17	17
Don't Know	3	25	25
Disagree	1	8	8
Strongly Disagree	1	8	8
TOTAL	12	100	100
Question 32	<i>"Management encourages employees to become member of teams"</i>		
Strongly Agree	0	0	0
Agree	5	42	42
Don't Know	1	8	8
Disagree	1	8	8
Strongly Disagree	5	42	42
TOTAL	12	100	100
Question 33	<i>"Management considers the team concept as a reliable and useful means of resolving problems and improving work processes"</i>		
Strongly Agree	1	8	8
Agree	2	17	17
Don't Know	3	25	25
Disagree	1	8	8
Strongly Disagree	5	42	42
TOTAL	12	100	100
Question 34	<i>"My workload prevents me from spending time on teamss"</i>		
Strongly Agree	2	17	17
Agree	5	42	42
Don't Know	1	8	8
Disagree	2	17	17
Strongly Disagree	2	17	17
TOTAL	12	100	100
GRANT TOTAL			

Source: Source: Own Information

APPENDIX I5: SURVEY RESULTS – TOOLS AND TECHNIQUES

SECTION 7: TOOLS AND TECHNIQUES			
	RESPONSES	PERCENTAGES	TOTAL
Question 35	<i>"The work processes of my organization has been defined"</i>		
Strongly Agree	1	8	8
Agree	2	17	17
Don't Know	2	17	17
Disagree	4	33	33
Strongly Disagree	2	17	17
TOTAL	12	100	100
Question 36	<i>"Meaningful measures are available to employees for use in determining trends in work process"</i>		
Strongly Agree	1	8	8
Agree	2	17	17
Don't Know	3	25	25
Disagree	4	33	33
Strongly Disagree	2	17	17
TOTAL	12	100	100
Question 37	<i>"The organization does not ensure that reports are accurate and useful"</i>		
Strongly Agree	2	17	17
Agree	0	0	0
Don't Know	2	17	17
Disagree	6	50	50
Strongly Disagree	2	17	17
TOTAL	12	100	100
Question 38	<i>"Statistical tool and process control charts are typically not used or understood by employees"</i>		
Strongly Agree	5	42	42
Agree	2	17	17
Don't Know	2	17	17
Disagree	2	17	17
Strongly Disagree	0	0	0
TOTAL	12	100	100
Question 39	<i>"Organizational processes are continually reviewed in order to discover areas needing improvements"</i>		
Strongly Agree	2	17	17
Agree	3	25	25
Don't Know	2	17	17
Disagree	2	17	17
Strongly Disagree	3	25	25
TOTAL	12	100	100
Question 40	<i>"The organization uses tools and measures to evaluate its progress towards Total Quality implementation"</i>		
Strongly Agree	1	8	8
Agree	1	8	8
Don't Know	4	33	33
Disagree	4	33	33
Strongly Disagree	2	17	17
TOTAL	12	100	100
GRANT TOTAL			

Source: Source: Own Information