Research Topic: An Assessment of Public Participation in South African Energy Infrastructure Projects

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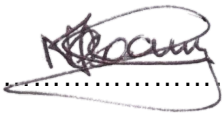
DECLARATION

I declare that this assignment is my own work and that each source of information used was acknowledged through a complete reference.

Candidate: …….Nthuseng Dlamini …  ……..

Signed at:…….Centurion……on this… 13th day of ….Nov 2020……..

ABSTRACT

Public protests often hamper infrastructure projects, normally transpiring during project execution. Public protests profoundly influence infrastructure project execution. This study aims to assess the effectiveness of public participation in infrastructure energy projects in South Africa. The study applied mixed method approach, involving quantitative and qualitative techniques. Data were collected through two self-designed questionnaires for quantitative data analysis (43 Eskom project stakeholders and 43 external stakeholders), whilst a telephone interview was conducted on eight (8) participants. Results were analysed using a sequential explanatory mixed method design. Data collected was analysed through descriptive and inferential statistics. Correlation analysis was also applied to determine the level of association between public protest and public participation. The results identify adequate evidence to conclude that public participation in infrastructure projects' effectiveness within the power utility holds a strong correlation of 91%. Results indicate that public protest is caused by many factors such as, dissatisfaction concerning the project; raising concerns; a lack of service delivery; a lack of communication; and project disadvantage to the community. The results denote inadequate evidence to conclude the association of public protest and public participation (p-value = 0, 23). The results further identify a strong correlation of 83% between public protests and public participation; 100% public participation is indicated to influence the community. These observations confirm adequate evidence to identify public participation in the community as a positive influence on the project; (p-value = 0, 00024). From the qualitative analysis, the study establishes the following themes, structuring public protests: Inadequate communication and a lack of trust; meeting regulations; a lack of understanding; a lack of respect; a need for collaboration and awareness; and training. Literature supporting these findings is presented in detail in this report. The study recommends proper processes and clear communication, instigating suitable and effective public participation to prevent public protest.

Keywords: Public protest; public participation; power utility; mixed method; community; project

ACKNOWLEDGEMENT

I embarked on a pleasant journey through this research, providing me with the opportunity to meet outstanding individuals. It was a pleasure and honour to experience the positive impact they had in the completion of my study. I would like to provide my sincere gratitude to the following people for their contribution to the success of this study:

- My supervisor, Dr Nthatisi Khatleli, for the profound knowledge and expertise he shared with me throughout my studies.
- To my family, specifically my children, Wandile and Lethu Dlamini, who patiently supported me during my studies. Special appreciation goes to my husband Bongani Dlamini. Their effort and support are appreciated.
- To my colleagues at Eskom who provided time to complete the questionnaires on request; their input was crucial to the study findings.
- My gratitude goes out to the community, environmental consultants, contractors and their employees, including the public, for participating in my study.
- Thank you to my friends, colleagues, extended family and everyone who directly and indirectly contributed and supported me during my studies. All their efforts are noticed and appreciated.

My appreciation to my editor, Ms Elizabeth Marx representing Academic and Professional Editing Services (APES), for her assistance in copy-editing, proofreading and formatting my study.

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ABBREVIATIONS AND ACRONYMS

SPSS	-	Statistical Package for Social Sciences
SOC	-	State-owned company
SHEQ	-	Safety, Health, Environmental, Quality
PCM	-	Project control manual
SADC	-	South African Developing communities
ePMO	-	Eskom project management office
EIA	-	Environmental Impact assessment
WULA	-	Water Use Licence Approval
SIS	-	Strategic Intent Statement
AME	-	Asset Management Execution
SIA	-	Social Impact Assessment
BRICS	-	Brazil, Russia, India, China, and South Africa
DX	-	Distribution division
TX	-	Transmission division
GX	-	Generation division
PLCM	-	Project Life Cycle Management
PCM	-	Project Control Manual
IPA	-	Independent Project Analysis Inc.
CII	-	Construction Industry Institute
IAP2	-	International Association for Public Participation
RSA	-	Republic of South Africa
ICT	-	Information and Communication Technology

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 INTRODUCTION

Public participation, the process involving parliament and provincial legislatures consulting with the people and interested or affected individuals, organisations and government entities before rendering a decision, often encourages the public, ensuring a meaningful contribution in the decision-making process. Public participation also provides communication opportunities between decision-making agencies and the public, rendering it time-consuming and expensive (Legislative Sector Support, 2013; Qina, 2015). Communities are engaged as stakeholders on all matters that may be of impact meaningfully or indirectly. Stakeholder and community inputs should be regarded as critical, constructing rapport and buy-in (Legislative Sector Support, 2013). The process of public participation is also regarded as significant, strengthening participatory democracy. Numerous challenges were reported regarding projects, involving the community where power utilities in South Africa are not immune (Esterhuizen, 2011)

Challenges, such as determining appropriate questions; dedicating resources to public participation and the value an agency places on public involvement are critical to success; openness and transparency matter; understanding; partnering with; and empowering communities can significantly benefit public involvement efforts and the agency, are important (Legislative Sector Support, 2013; Qina, 2015). Public participation is also pronounced as time-consuming and expensive, resulting in an ineffective process, a lack of service delivery, including delayed project execution. The more public involvement, the more likely an agency is to achieve successful outcomes. Alternatively, these may result in public protests, hampering project delivery and delays *(ibid.)*

An assessment of the effectiveness of public participation in infrastructure projects from power utilities in South Africa must be investigated. Whether a relationship amongst public participation and public protest and the level of communication between the agency delivering, the project and the community were also desired objectives for this study conclusion and aim.

This study aim was to unravel effectiveness of public participation and its relations to infrastructure projects in Eskom, occurring in Gauteng, Mpumalanga and the Eastern Cape provinces between 2014 and 2018.

1.2 PROBLEM FORMULATION

According to Steyn (2015), collecting resources and devices can address public protests in South Africa. Results reflected that 51.3% of public protest can be resolved by “Improved meaningful public participation protocol and systems for meaningful engagement” (Steyn, 2015:119). Figure 1.1 indicates the survey results. The results are based on the finding that public participation and relevant structures lose focus, identified as less effective. Steyn, (2015) further maintained that 71% of individuals participating in public protests are unemployed. “Consultations between participants in service delivery and communities will reduce information asymmetries, causing [the] community to take protest action” (Steyn, 2015:120).

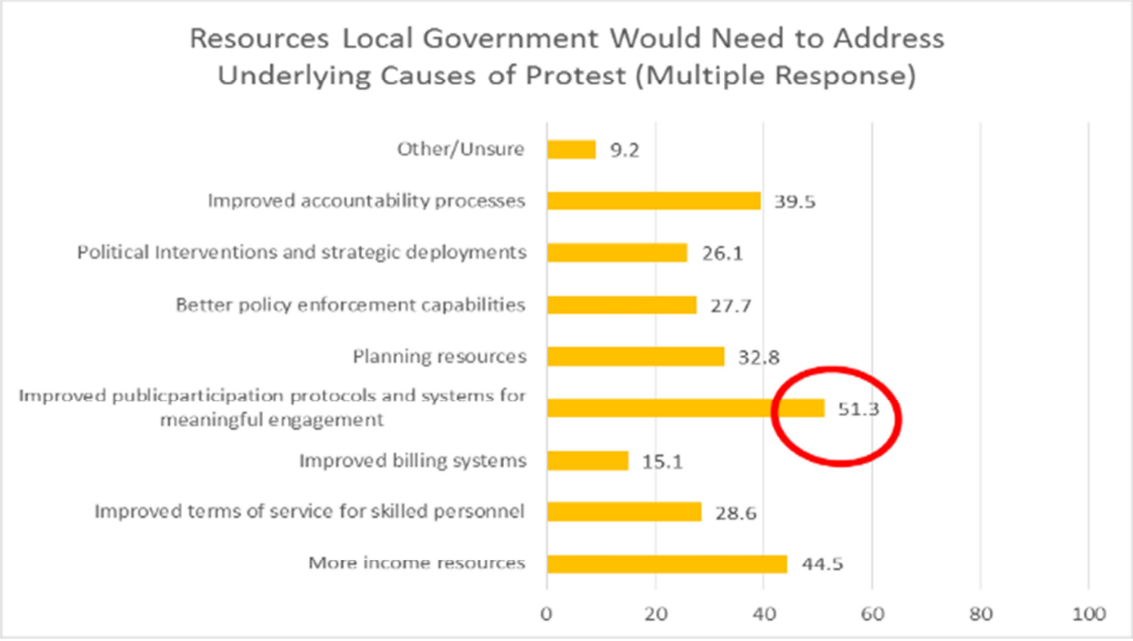

Figure 1.1: Underlying causes of public protests (Steyn, 2015)

Even though the subject of public participation is recognised by a wide array of experts globally and locally, organisations such as Eskom, still experience public protests and challenges related to public dissatisfaction on infrastructure projects. Authors as Coelho, *et al.*, (2005); Ershova (2017) ; Chernova, (2013); Chowdhury (2014) representing as Brazil, Russia, India, China and South Africa (BRICS) bloc, also reviewed public participation indicating concerns requiring attention.

Public protests befallen on infrastructure projects create negative impacts on project execution and delivery; these concerns result in project execution delay and incurred additional projects, amongst others (Maepa, 2013). Therefore, investigating Public Participation in South African Energy Infrastructure Projects with an emphasis on the causes of protests is a necessity and what has not fully represented in the literature although public participation is widely talked about.

From this study, the power utility Eskom is not immune from these causes of public protests related to infrastructure projects. Causes of such public protests during executing infrastructure projects remain unclear.

1.3 PROBLEM STATEMENT

Eskom infrastructure projects are often interrupted by public protests, which normally befall during the execution stage of the project (Esterhuizen, 2011). For example, in May 2011, at one of Eskom's infrastructure projects, there were disruptions by a violent protest that erupted when more than 2 000 of the about 3 000 employees staged a demonstration in support of workers who were in a wage dispute. The company assets including offices, vehicles and equipment were damaged during the protest (Esterhuizen, 2011). These protests negatively affect projects, forcing work stoppage, enabling management to address the concerns (Annual industrial action report, 2015). Project work stoppage consequently causes high additional costs and delays in the project. The public is often disgruntled, as consolation may not have preceded the project prior to its execution, or dissatisfaction is established concerning the consultation conduction method (Annual industrial action report, 2015).

Public protests heavily influence infrastructure project execution. It is unknown whether public protests, jeopardising infrastructure projects, have any association with public participation (Halvorsen, 2003).

During the initiation of infrastructure projects, local communities are considered and included as key stakeholders on the Eskom database as interested and affected Parties (I&AP) used for all stakeholder engagements in the project (Eskom, 2017).

Eskom performs stakeholder engagements amongst others and seeks permission from local authorities when executing projects, which require land or servitudes to be leased or acquired which in turn creates employment opportunities to the communities (Eskom, 2017). The power utility has developed policies on environmental management which includes public participation triggered by Environmental Impact Analysis (EIA) and stakeholder engagement amongst others.

The effectiveness of public participation on infrastructure projects that are implemented by Eskom concerning public protest and participation has not been thoroughly studied; there is a divergence in the existing literature to be studied and provide the recommendations to this issue. The outcomes emanating from this study will be instrumental for Eskom awareness and decision-making when conducting infrastructure project that involves public opinion and views.

This study endeavoured to assess the effectiveness of public participation and its association to infrastructure projects in Eskom, occurring in Gauteng, Mpumalanga and the Eastern Cape provinces between 2014 and 2018

1.4 AIM OF THE STUDY

The research aimed to assess the effectiveness of public participation in infrastructure projects in energy projects in South Africa.

1.5 RESEARCH QUESTIONS

The research problem is around public protests transpired during the execution of infrastructure projects concerning public participation. The centre of research activities

suggests a need to formulate appropriate questions. For this study, the Saunders, Lewis and Thornhill (2016) framework was employed to formulate the questions. This study contains four questions, constituting the challenges begging an inquiry of this nature as indicated below:

- How public participation is conducted on infrastructure projects in Eskom?
- What are the causes of public protests on infrastructure projects in Eskom?
- Is there an association between public protests that erupts infrastructure projects within the power utility and public participation?
- What improvements are required on public participation in infrastructure projects that can be recommended to Eskom?

1.6 OBJECTIVES OF THE STUDY

Objectives of the study were to:

- Establish how public participation is conducted on infrastructure projects in Eskom
- Investigate causes of public protests on infrastructure projects in Eskom
- Investigates whether public protests erupting infrastructure projects in Eskom relate to public participation
- Establish public participation improvements in infrastructure projects

1.7 SIGNIFICANCE OF THE RESEARCH

This study was motivated by experienced by the power utilities in South Africa concerning effectively and efficiently implementing infrastructure projects with a specific focus on public participation. The concerns related to public protests during public participation transpired during the execution of infrastructure projects, were studied. The study endeavoured to investigate the effectiveness of public participation in infrastructure projects by reviewing various models developed and recommended by the subject expert in the public participation sphere.

Public participation thus provides the opportunity for communication between agencies and the public. Agencies include the Environmental Assessment Practitioners (EAPS), competent authorities who serves as public participation officials, environmental

adviser, consultations within the area of public participation. This opportunity will come as a benefit to all agencies, community, and power utilities of South Africa. The benefit will be through receiving awareness and learn other models of holding effective public participation that contributes to mitigating the challenges such as project delays. Benefits and significance to the public and the body of knowledge include added theory.

The significance of this study can save on time, resources and be of economic value to the community, agencies and power utility delivering on projects through understanding what the study found as causes of public protest and these can be mitigated.

1.8 SCOPE OF THE STUDY AND DELINEATIONS

The scope of the study involved assessing of public participation in the South African Energy Infrastructure Projects. The scope of the study is Gauteng, Mpumalanga and the Eastern Cape provinces between 2014 and 2018. Delineation of this study is that the study scope only involved some projects within the power utility, affected by public protest. The study did not cover the entire power utility projects, to answer these research questions presented in Chapter 1. Although recommendations may be applied to other power utilities in South Africa, a retest of the data based on different study areas may aid various results.

1.9 DESCRIPTION OF THE STUDY COMPANY

This study was based on Eskom as the biggest power utility in South Africa. Eskom is an electricity distributor and distributes 95% electricity of electricity to South Africa whilst other power generators distribute the remaining 5% (Eskom intranet, 2020). The power utility is a state-owned electricity utility, strongly supported by the government, and had performed 191 595 household electrification connections during the 2019 financial year (Eskom intranet, 2020). Eskom comprise 6.2 million direct customers, 30 operational power stations with a nominal generating capacity of 44 172MW, total sales of 208 319GWh and approximately 387 633km of cables and power lines (Eskom intranet, 2020). Eskom has had experience in public protests emanating from infrastructure projects and understanding of public participation. It was, therefore, best for the researcher to base the study on a company involved in within the scope of the study.

1.10 LAYOUT OF THE RESEARCH

The research is divided into five chapters. The physical structure of the study details, amongst others, the anticipated chapters of the research and a brief description of the contents of these chapters. The study comprises five chapters in the following order:

Chapter 1 provides a brief introduction to the challenges surrounding public participation. Aim and objectives, and research questions for the study are covered in this chapter.

Chapter 2 provides a review of previous work in public participation in infrastructure projects by interrogating the research through appropriate literature.

Chapter 3 provides the research methodology appropriate to achieving the research objectives. Concerns such as design, the study population, sampling, data collection and validity, reliability and ethical considerations are addressed in this chapter.

Chapter 4 provides results and an analysis of the study.

Chapter 5 concludes with the study finding, whilst providing recommendations including limitations and further study.

1.11 CONCLUSION

This chapter introduced the study by stating the background, problem statement and the significance of conducting this study. The chapter also presented the aim, research questions and objectives. The next chapter presents a comprehensive literature review related to public participation effectiveness on infrastructure projects.

CHAPTER 2: PUBLIC PARTICIPATION THEORY

2.1 INTRODUCTION

This chapter endeavours to equip the reader with information from the knowledge available on the subject. Theory development during the design phase of the research is crucial (Yin, 2003). The theoretical foundation was interrogated, using relevant literature models and the framework to reveal the effectiveness of public participation in Eskom projects. Various observations of experts on public participation in infrastructure projects to establish its perspective, effects, challenges, processes, applicability, and success factors are discussed. The chapter discusses global perspectives on public participation in infrastructure projects, regarding BRICS. The discussion is not complete without observing that legislative frameworks exist in certain countries on public participation and their level of influence on the subject. Literature from prominent exponents of the discipline of public participation, contributing to the effective development of infrastructure projects, was reviewed.

This literature was developed based on global standards of public participation, historical knowledge on public participation and benchmarking South Africa against other countries, intending to capture divergence and provide the solution thereof. Public participation methodologies are reviewed as an improvement matter in public participation in infrastructure projects with special emphasis on Eskom was reviewed.

The following section defines main terms used in this study (Section 2.2): Legislative and regulatory frameworks on public participation (Section 2.3), public participation a global perspective on BRICS countries.

2.2 DEFINITION OF TERMS

This section provides the main definitions critical to this study:

Public participation is defined as the process where the parliament and provincial legislatures consult with the people and interested or affected individuals, organisations and government entities before rendering a decision (the Legislative Sector Support, 2013). Yamamoto (2014, p.883) defines political participation concerning “behaviour

could affect government actions through various activities, either directly by influencing the creation or implementation of policies, or indirectly by influencing the political actors to render those policies". Zonke and Matsiliza (2015) define public participation as rendering democratic spaces, where stakeholders and communities are involved in planning and implementing housing policies and related decisions. The main aspect is the involvement of communities from the inception of the project planning to implementation. In this definition, it is assumed that community inputs assure them of their ability to influence decision-making and ultimately housing development in their constituencies. Theron (2008, p.08) defines public participation as the process "dismantling the top-down, prescriptive and often-arrogant knowledge transference and communication styles imposed on communities by outsiders". The observation of public participation by Theron (2008) is that the public has the right to express their point of view. Burkey (2002, p.56) defines "public participation as a basic human right which demonstrates respect for disadvantaged groups". It is through participation that the public can express their opinions concerning, for example, how public goods are managed and how their tax funds are consumed (Bekker, 1996).

Infrastructure: Refers to physical infrastructures, such as processing plants, roads, buildings and other initiatives, serving as capital projects (Infrastructure development Act, Act No. 23 of 2014). Afolayan and Tunde (2014) define infrastructure as a basic structure required for the sustainable socioeconomic and physical development of any human settlement. Infrastructure deals with providing tangible assets on which intangibles can be built; it involves providing, amongst others, health facilities, housing, electricity, transport and communication (Afolayan and Tunde, 2014; Marzuki, 2015).

Infrastructure projects: Refers to initiatives and investments embarked on to construct processing plants, roads, buildings and other initiatives, serving as capital projects. Infrastructure projects executed by the public and private sector in an identified community are complex and undertaken from a short to long-term, observed by communities as an economic opportunity for job creation during their life cycle (Marzuki, 2015). According to Lee and Kwun-chung (2012), infrastructure projects are constructed with a primary objective to improve the living conditions of the people and hence quality of life.

Public protest: refers to an expression of bearing witness on behalf of an express cause by words or actions regarding particular events, policies or situations (Smith, 2007). Public protests can take many different forms, from individual statements to mass demonstrations according to Smith (2007). Protesters may organise a protest as a way of publicly making their opinions heard in an attempt to influence public opinion or government policy, or they may undertake direct action in an attempt to enact desired changes themselves (Mbuyisa, 2013; Smith, 2007*)*

The legislative and regulatory framework of public participation in South Africa is reviewed in the next section of this chapter.

2.3 LEGISLATIVE AND REGULATORY FRAMEWORKS ON PUBLIC PARTICIPATION IN SOUTH AFRICA

During 1994, the South African political landscape transformed into a democracy, creating opportunities for review, introducing legislation, aimed at promoting participatory democracy. Amongst other legislation, public participation was entrenched in the Constitution of the Republic of South Africa (Act 108 of 1996) and further established expression in frameworks and policies of the government. The following are amongst the relevant frameworks governing public participation: (Municipal Systems Act, Act 32 of 2000; Municipal Structures Act, Act 117 of 1998; Municipal Finance Management Act, Act 56 of 2003).

- The Municipal Systems Act, Act 32 of 2000
- The Municipal Structures Act, Act 117 of 1998
- The Intergovernmental Relations Framework, 2005
- The Municipal Finance Management Act, Act 56 of 2003
- The Public Participation Framework for the South African Legislative Sector (2013)

Public participation is used widely in the local government for the inclusion of the community in decision-making. Reddy (1999, p.9) defines the local government as the level of government created to bring decision-making closer to the local populace, providing citizens with a sense of participation in the political processes influencing their lives. The local government is regarded as the closest to the people. RSA (1996)

Chapter 10, Section 195 (1) (e) on the basic values and principles, governing public administration, specifies, “People’s needs must be responded to and the public must be encouraged to participate in policymaking”. The local government is the most regulated sphere in South Africa where the government policy, legislation and strategies find resonance.

These regulations and policy frameworks articulate and define municipalities as the coalface of the government. An independent entity can govern its own initiatives with designated powers and functions, establishment processes, whilst providing a framework on a developmental local government through creating and enabling an environment for communities to participate in governance matters (The Municipal Systems Act (Act 32 of 2000) and the Municipal Structures Act (Act 117 of 1998)).

In South Africa, the local government represents the third sphere with powers and functions, defined in Chapter 7, Section 156 of RSA (1996). These powers and functions are bestowed upon the municipality as the executive authority in administering its affairs and are required to implement policies reasonably and practical. The Municipal Systems Act (Act 32 of 2000) and the Municipal Structures Act (Act 117 of 1998; Chapter 7, Section 156 of RSA (1996) states that the national and provincial government are required by legislation, to support and monitor local government, establishing if it can perform its administrative functions.

The objects of a local government are outlined in RSA (1996) Chapter 7, Section 155:

- Providing democratic and accountable government for local communities
- Ensuring service provision to communities in a sustainable manner
- Promoting social and economic development
- Promoting a safe and healthy environment, whilst encouraging the involvement of communities and community organisations in local government matters

The Municipal Systems Act (Act 32 of 2000) and the Municipal Structures Act (Act 117 of 1998) provide a detailed guideline on the governance model, guiding municipalities.

The Freedom Charter's declaration of the people governing, and the Batho Pele Principles also promote participation enlisting them central to development. These pronouncements affirm rights and functions of communities in strengthening participatory governance. The term "Batho Pele" Translate to "people first", this is the vision that strives to "Better life for all South African by putting people first" (Department of Public Service and Administration, 2003, p.2).

The object of local government concerning Chapter 7, Section 152(1) (a) of the Constitution of the Republic of South Africa (Act 108 of 1996), refers to public participation as a process to encourage the involvement of communities and the community organisations in local government matters.

Section 151(1-4) of the Constitution of the Republic of South Africa (Act 108 of 1996) defines local government as:

- A sphere, comprising municipalities, which must be established.
- The executive authority of the municipality is vested in its Municipal Council.
- The municipality has a right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation as provided for in the constitution.
- The national or provincial government may not compromise or impede a municipality ability or right to exercise its powers or perform its functions.

Conversely, Reddy (1999) defines local government as the level of government created to bring it to the local populace and to provide citizens with a sense of participation in the political processes, influencing their lives. Local government can be regarded as the closest to the people. Chapter 10, Section 195 (1) (e) of the Constitution of the Republic of South Africa on the basic values and principles, governing public administration specifies that: "people's needs must be responded to and the public must be encouraged to participate in policymaking". Public participation should influence the government policy outcome and reflect the will of the people (Reddy, 1999).

All stakeholders planning to deliver infrastructure projects should engage communities at various stages of planning, up to the implementation of projects to consult, involve, informing and identifying collaboration opportunities (IAP2, 2014). This would be ensured with the excess of aforementioned legislations, policies and frameworks on public participation in South Africa (Mbuyisa, 2013).

The International Association for Public Participation (IAP2, 2014) also developed a useful range of public participation spectrum, becoming a global standard for practitioners in defining their function. The spectrum holds five categories, ranging from informing of impact public decisions to empowering the highest level of impact of public decisions (IAP2, 2014). The spectrum guides public participation practitioners when performing their duties. The spectrum is detailed as:

Inform: On the lowest range, public participation practitioners have to inform the public, using various forms of communication, such as fact sheets, websites or an open house. They must ensure the public receives the information, clear for their understanding and to provide a solution thereof.

Consult: It is public practitioners' responsibility to obtain feedback from the public, once the public is informed. The public can raise their concerns by providing their input during public meetings, surveys, public comments or focus groups, organised by public practitioners.

Involve: Public participation intends to collaborate with the public to ensure that concerns are consistently understood and addressed.

Collaborate: When developing the solution, the public participation goal is to collaborate with the public, intending to identify options and preferred solutions.

Empower: Public participation assures the public that their decision is implemented. The public has the power to render the final decision concerning public participation. Any devices can be used for rendering the final decision, such as ballots, citizen juries or delegated decision-makers (IAP2, 2014).

iap2 public participation spectrum

developed by the international association for public participation

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advise and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
EXAMPLE TOOLS	• Fact sheets • Websites • Open houses	• Public comment • Focus groups • Surveys • Public meetings	• Workshops • Deliberate polling	• Citizen Advisory committees • Consensus-building • Participatory decision-making	• Citizen juries • Ballots • Delegated decisions

Figure 2.1: IAP2 Southern Africa 'Spectrum' (2002)

In certain developing countries, public participation in infrastructure projects is observed as time-consuming and a costly exercise, attributable to a lack of a systematic framework to guide the participatory process for several types and scales of infrastructure projects (Ng *et al.*, 2012).

A mutual understanding exists that infrastructure projects are associated with significant capital investments, indicating an opportunity for job creation in the community (Provincial and local government, 2007; Municipal Structures Act, Act 117 of 1998). This creates expectations for the public that they ought to benefit from projects executed in their areas. These expectations can be managed through structural engagement with all relevant stakeholders, guided by a legislative, frameworks and the good governance

model (Provincial and local government, 2007; Municipal Structures Act, Act 117 of 1998). The following section discusses the Integrated Development Plan (IDP) as a public participatory device.

2.4 AN INTEGRATED DEVELOPMENT PLAN AS A PUBLIC PARTICIPATORY INSTRUMENT

The South African local government regards the IDP as primary for planning all services to be rendered for five years, reviewed annually in a respective municipality (Provincial and local government, 2007; Municipal Structures Act, Act 117 of 1998). All spheres should endeavour to integrate their intended development plans in the IDP, as these should be facilitated by a municipality, subject to a public participation process. The municipalities are instructed to "establish appropriate mechanisms, processes and procedures to enable the local community to participate in the affairs of the municipality" (Municipal Systems Act, Act 32 of 2000).

In certain matters, communities provide labour and skills in projects, enhancing developing those communities in areas of job creation and wealth distribution, amongst others (Kumar, 2016).

The following section provides the global perspective of public participation

2.5 PUBLIC PARTICIPATION IN A GLOBAL PERSPECTIVE

This section provides a global perspective of public participation. Public participation as a concept and practice has a long history external from South Africa. The first attempt at discussing the concept of public participation commenced in the United States of America. The first attempt at discussing the concept of public participation commenced in the United States of America in 1835 through works of De Tocqueville called *Democracy in America*, as cited by Toscano, (2015). In this study, De Tocqueville was intrigued by the level of local participation in public concerns by American citizens as an indication of what made America a great country. He compared participation to Europe and established America as advanced, especially when considered the popularised New England town meetings at the time (Toscano, (2015).

De Tocqueville's (1835 cited in Toscano 2015) established that public participation provides ample opportunities for accountability in decision-making by the government. In the 20th century, it became an institutionalised way of governing in America. Several laws were enacted to support public participation examples, including the Administrative Procedure Act, 1946 focussing on citizen participation in rulemaking; the National Environmental Policy Act, 1969 about federally funded major projects with the Federal Advisory Committee Act, 1972. The purpose was to direct the operation of agency advisory committees, amongst others *(ibid.).*

According to the Legislative Sector Support (2013), the public participation policy in Canada was recognised as far back as the 1960s and 1970s. Public participation is a regulated practice in the Canadian Government, observed as an important element, contributing to the decision-making in the democracy and political concerns of the country *(ibid.).*

Studies of public participation were also conducted in Europe. Hartay (2011) affirms the position of European Union engenders participation in decision-making processes as a possibility for the citizens, civil society organisations (CSOs) and other interested parties to influence developing policies and laws affecting them. It is critical to underscore citizen participation as an integral part of the participatory democracy, reflecting the democratisation of political relations, especially after the crisis in the representative government and overcoming the authoritative regimes in certain countries in Southern Europe (Spain, Portugal and Greece) (IAP2, 2014).

The European Commission conducted a study sought to determine best practices in public participation, culminating into White Paper on Governance in 2001. Concerning this paper, "the public participation process captures the role of smart regulation for those substantially affected by the regulation" (Directorate General Health and Consumers, 2010, p.4). It emphasises the need for European Commission to engender an effective and efficient consultation and engagement with the public, businesses and the community. This process needs to be professional, transparent and satisfactory to all parties involved. Participants need to understand that their involvement is voluntary and may not cause any self-harm, harm to the environment and others (Hartay, 2011).

The function of public participation in developing African economies is affirmed by Economic Commission for Africa (1990).

> "*We affirm nations cannot be built without the popular support and full participation of neither people nor can the economic crisis be resolved and the human and economic conditions improved without the full and effective contribution, creativity and popular enthusiasm of the vast majority of the people. After all, it is to the people that benefits from development that should and must accrue. We are convinced neither can Africa's perpetual economic crisis be overcome, nor can a bright future for Africa and its people become exposed unless the structures, pattern and political contest of the process of socioeconomic development are appropriately altered"* (Economic Commission for Africa,1990, p.4).

This affirmation acknowledges the function of the participation of the public to develop a country, engaging creative potentials of such public for a collective effort to achieve improved results. It also empathises that the economic crisis encountered by Africa is attributable to structures, pattern and political contest of the process of socioeconomic development inappropriately engineered towards public participation (Economic Commission for Africa, 1990). The following section interrogates public participation in the countries, benchmarked similarly to South Africa.

2.6 METHODS OF PUBLIC PARTICIPATION

This section reviews existing methods and models of public participation available in the industry. The recent global development trends acknowledged that information technology holds a crucial function in facilitating communication to a larger number of individuals, consuming lesser time and cost. This encouraged using e-governance by most countries to facilitate public participation (Qina, 2015). E-governance is an ICT (Information and Communication Technology) device resulting in high-growth public participation. To achieve the maximum efficient and effective public participation, it is recommended that the public use a distinctive combination approach for the appropriate purpose of involvement *(ibid.).*

In the 21st century, the developed countries reap the benefits of using innovative technologies whilst the underdeveloped countries are forsaken (Qina, 2015). E-Governance is one of the public participation models, utilising the Internet and technology. The South African Government consumes these facilities as it is used for public participation at the South African Social Security Agency (SASSA) *(ibid.).*

> *The purpose of public participation is to "inform, consult, involve, collaborate and empower" (IAP2, 2007; Legislative Sector Support, 2013). Bickerstaff et al. (2002) echoed this by stating in public participation processes; the intention could have a different aim amongst 'participation', 'consultation' and 'information'.* The levels of public participation as defined by IAP2, 2007 are:-

- Level 1: Inform- The purpose is to inform the audience about the plans. At this stage there is limited information. There is no dialogue due to the limited information
- Level 2: Consult- The purpose is to allow the public to have access to the information
- Level 3: Involve - Provides an opportunity for dialogue & interaction between the officials and the public
- Level 4: Collaborate- This is the last level whereby the partnering opportunity is presented to the public. The community is given the opportunity to benefit where possible (IAP2, 2007). The following diagram (Figure 2.2) demonstrates the levels of public participation as defined by IAP2, 2007

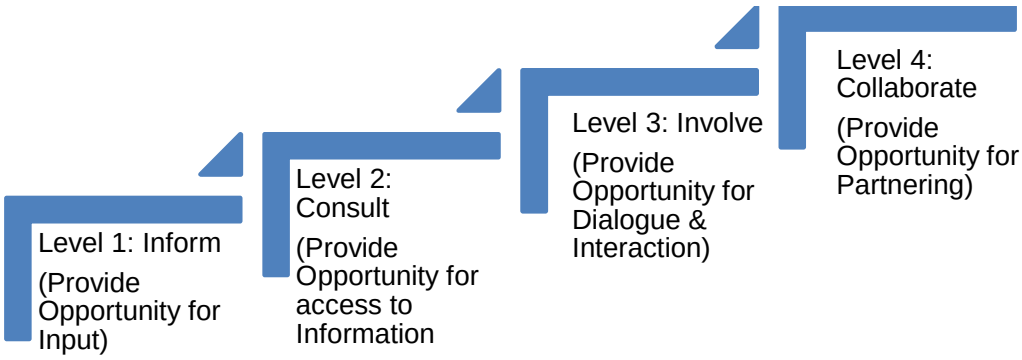

Figure 2.2: Global levels of participation (Participation framework, 2013)

Arnstein (1969) conducted one of the historical studies considered as seminal concerning public participation, set out as a framework of public participation. This framework is structured in levels of public participation in ascending order, termed a ladder of public participation. The ladder comprises eight rungs or levels, as demonstrated in Figure 2.3.

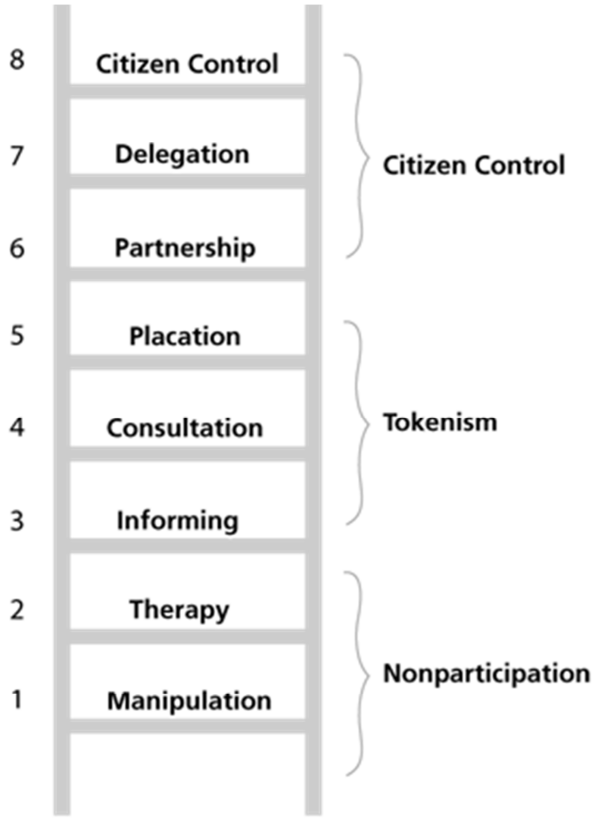

Figure 2.3: Arnstein's (1969) ladder of public participation

Non-participation - The lowest level of Arnstein's ladder of public participation refers to non-participation and is characterised by a lack of involvement by the public where the public is not afforded participation opportunities characterised by manipulation and therapy. (Arnstein, 1969).

Tokenism - The next 'level up the ladder' is 'tokenism' characterised by informing, consultation and placation whereby the government provides public participation, resulting in consultation, "informing and placation with no power-sharing. Only limited information gets shared to the public" (Arnstein, 1969).

Citizen control - The highest level characterised by partnership, delegation and citizen control ideally desirable, involves corresponding to the case, involving citizens sharing power from a state of partnership to the highest level, resulting in citizen control. At this level, the public can make decisions; they are also empowered with the freedom to express their concerns (Toscano, 2015; Qina, 2015; Arnstein, 2015).

According to Mayekiso, *et al.* (2013), a need exists for a relevant model. The study proceeded under the assumptions widespread violent service delivery protests in South African townships, towns, cities and villages, because of unsatisfactory service delivery from municipalities and the local government. The limitation of the study was that it was only based on public participation in the South African context. Certain crucial study findings were that: First, eliminating the increased violent service delivery protests on local government and municipalities; there is a need for communities to be involved on community consultation and participation (Mayekiso, *et al.*, 2013; Steyn, 2015).

Secondly, this requires a normative strategy to construct the strong unity between community, society, and municipalities (Mayekiso, *et al.*, 2013). Thirdly, a normative model is proposed, based on Easton's analytical systems model of the transformation. The main theoretic concept around which the study was conducted is the normative model, recommended enhancing community public participation based on Easton's analytical systems model. Certain unresolved concerns are that protests from communities cannot be concluded unless participation is employed with sincerity and tenacity. This study has a direct linkage to the research in providing a model that can be utilised to benchmark public participation methodologies related to Eskom projects (Mayekiso, *et al.*, 2013).

The following section reviews the historical background of public participation in South Africa and how it influences public participation methods used in the country.

2.6.1 Levels of public participation in the South African context

Pretty, et al. (1995) as cited by Tau (2013), identified seven typologies to demonstrate the various conceptions regarding public participation. These typologies can be used to

identify the kind of public participation that needs to be followed to align with the correct process of public participation according to Tau (2013). These are as follows:

- **Passive participation**- participation relating to a unilateral top-down announcement by authorities.
- **Participation in information provision**- participation through answering questions posted by questionnaire strategy.
- **Participation by consultation**- people participate by consultation, as professionals and planners listen to their observations.
- **Participation for material incentives**- people participate by providing resources, such as labour, in return for food or cash.
- **Functional participation**- people participate in a group to meet predetermined objectives of a project. Participation is achieved after a decision regarding the project was made.
- **Interactive participation**- people participate in a joint analysis through the development of an action plan.
- **Self-mobilisation**- people participate by taking initiatives independently from external institutions, to change systems.

2.6.2 Global perspective on the public participation process

Public participation process in an infrastructure project is often undertaken in cases where EIA and Social Impact Assessment processes are required at a project level (Ackre´n, 2016). The intention is to enable the involvement of those affected by the organisation's conclusions to be part of the decision-making, (Voss, 2014).

For the successful implementation of any project or any change to a system, that affects community, society or businesses, is imperative that the public is empowered to voice their concerns, challenges and how the impact of the project or any change will affect their lives (Mbuyisa, 2013; Qina, 2015). The community should be provided with authority, guidance and encouraged to participate in the public participation (Qina, 2015; Voss, 2014).

The availability of guidelines in what should be conducted on public participation process can be validated by the extent to which community inputs ultimately inform the outcome of the process (Qina, 2015 and Voss, 2014). In any democratic countries, such as South Africa, the public, society, businesses, organisations and the community have the right to voice their opinions.

Through democratic public participation, democracy is further reiterated and re-emphasised to suite a democratic decision appropriate to the people affected by the decision, meeting their needs. This process further allows participants to take possession and support of the project towards its success. Voss (2014) specifies that during the process of public participation, participants be allowed to affirm how organisational decisions and developmental outcomes affect them.

2.7 PUBLIC PARTICIPATION IN BRAZIL, RUSSIA, INDIA, CHINA AND SOUTH AFRICA

BRICS refers to a group of countries comprising a common block that includes Brazil, Russia, India, China, and South Africa. In the BRICS bloc, public participation is also reviewed, indicating concerns requiring attention. Further detail is provided in this section of the study.

2.7.1 Brazil

In Brazil, reveal challenges in the 1988 Brazilian Constitution establishing the formal transition to democracy, sanctioned the decentralisation of policymaking, whilst establishing mechanisms for citizens to participate in the formulation, management and monitoring of social policies (Coelho, et al., 2005). It entails public participation as a legislated practice in Brazil. A copious interest group worked throughout the country as the constitution was drafted, collecting half a million signatures, demanding the creation of participatory democratic mechanisms. Underpinning such a demand was credited, to open spaces for citizens to participate; the policymaking process would become more transparent and accountable and social policies would ensure an improved reflection of citizens' needs *(ibid.).*

Several challenges exist, militating against effective public participation in Brazil. There has been a limitation to democratic participation due to local government who was unable to sustain citizen participation (Jacobi, 1999). At the Municipal Health Council of São Paulo councillors conducting plenary sessions lack skills to conduct such discussions, functioning against inclusive dialogue between various socioeconomic groups (Coelho, et al., 2005). Underprivileged groups can therefore not express themselves effectively in participatory (Avritzer, 2012; Coelho, et al., 2005). Specific methodologies aim at fostering participants' abilities. A lack of technical expertise and communicative resources exists, engaging in dialogue leading to effective public participation (Coelho, et al., 2005).

2.7.2 Russia

In Russia, a study by Ershova (2017, p.9) sought to evaluate the level of citizen participation in policy and decision-making. The study revealed that "government has still little accountability to its citizens attitude towards participation in public decision-making could be characterised rather as political inertia". This concern is attributable to several reasons. First, it suggests a general mistrust of the government and any of its reforms by the traditional citizens' mistrust in government *(ibid.).*

Secondly, the paternalistic model of social organisation, fostered by the country's leadership, disagrees with measures concerning the creation of an open government *(*Ershova, 2017). All efforts on e-participation are observed as a ploy by the government to communicate a democratic image, openness of the government, modernisation to the global community, though lacking in providing substance for real citizens' engagement (Ishmatova, 2012). It is evident that in Russia, public participation is undertaken in an informing approach, termed 'malicious compliance'.

E-participation in the non-democratic countries increases as studies shows (Chernova, 2013). Public participation and democracy attitudes are interrelated and also indicated to have significant influence on democracy (Chernova, 2013). In a democratic regime, public participation is substantially recognised (the Legislative Sector Support, 2013; Yamamoto, 2014; Qina, 2015). Public participation influences the democracy of the

country and policymaking. Democracy is still at a developing level in Russia (Chernova, 2013).

In Russia, the consultation period to the government is limited to 15 years. According to Chernova, (2013), this duration results in a limited number of participants. It also prohibits citizens to provide comprehensive feedback on public participation. The country developed systems for e-participation. This was evaluated to have reached an immature level. E-participation does not add value to the impact of policymaking and its citizens *(ibid.).*

There is no clear format from the Russian Government on how the public should be involved in public participation processes (Chernova, 2013). A lack of transparency exists on how participation could become successful in Russia, as government policies and legal frameworks are not documented. Public participation is substantially determined by political influences. According to Chernova, (2013) the Russian Government employs four stages for consultation, whilst providing citizens with only two stages:

- Stage 1: Citizens are provided with the opportunity to structure the concept.
- Stage 2: Citizens are provided with the draft policy, requiring comments.

The additional stages that are employed by the Russian Government on public consultation are:

- Stage 3: The official analysis of the feedback.
- Stage 4: Officials conclude on the findings (Chernova, 2013).

2.7.3 India

In India, studies conducted by Chowdhury (2014) and Kumar and Prakash (2016), disclose academic attention provided to public participation and participatory governance. Chowdhury (2014) reviewed the EIA in India: this involves two decades of jurisprudence, arguing public participation as regulatory information, contributes to transparency. Communities have the right to be informed, whilst denied feedback *(ibid.).*

This input may reason that the India legislative framework promotes the government's participation on projects undertaken in its jurisdiction. The extent of public participation resulting in community inputs, informing the ultimate decision on a process or project, remains unknown. Kumar and Prakash (2016) note that the Seventy-fourth Constitutional Amendment of 1992, in consort with other greater economic reforms, initiated in the early 1990s, introduced the decentralisation of planning and the creation of participatory institutionalised structures. As a result, most states in India have these structures prepared through amendments in the local government laws *(ibid.).*

Kumar and Prakash (2016) denounce the initial promise of participation for radical social transformation and empowerment, as delusive. Its potential could lead to the empowerment of the underprivileged, whilst marginalised through the fair redistribution of material resources. After several years, it was turned into a matter of methods and techniques, rather than influencing radical processes, capable to design fair and equitable decision-making, with similar material outcomes *(ibid.).*

India is one of the democratic countries, receptive for the transformation of government participation. As a result, Indian citizens are eager and passionate about participating in governance and decision-making (Kumar and Tripathi, 2015). The democratic platform called the "MyGov- External website that opens in a new window", was introduced to communities, allowing free and fair participation in the governance of the country. MyGov is an innovative platform created for Indian citizens, whilst allowing interested parties globally to add their views.

The Prime Minister (Hon'ble Prime Minister Shri Narendra Modi, 2014) alleges that the people should coerce democracy should be substantial; he specifies, "The success of democracy is impossible without participation of the people". MyGov platform does not only raise concerns but allows discussions and enforces actions. MyGov ensures a good connection between government and citizens towards achieving a goal of good governance in the country. Kumar, and Tripathi (2015), states that these discussions occur under various themes using the following process:

- Discussions raised by the participant

- Discussions are shared within the relevant forum and group for further analysis, intending constructive feedback
- MyGov comprises online and on the ground participatory
- The task/contribution is approved, once the group is satisfied
- Approved contributions are then shared amongst platforms (Kumar and Tripathi, 2015)

Christian (2015) published an article titled, “the Indian Parliament and public participation*”,* elaborating on how the Indian Parliament operates. The Indian Parliament comprises two houses: Lok Sabha (House of the people), and Rajya Sabha, (Council of the States). The two houses exclude the President of India. Both houses hold equal power, with different responsibilities. The exception is that Lok Sabha (House of the people) holds an overriding power over finances *(ibid.).*

The parliament’s responsibility is to focus on the four primary functions: “to create laws; to sanction government expenditure; to direct the work of the government, and to represent the interests of the people” (Christian, 2015, p.5). The Vice-President of India leads the Rajya Sabha, (Council of the States). He is an ex-officio Chair of the Rajya Sabha. The Deputy Chair, an elected member, leads the daily operations of the House. These include daily operations of Lok Sabha (House of the people) the Speaker and a Deputy Speaker, elected by the members of the Lok Sabha *(ibid.).*

According to Christian (2015), public participation occurs during various stages in the legislature. The first stage of public participation is the pre-legislative stage, followed by public participation at a legislative stage. The final stage is public participation at a post-legislative stage.

2.7.3.1 Public participation during the pre-legislative stage

“Where the bill and the rules are drafted and published. Once the bill is drafted, the second stage is allowed to take place” (Christian, 2015, p.5).

2.7.3.2 Public participation during the legislative stage

- “Mandatory reference of Bills to Committees: The Speaker decides.
- Mandatory consultation with the public: No committees are empowered to comment.
- Regional consultations: Rare.
- Notice inviting feedback: Newspapers, Internet and radio.
- Committees’ power to summon persons: Yes.
- Public meetings of committees: Usually sittings are in private.
- Public availability of submissions before the committee: The only evidence tabled in the parliament is made available.
- Power of Committee to amend the bill: Not binding.
- Government response to the committee report: No.
- Publication of Committee reports: Yes” (Christian, 2015, p.5).

2.7.3.3 Public participation during the post-legislative stage

- “Compulsory post-legislative scrutiny: No. Special commissions may be appointed to conduct a review.
- Public participation in post-legislative stage: Comments consider submissions to Ministry and other research conducted” (Christian, 2015, p.5).

2.7.4 China

According to Shan and Yai (2011), in China, as in several developing countries, public participation needs to mature. The participatory mechanism at the project level exists only as part of the EIA process. Chinese participatory practice usually takes the form of informing the public of the completed plan design, rather than inviting them to express their opinion before a decision *(ibid.).*

Li, Ng and Skitmore (2013) produced a study for a project based in China, titled “Evaluating stakeholder satisfaction during public participation in major infrastructure and construction projects: a fuzzy approach”. The authors examined the effectiveness

of public participation in major infrastructure projects (MIC), including considering stakeholder satisfaction.

A reason for project failure is a lack of meeting the stakeholder's expectations; this negatively affects meeting project goals and objectives (Maepa, 2013; Li et al., 2013). The public and project-affected people believe that their expectations contribute to the success in implementing the project (Li et al., 2013). It is therefore in the best interest of the project to ensure that stakeholders are satisfied concerning the project progress *(ibid.)*.

The participatory exercise of this project is considered as successful, emphasising and respecting the rights of all concerned (Li et al., 2013). The satisfaction of stakeholders on major infrastructure projects during public participation contributes to the success of a project (Maepa, 2013; Li et al., 2013). Li et al., 2013, further stated that some unresolved concerns, transpiring during public participation may occur and could cause conflict situations if not addressed. Disparities often resulting after public participation, require an effective strategic approach, addressing concerns as they fundamentally influence successful project implementation *(ibid.).*

Li and De Jong, 2017, who studied citizen participation eco-city development in China, intending to review 'new-type urbanisation', generated a breakthrough in this realisation. Limited feedback informing citizens exists, even though input from the public is recognised during implementation by the local government. The rural community is only involved in the reactive approached concerning public participation, compared to urban citizens, holding a proactive approach (Li and De Jong, 2017).

In China, it is a norm for the government to be decision-making driven, employing a strong top-down approach, whilst considering the governance (Li and De Jong, 2017). The Arnstein (1969) ladder of participation model was applied to analyse public participation; the finding identified public participation at the lowest rung (tokenism).

The rural community was established as reluctant in voluntary participation. This assertion is based on rural communities being less informed concerning their participation rights, including their influential power (Li and De Jong, 2017). Local

government agreed on supporting voluntary participation as the way the country needs to transform to policy implementation. Grassroots parties within the area coerce the policy implementation process, even though a level of distrust exists between the party officials and the community. These party officials believe that community members are potential barriers to the process. This made a positive difference to the level of participation of Arnstein's rung *(ibid.).*

A need is identified that government officials should improve the professionalism of government officials. It was also established that officials are inadequately trained concerning constructive communication with the community. The Chinese government should improve a legislative and legal framework concerning public participation (Li, De Jong, 2017).

It was identified that in China; legal frameworks were developed to include public participation.

The public in rural and urban areas contributed to the implementation of public participation by demanded re-addressing during public participation (Enserink, and Koppenjan, 2007). This led to the public resorting in protests to raise their concerns and to force the authorities to hold a public hearing concerning environmental impact. Enserink, and Koppenjan, 2007 noted that good governance is a crucial part of participation, whilst China is experimenting fair practice of public participation even though the protests are increasing *(ibid.).*

An addition of public participation into the Chinese legal framework was only developed during 2002, and resulting to the enforcement of EIA Law of the People's Republic of China in 2003 whilst the EIA was established and made part of the Environment Protection Law during the 1970s. (Tang, et al., 2005)

2.7.5 South Africa

The Constitution of the Republic of South Africa (Act 108 of 1996) provides for basic values and principles, governing public administration by directing that "people's needs must be responded to and the public must be encouraged to participate in

policymaking". This notion as corroborated by Reddy (1999), affirming the need to encourage citizens to participate in policymaking; public administration would be targeted at meeting their needs. This view underscores the intention of public participation provisions in the constitution as orchestrated, influencing government policy outcomes. It reflects the will of the people as much as it recognises public participation as a people-oriented process. People (citizens) form the centre of all public participation programmes *(ibid.).*

Public participation is a two-way communication and collaborative problem-solving mechanism to achieve more acceptable representatives and decisions (De Villiers, 2014). To participate in the developmental processes and decision-making, citizens need to learn how to negotiate and interact with municipalities, how to obtain information on municipal operations, decision-making processes and how the civil society is organised (Maphunye and Mafunisa, 2008). It is emphasised that citizens must know the mechanisms and instruments for participation, including awareness of the municipality's willingness to interact with them (De Villiers, 2014; Maphunye and Mafunisa, 2008).

The success of a project depends on end-users obtaining the benefits they wanted in the way they expected. The Municipal Systems Act (Act 32 of 2000) also specifies that the "community should be regularly consulted in its developmental needs and priorities". If public participation is widespread, public functionaries should be the citizens' responsibility (Piper, 2005).

The South African Government, particularly the local government sphere, should retreat from the traditional planning approach, regarding citizens as beneficiaries only. Emphases should be on modern participatory planning, considering citizens as experts (Mautjana and Makombe, 2014). Bekker (1996) concludes that "citizen participation can content certain people all the time, all of the people certain time, but not all of the people all of the time".

The process outlined by the Municipal Systems Act (Act 32 of 2000) can be linked to the first stage of project management. During the initiation stage, needs must be established. This can only be determined by consulting and involving communities from

conceptualisation, provided by the legislation. It is crucial to involve citizens in projects' planning implementation to evaluation phases.

The literature presented on public protest indicated the experiences of various countries, including South Africa. The following section outlines public protest causes as suggested by various authors, in line with the power utilities of South Africa.

2.8 PUBLIC PROTEST CAUSES IN ESKOM INFRASTRUCTURE PROJECTS

This section discusses the causes of public protests experienced by Eskom during the execution phase of the infrastructure project. According to Esterhuizen (2011), South Africa encountered several service delivery protests, including labour unrest in the mining sector, and municipalities. Eskom was not spared. Eskom embarked on two mega infrastructure projects of building coal-powered power stations, such as the Medupi power station (Limpopo Province) and the Kusile power station (Mpumalanga Province).

These two projects experienced a fair share of ongoing industrial action, which often led to damaged property. Even though Eskom and its contractors already employed several workers from the community, further public protests were instigated, demanding more employment; workers supporting those, unemployed, joined certain protests (Esterhuizen, 2011). The community demanded further employment. This demand was raised, based on the observation that more employees were from the Gauteng region (Steyn, 2015).

Unemployment negatively influenced communities in South Africa; 71% of public protests in South Africa are caused by unemployment (Steyn, 2015). The public and communities raised these matters during several governmental structures. Incompetence in public participation could have a significant contribution in triggering public protests. This is based on findings of public participation. Relevant structures lose focus and are established not as effective as intended *(ibid.).*

"A communication divergence exists between the elected and the electorate, as expressed by 72% of respondents. The view expressed is that politicians usually think they know what communities need, and therefore bring programmes that are irrelevant"

(Mpehle, 2012, p.224). Political parties presenting their own interests instead of those of the community are addressed, especially in areas holding several political parties in the community, consequent to public protest. Mpehle, 2012 further stated that, as much as a demand for employment was at the top of the list for communities and the public in general, other demands were raised, amongst them are:

- Socioeconomic demands – certain communities put their socioeconomic demands upfront to Eskom.
- The taxi industry also provides their demands, indicating their taxis (only) must be used to transport employees to and from the project site (Eskom, 2017).
- Farm owners are amongst the stakeholders presenting their demands from Eskom. These concerns include the acquisition of servitudes whereby the landowner or farm owner demands a specific price for lands and servitudes. It is a general requirement to rehabilitate the environment in compensation of performed duties. Eskom ensures that this is arranged, however, the farm owners, at times, demand more (Eskom, 2017).

The challenges cannot be fully eliminated. These can be managed well with less disruption if public participation is well understood and effectively implemented. Concerning Eskom, several challenges surfaced. They cannot easily be consigned to the framework under consideration. For instance, in 2012, based on a media release by Eskom, titled ‘Eskom Updates South Africa on the State of the Electricity System Going into Summer’, it emerged in an erupted industrial action, which exacerbated power failures; projects could not be completed punctually (Eskom, 2017). The following section discusses the effects of public protests in South Africa.

Transmission divisions experienced public protests in 2018. One of the projects was discontinued due to public protests. The first incident occurred when the community travelled to the site; protesters blocked the gate. The community complained that they were not consulted about the project. They were also not hired. Although labour continued that day, it took three hours for the community to be dismissed. This was the onset of several complaints and community public. In two months, 60 hours were lost due to public protest. The community demanded to be consulted and to be employed.

Similar events occurred increasingly where the community disrupted the project, resulting in project delays, negatively influencing project costs (Eskom 2018).

During public participation in the Gautrain project (Rail construction for the fast train in Gauteng between Pretoria and Johannesburg), it was established that communities were less interested or under-informed concerning environmental issues, such as an EIA process (Aregbeshola, Mearns and Donaldson, 2011). Although a drastic improvement of the public participation process between 2008 and 2002/3 was established in South Africa, public participants received an opportunity to enhance their understanding of the project through this process. The public and communities indicated a misunderstanding of public participation processes. A need was identified to educate the public concerning their rights, benefits, and the part of involvement on public participation and importance of public participation. This includes its value, particularly on the effects of an infrastructure project *(ibid.).*

2.9 PUBLIC UNREST IN SOUTH AFRICA

South Africa was transformed into a democratic country in 1994; freedom became a right for all citizens (Mpehle, 2012; Tshishonga and Mafema, 2015; Mayekiso, et al., 2013). In a democratic country, such as South Africa, the citizens, organisations and government structure participate in strikes and public protests, observed as a customary practice (Pithouse, 2007; Steyn, 2015). Public protest participants take this action, demonstrating their dissatisfaction of certain matters, or raising concerns to the leaders (Mpehle, 2012; Theletsane, 2012).

In 1996, the Constitution of the Republic of South Africa, Act 108 enacted as the supreme law of the country and in the constitution; it suggests a high emphasis should be on human rights and basic services to South African citizens (Tsheola, et al., 2014; Mayekiso, *et al.*, 2013). The constitution guides public participation. It is supported by other legislative enactments, such as NEMA (Section 56). These Acts guide all organisations in South Africa, involving public participation.

A challenge in categorising protests and linking them with the relevant motives was identified (Mpehle, 2012). The media is confirmed to report on public protests more than

other official reporting structures, such as corporate communications and organisational communication structures. Mpehle, (2012) further stated that this is because the media hold various interests, observations, and objectives when reporting, compared to other reporting structures, such as organisational structures. The media reported more on violent protests; this is attributable to violent protests attracting more attention than peaceful actions *(ibid.).*

The legislation, policies and frameworks in South Africa on public participation, state that all stakeholders planning to deliver infrastructure projects should engage communities at various stages of planning up to implementing projects (Municipal Systems Act, Act 32 of 2000; Municipal Structures Act, Act 117 of 1998; Municipal Finance Management Act, Act 56 of 2003). The purpose involves consulting, involving, informing and identifying collaboration opportunities (Legislative sector, 2013). The following section provides reviews of various global methods and models of available public participation.

2.10 EFFECTS OF PUBLIC PARTICIPATION IN INFRASTRUCTURE PROJECTS

Hartay (2011) holds the view that participatory democracy renders continuous civil participation possible in the political process, whilst contributing to the open and transparent work of executive and representative authorities. According to Hartay (2011), the following are identified as public participation effects and benefits:

- Creating fair policies/laws reflective of real needs, enriched with additional experience and expertise.
- Facilitating cross-sector dialogue and reaching consensus.
- Adopting more forward and outward observing solutions.
- Ensuring the legitimacy of a proposed regulation and compliance.
- Decreases costs, as parties can contribute with their own resources.
- Increasing partnership, ownership and responsibility in implementation.
- Strengthening democracy, whilst preventing conflict amongst diverse groups and between the public and the government, increasing confidence in public institutions.

The aforementioned effects and benefits indicate, as citizens become more involved in the government's actions, the trust relationship is strengthened. This is a progressive approach to a participative democracy.

2.11 CHALLENGES OF PUBLIC PARTICIPATION, INVOLVING INFRASTRUCTURE PROJECTS

Several challenges were identified, surrounding the practice of public participation. There is a challenge of using unskilled people with limited knowledge on the subject of collecting and evaluating public participation information (Legislative Sector Support, 2013; public service commission, 2008; Conrad and Hilchey, 2011). The people identified to facilitate public participation processes are unaware of the regulatory frameworks on the process and the purpose of the exercise. The result bears distorted information, which cannot effectively inform decision-making *(ibid.).*

Voss (2014) reiterates, in certain other cases, public participation initiatives are performed as purposes of compliance, and not necessarily informed by the genuine intent of permitting participants to provide a faithful engagement, especially where EIA studies are required. As a result, limited time is afforded the public to participate, including the issuance of incomplete or inadequate scope, intending to influence the vital study decision.

Despite such hypocritical approaches to public participation by public officials through attempts at compliance, it also suggests non-compliances to the constitutionally mandated, dictated by courts for public participation (Voss, 2014). Certain challenges in public participation include a lack of access to information, a lack of skills for public participation and a lack of proper coordination. In addition, communities view the constituency offices more as political party offices instead of governmental administration offices (Legislative Sector Support, 2013).

Maphunye and Mafunisa (2008) identify the challenge of a lack of instruments to measure the influence, power and the difference, contributing to the level of public participation to determine levels of engagement before decisions.

These instruments are ordinarily required to determine the extent of the value of the contribution of the democratic public participation in South Africa.

Maphunye and Mafunyisa (2008) further identify specific challenges and obstacles in public participation, peculiar to South African municipalities:

- The continuous meetings, intending to engage public participation, exhaust municipality officials. The government structures and stakeholders do not have a high interest in performing truthful and authentic public participation.
- A delay in obtaining funds released for performing public participation.
- Main causes for the delay in releasing funds involve bureaucracy or red tape.
- A lack of a controlling measure and assurance for the appointed consultants to take a high consideration of the input from communities.
- Misalignment between municipality strategies and approaches to the approaches of those at the provincial level.

According to the Legislative Sector Support (2013), a major challenge militating against public participation is South African citizens in general, is a lack of access to facilities and information with which to engage public entities. Only the organised structures, such as businesses and formal organisations can overcome such a challenge, hence their influence in public decisions. This led to the non-governmental organisations (NGOs) representing communities and the society, resulting in insufficient information accessible to the community. Inadequate publicity of the information to the communities also causes an aggravating situation. Public participation officials have habits to visit schools to the influence the less educated sectors of society and, exclude large segments of the population who might stand to benefit from the information provided *(ibid.).*

The Legislative Sector Support (2013, p.84) identified five barriers to access as follows:

- '**Influence of physical access'** - Most public hearings are held in parliament or the provincial legislatures largely in access influence on the poor and those influenced areas. Legislative authorities are increasingly taking greater steps to hold public hearings in communities or to provide transport to those wishing to take part.

- ‘**Lack of effective information**’ - The media is mostly used to communicate and gain influence from the community; this form is ineffective because the information is often severely limited for public participation.
- ‘**Insufficient public education**’ - “The literacy level of the public and communities was limited. It was established that “little or no understanding of national policy and law-making processes” exists.
- ‘**Language barriers**’ - Despite the constitutional recognition of 11 official languages, English is the primary language of government. This potentially excludes a broad range of language groups. In addition, the technical language used in legislation and legislative processes is a further barrier to participation’.
- ‘**Skills for public participation**’ - Skills required for effective public participation, such as public speaking and community organisation, are unevenly distributed and insufficiently developed (Legislative Sector Support, 2013, p.84).

Regarding the aforementioned factors, a need is identified to establish to what extent decision-makers appreciate the purpose of public participation as a regulatory framework to safeguard community interests and aspiration of projects undertaken, or to be undertaken, in their constituency. To what extent is public participation therapeutic, monitoring compliance and its impetus on communities, and are there any considerations on incentives for those holding good practices and equally so penalties for non-compliance?

2.12 CRITICAL SUCCESS FACTORS OF PUBLIC PARTICIPATION IN INFRASTRUCTURE PROJECTS

The Directorate General Health and Consumers (2010, p.7) established a framework for consultations and participation. It provides “effective consultation can influence valuable information to assist in designing successful policy solutions and render informed decisions. The ultimate results of good consultations are good policy outcomes which deliver on priorities”.

Certain principles concerning the code are outlined. The following text defines the code principles, identified as a global best practice of public participation, sourced from the

European Commission Code of Good Practice for consultation with stakeholders (2010):

- Effective: To obtain an effective result from public participation, the consultation should occur as soon as the opportunity occurs. A well-defined resolution with full background and development contributes to effective public participation. Professionals must conduct the consultation. They should be knowledgeable about the matters involved, whilst strictly focussing on affected participants.
- Transparent: All information should be stated, including activities before the consultation, clear process of the consultation and the anticipated results after the consultation. To ensure continuous communication between commission services and affected stakeholders, the European Commission arranged the joint Commission and Parliament Transparency Register. Participants are required to declare their participating function and interest services of DG (Director General) Health and Consumers.
- This is echoed by Macalister (2013) as cited by Voss (2014) stating “by National and local governments support, public participation needs to work towards open and transparent participation mechanisms, which involves a significant degree of proactive engagement on behalf of the polluting organisation. Retrospectively engaging the public and implementing corrective measures to reduce any pollution would be costly on two grounds”.
- Proportional: The duration of the consultation and resources used for the consultation should have proportional value to the proposition.
- Inclusive: A wide range of knowledge and background in the EU exist; stakeholders should have a wide range of representation across the board, including the scarce and non-reachable stakeholders.
- Accountable: Participants should take responsibility in providing continuous feedback; this influence communication amongst stakeholders.
- Coherent: Participants, organisations and stakeholders take pride and honour in recognition of respect, integrity and ethical behaviours as indicated by DG Health and Consumers and the stakeholders by the EU commission. The European Commission, (2010), further emphasised that the consultation should be made economically worth with no ambiguity and duplication.

To generate success, Creighton (2005) argues that public participation in principle, ought to involve everyone, although it may not be possible to reach all individuals; some may not be interested in being involved. This discerns the valuable influence of participation, as the International Association for Public Participation (2002) is enumerated by the seven core values for the practice of public participation. These are discussed below:

- The public should have an opinion on decisions about actions affecting their lives
- Public participation includes the promise that the public's contribution will influence the decision
- Public participation processes communicate the interests, whilst meeting the process needs of all participants
- The public participation process involves participants defining their participation
- The public participation process communicates to participants how their inputs affect the decision
- The public participation process provides participants with the information they need to participate in a meaningful way (Creighton, 2005)

If these values are considered and implemented, decisions cannot be reached without the community's knowledge and involvement (Creighton, 2005).

2.13 SUMMARY

In the context of this review on public participation in infrastructure projects, it is evident that South African municipalities hold legislative frameworks. The processes and governance are well-defined. Although the government has the final authority regarding infrastructure project implementation, public participation is crucial in determining project sustainability. Public engagement may minimise protests, criticisms and confrontations. Influencing consensus is important for both the government and the community during the project implementation phases.

The South African Government holds infrastructure plans across all sectors of the economy, including all spheres of government.

Communities favour public participation within infrastructure projects since infrastructure projects concern job creation; once the project is completed, it leaves long-term employment opportunities for citizens. Infrastructure requires maintenance, generally improving the efficiency of the market, whilst facilitating long-term economic growth. The proposed infrastructure project should involve the public during the participation process. Before the execution phase of the project, public participation and inputs are required to be included as part of project planning and development.

The community must understand the project to be constructed, including the full implications of the project during the initiation stages. Regular engagements with communities affected by the development at each developmental stage of a project should be ensured. The benchmark for South Africa concerning global public participation standards and policies, including BRICS countries, revealed that South Africa has well-defined government enactments, legislation and laws.

The critical question remains on the effective implementation of these projects as the country still experiences high public protests from unsatisfactory communities on infrastructure projects involving the community. Literature indicates that the public needs to be involved in the early stages of the project rather than later. A need exists to educate the public about their rights on public participation and benefits, value and importance of their involvement in these initiatives, particularly on infrastructure projects.

The level of literacy of the public and communities affect their behaviours. Officials of the public participation process may have little interest in educating the public. Literature also revealed transparency of the participatory process and the systematic participatory framework, used as a guideline for public participation, whilst adding value to the public.

Despite the subject of public participation research by a wide array of experts globally and locally, organisations, such as Eskom, still experience public protests and challenges related to public dissatisfaction on infrastructure projects. It is evident that infrastructure projects, in particularly Eskom, also experience disruptions and delays, which can cause exorbitant project costs.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research design, concerning what and how the study endeavoured to conduct the design of the research on the selected topic. The reasons for the selected design method are described, including the information on how the design was conducted. This study established that public participation concerns infrastructure projects, particularly in Eskom. The objective of this research design and methodology is to provide a design and strategy of how data were collected, analysed and reported (Denscombe, 2010). The following section provides the justification of the research design and the reasons thereof.

3.2 RESEARCH DESIGN

Gatrell, Bierly and Jensen (2005) hold the view that a research design is a critical process responsible for transforming an idea, interest, or question from “just a thought” into a meaningful and purposeful investigation of a social or physical process. According to Denscombe (2010), a good research design should serve at least three crucial purposes.

First, it ought to describe how the various parts of the study are linked. Secondly, the research design ought to provide the justification of the research strategy concerning the research questions, framed at the start. There must be a balance between the main purpose of the research and the research design. The choice of a research design is influenced by the study objectives. The research design acts as the blueprint of the study, which ought to comply with all the requirements of responsible scholarly research. Thirdly, a research design ought to proffer an explanation of how the crucial various elements of the study are aligned (Denscombe, 2010).

Research is the systematic approach undertaken to collect critical knowledge with the clear purpose defined with an emphasis on a phenomenon (Saunders et al., 2016; Kumar, 2011). The objective of the research design and methodology is to describe the research design.

Research methods were adopted during data collection and analyses. The argument is made on the selected design method, philosophy and the strategy, based on the research question (Simons, 2009; Tashakkori and Teddlie, 2010; Denscombe, 2010; Saunders, *et al.*, 2016; Alston and Kerri, 2016; Nakray *et al.*, 2015).

The research involved the employed research design to demonstrate the path tailored in answering the research question. This method was employed to communicate with others; the journey is followed on collecting and analysing research findings. The rational on the chosen research method and the justification are provided with the research design. The research design acts as the blueprint of the study ought to influence the requirements of responsible scholarly research (Saunders, *et al.* 2016; Kumar, 2011, Somekh and Lewin, 2012; Denscombe, 2010). Measures of concepts are devised by selecting a research method and population, responding to the study questions (Simons, 2009).

3.3 RESEARCH PHILOSOPHY AND APPROACH (STRATEGIC CHOICES)

According to Saunders, et al. (2016) also demonstrated in Table 3.1, the so-called research onion, illustrates approaches in various presupposed dependencies layers. The research philosophy, research approaches, methodological choices, research strategies, time horizons and the techniques and procedures, form the various layers of the onion, illustrating each research process. The process involves detaching each layer at a time to reach the centre with data collection and data analysis *(ibid.).*

3.3.1 The research philosophy

A research philosophy refers to beliefs on the approach used to collect, analyse and use data about the phenomena according to Saunders, et al., (2016). In this research, the philosophy of positivism was chosen along with the deductive approach, mainly using mixed methodological choices and techniques for data collection and analyses (Saunders, *et al.*, 2016).

Positivisms a philosophical system recognising only what can be scientifically verified or capable of logical or mathematical proof, and therefore rejecting metaphysics and theism. (Du Plooy-Colliers, et al*.,* 2014).

For this study, the quantitative part of the analysis was analysed using quantitative techniques. Tests were applied where conclusions can be drawn.

The selected research philosophy and design was adopted from the model, termed the 'research onion' comprising seven layers (Table 3.1). The 'onion' suggests that the top-down should be applied for research design, starting with the outside layer, by adopting a research philosophy, and thereafter peeling away each layer until the centre of the onion is reached, defining data collection methods and data analysis (Saunders, et al., 2016).

Table 3.1: The research philosophy layer

Layer	Approaches
Research philosophy	Positivism, Interpretivism, Critical realism, Post-modernism, Pragmatism
Theory development approach	Deductive, Abduction, Inductive
Methodological choices	Mono method quantitative, Mono method qualitative, Multi-method quantitative, Multi-method qualitative, Mixed method simple, Mixed method complex
Research strategies	Experiment, Survey, Case study, Ethnography, Action research, Action theory, Grounded theory, Narrative inquiry
Time horizons	Cross-Sectional, Longitudinal
Techniques and procedures	Data collection and Data analysis

Source: Adapted from Saunders, Lewis and Thornhill, 2016, p.124.

3.3.2 The theory development approach

The deduction approach was the theory development approach selected for this study. A deductive approach is concerned with "developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the

hypothesis"; Wilson, (2014). A deductive design might test to see if this relationship or link obtained more general circumstances (Gulati, 2009).

A deductive approach offers the following advantages: Possibility to explain causal relationships between concepts and variables; possibility to measure concepts quantitatively and the possibility to generalise research findings to a certain extent (Babbie, 2010). In this case, aspects of public protests in public participation were regarded; specific elements needed review in the broad spectrum of infrastructure projects. Specific elements were selected to analyse their impact on infrastructure projects in Eskom. The research process involved research strategies and methodological choices. Data collection methods, data analyses and reporting emanated from a provided philosophy as critical elements of research.

3.3.3 The research design for this study

An exploratory study was chosen to investigate the phenomenon of public participation and its association with public protests. This method recommended in the research that needs to answer the research questions 'how?' and 'what?' (Saunders, et al., 2016). This method enjoys a greater benefit of flexibility and is adaptable to change. An exploratory study is particularly useful to clarify an understanding of an issue, problem, or phenomenon, unsure of its precise nature (*ibid*.).

From the aforementioned factors, it is of value that a comprehensive study investigates, amongst others, the 'what?' and 'how?' required specifically to identify the main concerns and their influence on projects. Thus for this study Positivism Deductive research philosophy is applied is adopted where both qualitative and quantitative

3.3.4 Research approach

This is assessment study used a mixed method research approach to collect and analyse data. According to Creswell (2009), a mixed method is traced back since its inception in 1959 in psychology and a multi-trait method matrix of Campbell and Fiske (1959). A mixed method is an integration of qualitative and quantitative methodological choices.

The study required a clear understanding of qualitative and quantitative methods (Creswell, 2009; Simons 2009; Yin, 2003). The mixed method required cross-sectional information and substantiation data. The mixed method is associated with exploring the phenomenon, relevant when testing fundamental data (*ibid*.).

Somekh and Lewin (2012:260) describe the mixed method approach as “uniquely able to generate better understanding in many contexts than studies bounded by single traditional method”. The strength of both qualitative and quantitative methods combined in a mixed method expands for an improved understanding, specifically to address a complex issue (Creswell, 2009; Simons 2009; Yin, 2003; Somekh and Lewin, 2012). The purpose of this study was to investigate whether public participation influences or influences public protests, occurring during infrastructure projects at Eskom.

3.3.5 Research strategies and data collection

For this study, the mixed methods approach was employed. The mixed method approach is a methodology for conducting research that involves collecting, analysing and integrating quantitative (e.g., experiments, surveys) and qualitative (e.g., focus groups, interviews) research. This research approach is used when integration provides an improved understanding of the research problem of either or each alone.

Quantitative data includes close-ended information. The analysis of this type of data comprises statistically analysing scores, collected on instruments (e.g., questionnaires such as the survey questionnaire used for this study) or checklists to answer research questions or to test hypotheses.

Qualitative data comprises open-ended information that the researcher usually collects through interviews, focus groups. The analysis of the qualitative data (words, text or behaviours) typically follows the path of aggregating into categories of information, whilst presenting the diversity of ideas collected during data compilation.

This study applied a **sequential explanatory design** where collection and analysis of quantitative data were followed by the collection and analysis of qualitative data. The priority is provided to quantitative data, whilst findings are integrated during the interpretation phase of the study.

3.3.6 Data collection

Primary data was collected through a survey questionnaire containing structured questionnaire for quantitative analysis. The survey method of data collection was conducted through structured questionnaires, directed to the selected sample as described in the population. The e-mail was used as communication tool for sending out the survey questionnaires and collection the data from the respondents.

Telephonic and face-to-face interviews, containing six open-ended questions from the interview schedule for eight (8) participants, allowed the flexibility of added information, should it arise, whilst allowing respondents to engage in the interview. Respondents six (6) were interviewed through a face-to-face and two (2) were interviewed through a telephone where an appointment was set with respective respondents. The interview took 45 minutes on average and allowed the flexibility of innovative information established during the interview, whilst allowing respondents to engage more comfortably through semi-structured interviews. This was for qualitative analyses. (Saunders, *et al.*, 2016). Additional primary data for qualitative approach were conducted through attending public participation meetings for Eskom implemented infrastructure projects for more in-depth information on the outcomes of meetings discussion.

Qualtrics electronic survey systems were used to deliver electronic questionnaires to research participants. Qualtrics is the software technology designed for conducting the survey; it is recommended by academic institutions for research purposes. Most organisations use Qualtrics as a device for data collection for marketing purposes.

Qualtrics was selected as electronic surveys have the potential to reach a wider population. This form of the survey has an added advantage to data collection as it is easily traceable and reconcilable. It is recognised that not all selected samples may respond to the survey (Creswell, 2009; Kumar, 2011). The disadvantage of an influence electronic form of data collection is that participants may take longer in providing data and may have limited influence to encourage participants (Saunders, et al., 2009; Creswell, 2009; Kumar, 2011). These obstacles were managed through continuous follow-ups with participants.

3.3.7 Time-horizon

The research is conducted as guided by the academic time constraints, established by the university.

3.4 POPULATION

The research became constricted to focus on the specifics; a need existed to identify the population where primary data were obtained; the study population constituted the research respondents (Kumar, 2011).

There were two populations from which this study was conducted i.e. Eskom project stakeholder and the community from where the projects are conducted. The Eskom project stakeholder population is 417 consisting of 183=Project managers, Programme managers, Planners, Contract managers, Project coordinators, 147= Engineers, 44 = environmental advisers and 43= Site supervisors.

The Eskom project teams comprised individuals involved in projects, affected by public participation. The project teams comprised project managers, programme managers, environmental advisers, environmental consultants and project engineers and the community comprises of environmental advisers, community leaders and contractors. The population was sampled, as it was impossible to collect data from the entire population (Saunders, et al. 2016). The population of projects where public participation was a requirement was approximated to 100.

3.5 SAMPLING

Sampling is a process used in statistical analysis in which a predetermined number of observations are taken from a larger population. This study applied simple random sampling to collect primary data from 100 participants for both external project stakeholders and Eskom project stakeholders. The response received from the collection of data was 43 external project stakeholders (43% response rate) and 43 (46% response rate) for Eskom project stakeholders resulting in total response rate of 86%.

The questionnaires were distributed, using an online survey (Qualtrics) to participants of the study i.e. both external community stakeholders and Eskom internal projects stakeholders. Both participants completed the questionnaires and responses were submitted to an online survey system.

The participants of this study comprised of Eskom project stakeholders, External project stakeholders that includes the community members and independent environmental consultants.

The sampling frame was chosen, based on the involvement of project stakeholders with an opportunity to participate in the processes of public participation in infrastructure projects to the research question of the study. A sampling frame is the list a list of the items or people forming a population from which a sample is taken (Hove, 2018). The list of participants was collected from a historical database where public participation was a crucial requirement for the indicated projects. The list of projects was established from the Eskom database, including certain projects executed at the time of data collection. Various project managers, integration managers and environmental managers held first-hand information on infrastructure projects affected by public protests.

The choice of the sampling strategy was crucial in answering the research objectives. The selected sample was relevant to the intent to deliver the best information to satisfy the research objectives, resulting in an 8-response rate from the online survey conducted.

Sampling should meet the following criteria:

- Low cost
- Meet the duration of the study
- Have greater data collection speed
- Meet the availability of the population (Hove, 2018)

3.6 DATA ANALYSIS METHODS

Primary data were collected through a survey questionnaire. The questionnaire contained structured questions used to collect data for quantitative analyses. An interview schedule was designed to collect data through a telephonic interview. The interview schedule comprised open-ended questions, pursuing to collect an in-depth view of participants regarding public participation in the community. Interviews were conducted, employing semi-structured questionnaires, directed to the selected sample as described in the population. Semi-structured interviews were used, allowing the flexibility of new information to surface during the interview, whilst and to granting respondents an opportunity to engage in the interview in a more comfortable manner. The survey strategy was selected to provide more control to the research (Saunders, et al., 2016). Additional primary data were directed through attending public participation meetings for infrastructure projects that Eskom implemented.

The study applied a rating scale where a Likert scale type method was selected. Respondents were requested to rate each item on a scale with five response points, coded from ‘strongly disagree’ [1] to ‘strongly agree’ [5] on a scale with five response points coded from ‘not important at all’ [1] to ‘of great importance’ [5], whilst additional questions were open-ended, pursuing more than one opinion from respondents. A Likert scale produces interval data (Hove, 24 May 2018).

The analysis was mainly descriptive, involving computation and utilisation of descriptive statistics, principally frequency distributions, percentages and means. The questions were self-administered, concluding in participants’ opinions of the subject under investigation. Although the questions were mainly pre-coded and closed-ended; the response category ‘other (specify)’ to introduce an open-ended element, was employed. Close-ended questions were preferred, providing greater uniformity of responses. They were easier to process (Plooy-Cilliers *et al.*, 2014). Open-ended questions were sourced at a minimal scale to provide additional information on cases where the information is not fully exhausted (Hove, 2018).

3.7 VALIDITY AND RELIABILITY

The pilot T-Testing of research instruments and employing quantitative techniques aimed at ensuring the study provided valid and reliable outcomes. Quantitative techniques are known for providing valid quantitative outputs, whilst the qualitative technique established an in-depth analysis of phenomena (Du Plooy-Cilliers *et al.*, 2014). Closed-ended questions in the questionnaire ensured that valid information was collected from respondents on the subject under investigation, whilst causal and comparative data emerged to test what is under discussion (Plooy-Cilliers *et al.* 2014; Saunders, et al. 2016, Nakray, *et al.*, 2015).

"Positivism is based on the collection of data from samples that are subjected to tests of reliability and validity, mathematical analysis and inference drawing. Positivism could entail both the collection of large-scale primary data or analyses of secondary data" (Nakray, et al., 2015, p.87).

3.7.1 Reliability

Regarding reliability, Du Plooy-Cilliers et al., (2014, p.257) assert that:

- "Reliability of a research instrument refers to the consistency or repeatability of the measurement of some phenomena. Cronbach Alpha was applied to ensure that the instrument tested what is intended for: A rate of more than 0.7 meant that the instrument has internal consistency, which was achieved in this analysis as presented in Appendix D.
- Parallel forms of reliability, which is a measure of equivalence, and it involves administering two different forms of measurements to the same group of participants and obtaining a positive correlation between the two forms.
- Test-retest reliability, which involves administering the same research instrument at two different points in time to the same research subjects and obtaining a correlation between the two, sets of responses.
- Inter-rater reliability, which is a measure of homogeneity. With inter-rater reliability one measures the amount of agreement between two people who rate a behaviour, object or phenomenon".

3.7.1.1 Cronbach's Alpha

Most researchers use Cronbach's Alpha to evaluate questionnaire consistency when conducting the survey, in a Likert-type scale format. Cronbach's Alpha is also used in certain multiple scales of questions (Hogan, Benjamin and Brezinksi, 2000). Cronbach's Alpha is the most popular reliability analysis in research (How2Statsc, 2017).

Cronbach's Alpha originated in 1951, by Lee Cronbach. Cronbach's Alpha derives from challenges of the researchers with limited coefficient and devices to measure internal consistency of multiple questionnaires, using the KR-20 formula Ritter (2010). Cronbach (1951) used the KR-20 formula to obtain the Alpha formula.

Reliability adds more value, confidence and importance to the study and its significance. Understanding the reliability score of the test and its interpretation determines the accuracy of the test for the study and the readers (Hogan, Benjamin and Brezinksi, 2000).

3.7.1.2 Values of Cronbach's Alpha

Cronbach's Alpha is expressed in numeric form, between 00 and 1.0. (Cronbach, 1951; Tavakol and Dennick, 2011 and How2Statsa, 2017). The lowest figure is.00, indicating 'not reliable', whilst reflecting questionnaire inconsistency. The highest Figure 1.0 reflects the most reliable and highest consistency of the questionnaires. A Cronbach Alpha of 0.810 was achieved for this study, remaining within the acceptable range.

3.7.2 Validity

The pilot T-Testing of research instruments and using quantitative techniques in a mixed method aims, ensure that the study presents valid and reliable outcomes. Quantitative techniques are known for valid quantitative outputs, whilst qualitative establishes an in-depth analysis of phenomena (Du Plooy-Cilliers, et al., 2014).

Validity is also important which "addresses the issue of whether the researcher is actually measuring what he/ she has set out to do" (Du Plooy-Cilliers, *et al.*, 2014,

p.257). This study considered validity to ensure eliminating elements of internal and external concern.

3.7.2.1 Internal validity

- Addresses whether the research design or method answers the research questions
- It envisages the avoidance of errors in the design and methods must assist in answering research questions
- It also addresses errors in the results emerged, even after controls are established
- A small margin of errors will always exist (Du Plooy-Cilliers *et al.*, 2014)

Considering the full mentioned factors, this study employed a statisticians to ensure the research instruments are aligned to the research design and methods in answering the research questions. External validity indicates:

- Focussing on the ability to generalise findings from a specific sample to a larger population
- The researcher must affirm with confidence that the same research method applied in the sample were applied in the rest of the population, obtaining the same result (Du Plooy-Cilliers et al., 2014)

3.7.2.2 External validity

The research ensured external validity through effective sampling methods, employing stratified sampling to warrant a representative sample is drawn from the Eskom population, ensuring observations collected are generalisable to the entire collective (Du Plooy-Cilliers, *et al.* 2014). Employing tests and pre-tests ensure that ambiguities in questions were eliminated. The purpose of validity is to reduce errors and eliminate preconceptions (Yin, 2003; Du Plooy-Cilliers, et al., 2014). The content of this research is considered valid, as data were collected from experts in the industry.

3.7.3 Pilot study

To assess the relevance and improve accuracy, clarity and ease of completion of the questionnaire by respondents, a pre-test (or piloting) of the survey instrument was

employed. The pilot study group of ten respondents randomly selected from the same population where the sample of the study, was selected. The pilot study group of ten respondents consisted of project managers, project engineers, project coordinators and environmental adviser who have gained knowledge and experience within the infrastructure projects. The ten respondents used for the pilot study did not form part of those selected for participation in the main study. Concerns raised during the pilot study with ten respondents involved in the pre-test, guided adjustments to the questionnaire.

According to Du Plooy-Cilliers *et al.* (2014, p.256), “a pilot study can act as a pre-warning system because possible errors and difficulties with the measurement instruments will emerge during a pilot study”. The results of the pilot study allow for the adjustment of the measurement instrument, based on the feedback information gained from the pilot study. This exercise is a significant function in this study to ensure the reliability of data collection instruments.

3.7.4 Questionnaire construction

Two questionnaires were compiled. The first questionnaire was compiled and distributed using an online survey distributed amongst qualified Eskom employees with relevant working experiences on the infrastructure project, regarded as professionals indicating: Project managers, project engineers and environmental advisers, project engineers. The second questionnaire was compiled and distributed using an online survey, distributed amongst environmental consultants and contractors. The community is regarded as the external project stakeholders and external participants for data collection in this study. The two questionnaires were both developed to address the objective of the study. The difference between the two questionnaires was the way the questions were phrased to make it relevant to respondents with ease of understanding.

The draft questionnaires were compiled and distributed amongst Eskom project stakeholders. The purpose of the draft questionnaire was to perform a small pilot study to test reliability and to refine questionnaires to eliminate errors. A final questionnaire was sent to the academic supervisor with the purpose to obtain approval for distribution to the sample population.

Survey questionnaires utilised online (Qualtrics) multiple questionnaires. Participants were required to complete an online survey, capturing the feedback on the system. The online survey was estimated to the extent to seven minutes.

The questionnaires were distributed during January 2018. A slow response rate was received from participants. Most employees and individuals just returned from their December holidays and were not in a working ‘mode’ yet.

Participants experienced some challenges. Certain participants received errors from the system; it was realised errors were caused by their network connections. This was proven when other participants managed to log in and complete the same survey with ease. Participants who experienced the network challenge later managed to proceed with survey participation without setbacks.

- The role of survey participants

This section describes participants’ functions, explaining the reason behind the participant selection for the study. Environmental consultants are selected because they are entrusted with the necessary skills to conduct public participation. In Eskom, environmental consultants are appointed to conduct public participation, amongst other concerns, on behalf of Eskom, for infrastructure project implementation and execution.

As environmental consultants conduct public participation for Eskom, they have first-hand experience and information on the subject. This adds more value to the reliability of the data collected as they are professional. Environmental consultants are skilled and have specialised knowledge relating to public participation compliances. This further strengthens the data validity and reliability, adding more value to the confidence and importance of the study. Their input was valuable to this research through their methods of contribution with the following input to the project.

Eskom has a history of using external consultants to execute certain infrastructure projects in cases with limited internal resources to perform this function. Although this practice is no longer in place, consultants were appointed to perform various functions in the project management space, including the function of a project manager, amongst

others. These external consultants have vast exposure to Eskom project management processes and first-hand experience, comprehending Eskom projects.

Other participants are technically skilled and professional stakeholders in the project environment. They do not necessarily specialise in public participation, but they affect and are affected by infrastructure projects. Project delay influences project engineers, project support and other project stakeholders. This is based on their interest to ensure the project meets its objectives. These stakeholders have a valuable contribution to the successful completion of these projects.

Environmental advisers are individuals employed by respective companies, excluding Eskom; they are not considered as environmental consultants. Environmental advisers are professionals with significant interest in environmentally-related matters. Their functions include conducting EIA, which may include public participation, amongst others. Primary data collected for this study from environmental advisers, are reliable and can be trusted as significant to the study.

During project execution, public protests affected contractors, appointed to implement project construction. Contractors and their employees are important stakeholders of projects; this is attributable to them observed as Eskom representatives. During public protests, contractors and their employees are affected, whilst being victimised by the community. The community believes that they represent those taking jobs that belong to the community (Esterhuizen, 2011). The community and its representatives were selected. They are the drivers of public protests. Community and its representatives formed the main study participants, providing valuable input.

Two questionnaires were compiled, with clear questions for participants to understand, ensuring easy participation. For example, demographic questions differed for the two groups. The remainder questions were similar, however, phrased according to each group with a clear understanding when responding to the questions. Each section of the questionnaire had the same intent on both questionnaires.

The questionnaires comprised seven sections:

- Section 1: Consent participation information
- Section 2: Demographic information
- Section 3: Effectiveness of public participation in infrastructure projects
- Section 4: The association between public protests and public participation
- Section 5: The impact of public participation in the community
- Section 6: Suggestion for improvements
- Section 7: General comments

The questions were compiled to answer the research questions, whilst adhering to research compliances. A thorough explanation of the purpose and reasons behind them are:

Section 1: Consent participation information

As maintained in the ethical requirements, participants must partake voluntarily to the survey. It is the participants' right to know how participation will influence their lives. Each participant provides consent for participation. This section was prepared as a closed question to allow participants to choose to provide consent.

Section 2: Demographic information

It is critical to select survey participants, ensuring relevancy and that they meet the demographic requirement of the survey.

Section 3: Effectiveness of public participation in infrastructure projects

This section intends to establish whether public participation is effectively performed.

Section 4: The association between public protests and public participation

The purpose of this section is to measure if there is an association between public protests and public participation.

It is in the interest of the study to establish the public protests that erupted the project during the execution phase if somehow related to public participation.

Section 5: Impact of public participation in the community

The purpose of this statement is to establish if public participation has any impact on public unrests.

Section 6: Suggestions for improvements

This section is generated to measure areas of improvement, although, based on the opinion of survey participants who normally respond based on their knowledge and experiences.

Section 7: General comments

The purpose of this section is to allow participants to provide additional information that may have not been included in the questionnaires. This can include any suggestions that would assist Eskom to further improve public participation processes on infrastructure projects.

3.7.5 Interview schedule

The interview schedule was designed to collect qualitative information from open-ended questions. The interview schedule comprises six (6) questions, which seeks to address the objective of the study. The schedule is attached under Appendix C in this study report.

3.8 ETHICAL CONCERNS

Fundamental ethical considerations guided the study, relating to responsible research in human sciences. This is in the theory derived from Du Plooy-Cilliers, et al. (2014), emphasising the importance of research ethics. It assists in defining legitimate actions, or what ‘moral’ research procedure involves. It is the responsibility of the research conductor to protect participants and treat the information as confidential.

It is of vital importance to follow the research process and respect ethical considerations, guided by the university *(ibid.).* Ethical approval was applied for and the process was followed as specified by the university. The organisation was studied, upon approval of the research and ethics thereof.

Several ethical concerns needed to be addressed as they incline to influence participants if not provided proper attention. Du Plooy-Cilliers, *et al.*, (2014) explain the following ethical concerns as critical for the research and respondents.

- Informed consent
- Collecting data from participants
- Dealing with sensitive information
- Providing incentives
- Avoiding harm
- Dealing with confidentiality versus anonymity
- Avoid deception (Du Plooy-Cilliers, et al*.,* 2014: 260-271)

3.8.1 Other critical factors

The following additional critical factors were addressed:

Permission to obtain information - The purpose of the study was provided to research participants, allowing them to decide whether it is in their best interest to participate in the study. Participants provided permission to obtain information before their contribution, through the participant consent form (Appendix B) (Kumar, 2001; Du Plooy-Cilliers *et al.*, 2014). When conducting a study from the organisation, it is critical to obtain permission before conducting the study (Saunders et al.). Eskom provided the necessary permission to conduct the study (Appendix A).

Harm to participants - The information was strictly examined to ensure the study would not cause any discomfort, embarrassment or create anxiety to respondents or research participants (Kumar, 2001).

Privacy and secrecy - Participants' information is kept confidential. All data are stored securely for two years. Reported findings did not reflect the respondents' identity (Du

Plooy-Cilliers et al., 2014). Influence research was performed in such a manner, not to expose the respondent to any danger. The researcher was required to take several steps to uphold ethics. No names or any personal information could be used to identify respondents in reporting the research findings (Du Plooy-Cilliers et al., 2014, p.260-271; Simons, 2009; Nakray *et al.*, 2015). The following section summarises the research design and methodology.

3.9 SUMMARY

This chapter describes the research design, methodology selected and reasons for selecting the design method. The information of how the design was conducted is provided, including the research philosophy and strategic choices, thoroughly explained. Functions of the research participants are further clarified, including the reasons for selecting the specific study participants.

CHAPTER 4: RESEARCH RESULTS AND ANALYSES

4.1 INTRODUCTION

This chapter presents results, analyses, and an interpretation of both quantitative and qualitative data. Methodology applied was described in Chapter 3 of this study. The quantitative survey consisted of two pasts i.e., the external and the internal to Eskom survey and qualitative results involved, face-to-face interview, general comments from the quantitative survey participants and public participation meetings.

The results are presented in this chapter as follows:

- Quantitative results from external and internal stakeholders (Eskom) survey
- Qualitative results
    - Face-to-face interview qualitative results
    - Comments in the quantitative survey from both internal and external stakeholders
    - Public participation meetings

4.2 EXTERNAL STAKEHOLDERS QUANTITATIVE RESULTS

This section presents results from data collected from the 43 external stakeholders' participants.

4.2.1 DEMOGRAPHICAL INFORMATION

Table 4.1: Role of participants

Participants (public)		
	Frequency	Per cent %
Consultants	9	21%
Other	6	14%
Environmental consultant	15	35%
Community representative	2	5%
Contractor	3	7%

Environmental adviser	3	7%
Missing information	5	12%
	43	100%

Table 4.1 represents that demographical information of the external stakeholder survey results. The external stakeholder quantitative survey results consisted of Environmental consultant 15 of 43 (35%) followed by Consultants 9 of 43 participants (21%) with 3 of 43 (7%) being environmental advisers and contractors respectively. Community representative were 2 of 43 (5%) whilst others were represented by 6 of 43 (14%). There were 5 of 43 (12%) participants who did not complete this section.

4.2.2 MEASURING THE EFFECTIVENESS OF PUBLIC PARTICIPATION

This section presents results regarding measuring the effectiveness of public participation shown in Figure 4.1 and Table 4.2.

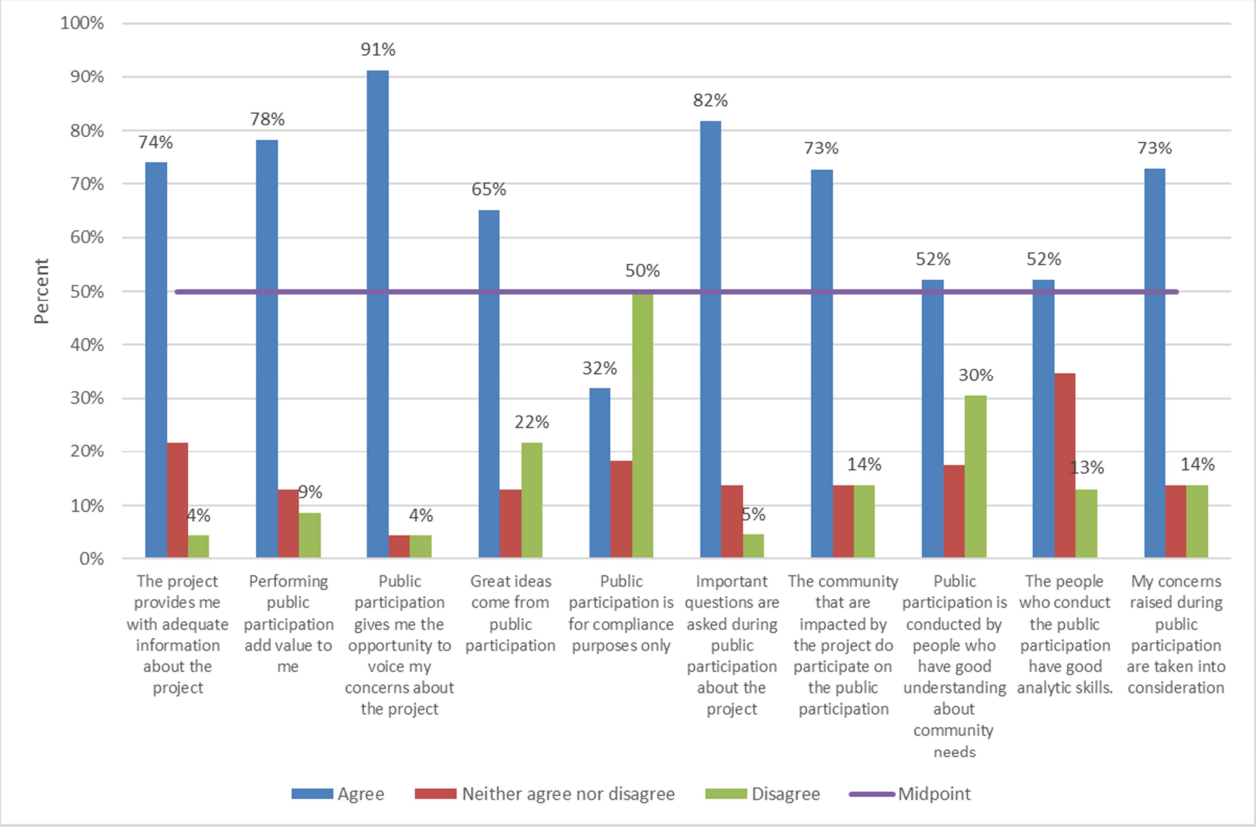

Figure 4.1: Effectiveness of public participation

Table 4.2: T-Test results for public participation effectiveness

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p
Agree	0,6721	0,174199	10	0,055087	0,547516	0,796744	0,50	3,1247	9	0,012225
Neither agree nor disagree	0,1634	0,078958	10	0,024969	0,106957	0,219923	0,50	-13,4793	9	0,000000
Disagree	0,1644	0,144181	10	0,045594	0,061299	0,267581	0,50	-7,3597	9	0,000043

Results indicate that most participants agreed that the project provided them with adequate information; performing public participation add personal value; public participation provided them with the opportunity to voice their opinion on the project; innovative ideas derived from public participation; important questions were directed during public participation; the involved project influenced the community; individuals with a good understanding of community needs directed public participation; the people directing public participation, held noble analytic skills, considering participants' concerns raised during public participation.

Results revealed that the average mean (67.21%) of participants that agreed, is significantly higher than the 50% midpoint, compared to a significantly lower mean average of 50%; midpoint participants neither agreed nor disagreed (16.34%); 16.44% participants disagreed. The difference is attributable to a p-value, less than 0.05 level of significance, signified that most participants agreed, compared to those who disagreed. Public participation was perceived as effective, although it should be emphasised that most participants did not agree that public participation is for compliance purposes only. Figure 4.1 indicates the acquired results.

4.2.3 MEASURING THE ASSOCIATION BETWEEN PUBLIC PROTESTS AND PUBLIC PARTICIPATION

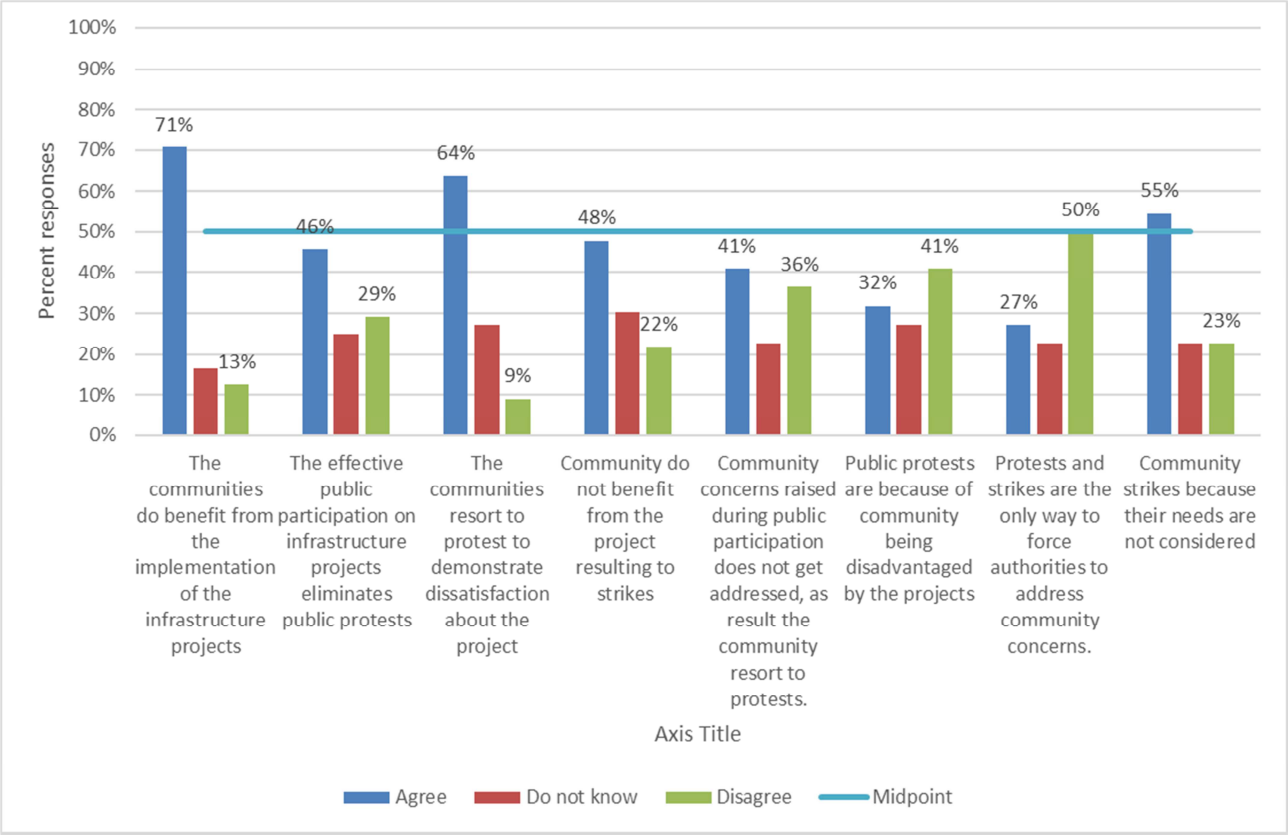

Figure 4.2: The association between public protests and public participation

Results indicate participants over the midpoint of 50%, agreed on community protests as their needs are not considered; communities benefit from implementing infrastructure projects through employment and business opportunities. General workers may obtain employment opportunities because these types of employment do not require any qualification. The local business owners may obtain business opportunities; for example, taxi owners may obtain opportunities to transport workers to and from construction sites. The community resorts to protest to demonstrate dissatisfaction concerning the project.

Participants disagreed that effective public participation in infrastructure projects eliminates public protests. Community concerns raised during public participation were not addressed. The community resorted to protests; public protests are a cause of

initiating a project, disadvantaging the community. Protests are observed as one of the ways to force authorities to address community concerns.

Table 4.3: T-Test results on the association between public protests and public participation

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p
Agree	0,4784	0,149027	8	0,052689	0,353761	0,602939	0,50	-0,4109	7	0,693431
Neither agree nor disagree	0,2435	0,041627	8	0,014717	0,208736	0,278339	0,50	-17,4258	7	0,000001
Disagree	0,2781	0,140744	8	0,049760	0,160473	0,395802	0,50	-4,4586	7	0,002941

According to Figure 4.2 and Table 4.2, results indicate, participants who agreed were less than 50%; they did not significantly differ from the midpoint of 50%, since the p-value was higher (0.69%) than the level of significance of 0.05%. Participants who disagreed were far less than 27.81%, compared to the 50% midpoint with a p-value of 0.02, less than the level of significance of 0.05%, confirming the difference between average participants who disagreed and the midpoint. This applies to participants who did not know or who were unsure about the required answer. Results indicate that participants who agreed did not differ from the 50% midpoint.

There is not adequate evidence to conclude that: The community protests because their needs are not considered; communities benefit from implementing infrastructure projects. Communities resort to protests, demonstrating dissatisfaction regarding the project. Results are therefore undecided. An opportunity exists if more data would be available. Most participants that agreed indicate between 35% and 60% with a 95% confidence interval. A midpoint of over 50% is achieved.

4.2.4 MEASURING THE IMPACT OF PUBLIC PARTICIPATION IN THE COMMUNITY

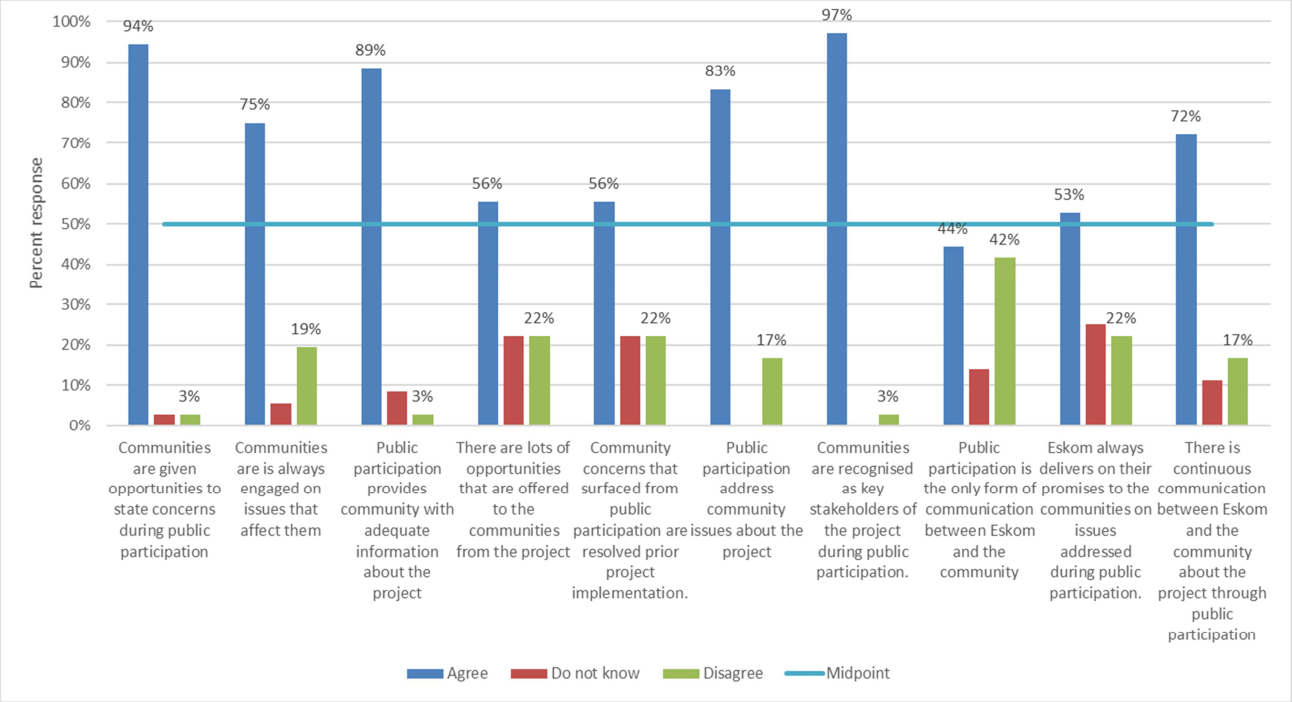

Figure 4.3: Impact of public participation in the community

Results in Figure 4.3 and Table 4.4 indicate that a significant majority of participants of 50% agreed that communities are provided opportunities to state their concerns during public participation. Infrastructure projects always engage participants in concerns affecting them. The project provides participants with adequate project information. The project offered numerous opportunities to communities.

Community concerns surfaced from public participation meetings and are recognised. Public participation addresses community concerns. Communities hold a deciding power for the project. Community needs are addressed during public participation. Public participation is the only form of communication between Eskom and the community. Clear communication to the community is identified, providing project information, with continuous communication between Eskom and the community.

Table 4.4: T-Test result on the impact of public participation in the community

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p-value
Agree	0,719	0,189	10	0,059827	0,583812	0,85448847	0,5	3,663	9	0,005211
Neither agree nor disagree	0,111	0,094	10	0,029833	0,043862	0,17883772	0,5	-13,027	9	0,000000
Disagree	0,170	0,120	10	0,038018	0,083526	0,25553363	0,5	-8,692	9	0,000011

The average mean of participants that agreed (71.9%), is significantly higher than the midpoint of 50% with a p-value of 0.005, less than a significance level of 0.05. Participants disagreed and those unsure were significantly lower than the midpoint of 50% with p values of less than 0.05. There is adequate evidence to conclude that communities are provided opportunities to state concerns during public participation. Participants are always engaged with concerns affecting them by the infrastructure project. The project supported participants with adequate project information. The project offers sundry opportunities to communities.

Concerns from the community surfaced from meetings with public participation and were recognised. Public participation addressed community concerns. Communities have the deciding power for the project. Community needs were addressed during public participation. Public participation was identified as the only form of communication between Eskom and the community. Clear communication is distributed to the community on the project, with continuous communication between Eskom and the community. Public participation in the community has a positive influence on the project. Table 4.4 indicates these results.

4.2.5 MEASURING IMPROVEMENT

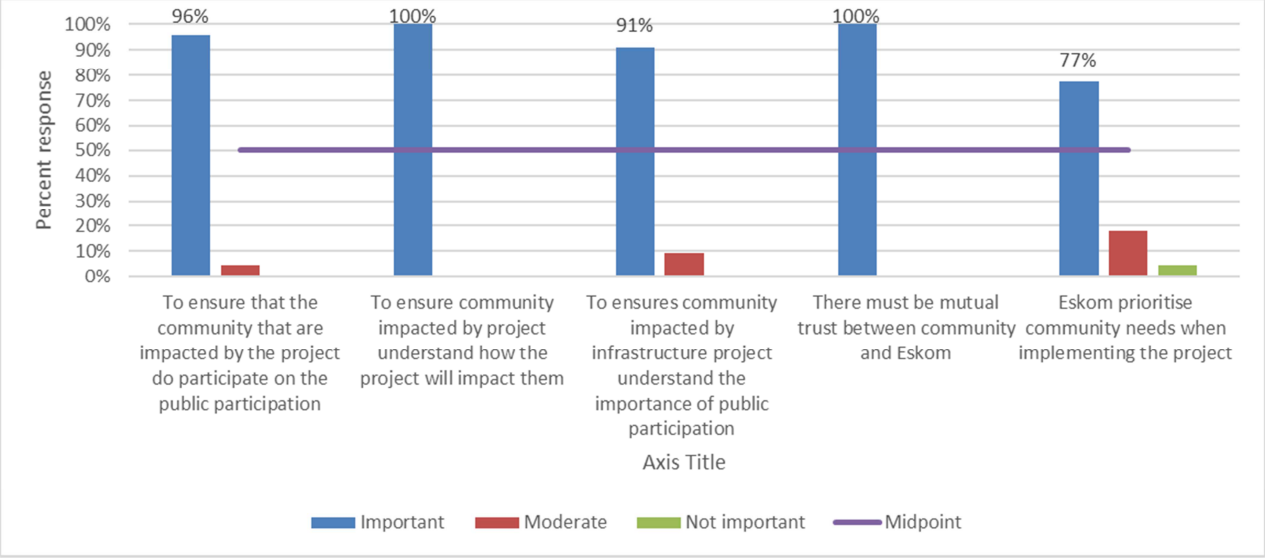

Figure 4.4: Improvement

The results in Figure 4.4 indicate that 50% of participants agreed it is important to ensure the community affected by the project is informed, by:

- Public participation
- Ensuring the project positively influences the community
- Ensuring the community understands how the project influences them
- Ensuring the community affected by infrastructure project, understand the importance of public participation
- Ensure mutual trust between the community and Eskom
- Eskom should prioritise community needs during project implementation

Table 4.5: T-Test results on measuring improvement

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p-value
Important	0,928	0,094	5	0,042225	0,810405	1,04487487	0,5	10,128	4	0,000535
Moderately important	0,063	0,076	5	0,034066	-0,03134	0,15782231	0,5	-12,821	4	0,000213
Not important	0,009	0,020	5	0,0091	-0,01617	0,03436565	0,5	-53,945	4	0,000001

The results further indicate an average mean of 92% of participants, indicating that the importance of an improvement was significantly higher than the midpoint of 50%, confirming they were in the majority with a p-value of 0.005, less than 0.05 level of significance. Participants indicated that it is either moderately important or not important, were significantly lower than the 50% midpoint with a p-value of 0.00002 and 0.000001 respectively.

4.3 QUALITATIVE RESULTS

The qualitative results comprise:

- Face-to-face interview qualitative results
- Comments from a participant in the quantitative survey from both internal and external stakeholders
- Public participation meetings.

4.3.1 Face-to-face interview qualitative results

4.3.1.1 Demographical information

This is the demographical information of the eight respondents (8) interviewed through face-to-face and telephone as a way of the data collection method. The respondents consisted of one of each stakeholder manager; programme manager; site supervisor; consultant involved in Eskom public participation; two of each project engineers and environmental advisers, respectively.

4.3.1.2 Effectiveness of public participation in infrastructure projects

- Process

Ng et al., (2012) believes that a systematic framework to guide the participatory process for several types and scales of infrastructure projects as this study results found.

Participants' responses identified a lack of a process dealing with communal land owned by family, community, or government, suggesting that no title deed exists.

Attributable to a lack of a title deed, dealing with communal land owned by a family, community or government, cause ineffective public participation in infrastructure projects and may result to protest by the community. Participants maintained:

> "*There is no process for dealing with communal land is owned by family, community or government where there is no title deed existing".* Respondent 1

4.3.1.3 The association between public protests and public participation

- **Process**

Participant's responses indicated that the project development process is time-consuming as supported by Ng et al., (2012).

> *"You find the public participation gets conducted early during developing the project long before the execution takes place. By the time projects are ready for execution, the people consulted might have moved, no longer there, passed away, new leaders in place etc".* Respondent 1.

- Local service providers

Participants emphasised that challenges are created when service providers that are not from the local community, administrate public participation. Maphunye and Mafunyisa (2008) also indicated that a lack of a controlling measure and assurance for the appointed consultants to take a high consideration of the input from communities in line with this study.

> *"In one of the villages public participation was first conducted by service provider appointed by Eskom from Johannesburg. The service provider did not know the community, had an understanding of local authorities operate. Service Provider had to spend certain money to go to the Eastern Cape. Service Provider did not consult the Provincial Eskom authorities who deal with communities and municipalities".* Respondent 1

"The community came in angry, they maintained they were promised people (Eskom / contractor) will come and address them at the hall in their community" Participants maintained. Respondent 1

To indicate the need for local service providers,

"One of the counsellors came to site with people; he wanted them to be hired". Respondent 4

- **Consultation**

Respondents identified a lack of fruitful and successful consultation as a cause for protest, amongst others.

"Due to a lack of understanding of the community and the service provider is not from local, participants indicated that the service provider could not conduct a fruitful and successful consultation" Respondent 1

"Two buses came in carrying members of the community, they were complaining that they were not consulted about the project and they were not hired, they were standing at the gate" Respondent 4

In line with this study Hartay, (2011) indicated that a consultation process needs to be professional, transparent, and satisfactory to all parties involved. Participants need to understand that their involvement is voluntary and may not cause any self-harm, harm to the environment and others. This will minimise the rate of protest and improve project execution period.

4.3.2 Impact of public participation in the community

- **Prevention of protests**

"Gates were closed by community; no work was done. They demand 60 people must be hired, they requested an urgent meeting to be scheduled on

Friday the 13th, they were told the meeting is scheduled for the 17th, they maintained work must stop until then". Respondent 2

- **A mutual understanding between Eskom and the community**

One of eight participants indicated that having a mutual understanding between Eskom and the community helps in preventing lost time in project execution. The participant indicated that they held a meeting with the community to prevent further delays in the projects. This is in line with Hartay (2011) and Maphunye and Mafunyisa (2008) with the idea of consultation and process improvement for example,

"There was a meeting, trying to resolve community issues". Respondent 2

A lack of a mutual understanding between the community and Eskom can result in lost time of the project attributable to protests as indicated in Table 4.6

Table 4.6: Lost time attributable to protests: Impact of public participation on the community

Date:	Work executed Yn	Hours lost
21/02/2018	Y	3
23/02/2018	Y	4
26/02/2018	Y	3
28/02/2018	Y	0
09/04/2018	Y	0
10/04/2018	Y	0
11/04/2018	N	9
12/04/2018	N	9
13/04/2018	N	9
14/04/2018	N	5
16/04/2018	N	9
17/04/2018	N	9
18/04/2018	Y	0
Total Hours lost		**60**
	No	6
	Yes	7

Results in Table 4.6 indicate that protests influence public participation in the community. The table above indicates a record of community protests, attributable to a lack of consultation and refusal to appoint the community to perform tasks. Results reveal 13 protests; six discontinued and seven continued with the project although lost hours are established. Within three months, losing 60 hours of labour were attributed to community protests. These results indicate a lack of consultation, influencing public participation.

- **Suggestion for improvements**

Two themes derived from interview responses, relating to improvement.

  - *Process*

The outcome from the interview indicated that the process needs to be followed in detail.

  - *Effective negotiator*

An effective negotiator with the following requirements should be appointed to improve public participation:

> - *"Must be local.*
> - *Understand the community language.*
> - *Understand the dynamics the community are going through.*
> - *Understand the culture of the community.*
> - *Know the protocol used by the community.*
> - *Have good negotiation skills.*
> - *Be patient.*
> - *Understand the terminology is used by the locals.*
> - *Negotiator needs to be able to develop trust with the community, leader councillors.*
> - *Adhere to commitments.*
> - *Be a good communicator*". (Respondent 1).
>
> *"There was a group of people who came in, about 30 or so, they were protesting about employment at the gate, we had to withdraw workers from site".* Respondent *2*

4.3.2 Qualitative general comments from a Quantitative survey section from both internal and external stakeholders

The following are the themes found based on respondents' responses in the quantitative survey from 43 participants of both internal and external stakeholders, respectively. The themes are as indicated in Figure 4.5 below. These are social media, continuous engagements; lack of understanding (Consultants appointed); attached to service delivery; Skills; Over-use of contractors; Socioeconomic factors; and communication as a result of, trust, relationship, advertising and awareness.

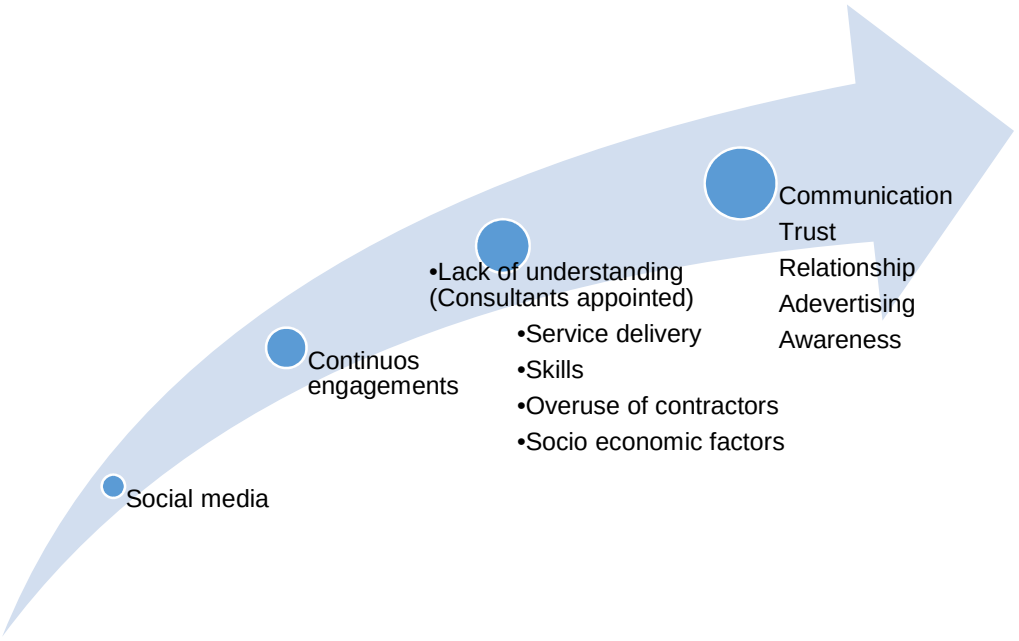

Figure 4.5: Effective ways for public participation

- **Social media**

A participant suggested using social media to reach out to the community, whilst another suggested continues engagements, confirmed by the respondent.

> *"Use social media also to communicate with communities affected".* Participant 1

> *"Continuous engagement with the affected parties".* Participant 3

In line with the literature, Qina,(2015) was also of the opinion of using innovative technology in achieving effective public participation. He Qina, (2015) indicated that ICT (Information and Communication Technology) device does contribute to resulting in high-growth public participation with low cost and time economical. He further states that developed countries reap the benefits of using innovative technologies whilst the underdeveloped countries are forsaken (Qina, 2015). This study finding related to social media in achieving effective public participation

Social media also pave ways for good continuous engagements according to Directorate General Health and Consumers, (2010) who emphasised on the need for European Commission to engender an effective and efficient consultation and engagement with the public, businesses and the community

- **A lack of understanding**

In line with the literature, lessons learnt from a study done by Aregbeshola, Mearns and Donaldson, (2011) about the process of public participation for Gautrain project was that the public does not understand the process although the opportunity to learn was acknowledged by the public. The authors, Aregbeshola, Mearns and Donaldson, (2011) indicated that the public and communities indicated a misunderstanding of public participation processes. A need was identified to educate the public concerning their rights, benefits and the part of involvement on public participation and importance of public participation in line with the results of this index study.

For the index study, reminiscent of Eskom participants, a lack of understanding was an area of concern on consultants offering services to the community, according to a participant.

"Consultants appointed not familiar with the community needs, poor or ineffective communication, follow-up and implementation on public participation need". Participant 12

"Eskom representatives should be skilled accordingly to execute and analyses the intended result concerning public participation". Participant 23

- **Service delivery**

From numerous studies, a concern raised related to public protests has usually been around service delivery. In Esterhuizen (2011), South Africa encountered several service delivery protests, including labour unrest in the mining sector, and municipalities due to service delivery amongst other issues. In line with the results of this index study, respondents suggested that Eskom employees should ensure delivering their promises to the community. Respondents said related to service delivery issues:

"Do not over-promise and underperform". Participant 11

- **Dependency on contractors**

A participant specified that Eskom relies on contractors with the hope of preventing opportunities to communities:

"Eskom must ensure locals obtain all reasonable opportunity". Participant 15

This result is supported by Voss, (2014) who believes that difficulty in attempts to compliance, lack of skills, for public participation and a lack of proper coordination resulted in organisation dependencies on contractors instead of conducting public participation themselves.

- **Communication**

To ensure continuous community trust, effective communication is necessary, as maintained by a participant:

"Communication to the relevant stockholders about projects". Participant 24

In Qina, (2015) also reiterated that facilitation of communication through information technology holds a crucial function communicating to a larger number of individuals, consuming lesser time and cost. These also ensure that both the community and stakeholders are in one accord when public participation is performed.

- **Advertising and awareness**

This result affirms the study by Qina, (2015) regarding communication and information before performing any public participation. The results of this study show that advertising and awareness before performing public participation is crucial. Another respondent stated:

> *"Distribute pamphlets with all information, prior to the meeting; announce the meeting in advance through loudspeaker etc.; have promotional items and questions*". Participant 16.

> *Eskom can also involve school learners, so they understand the opportunities being created through projects being implemented".* Respondent 7.

4.3.3 Qualitative results from public participation meetings

These are qualitative results collected from public participation meetings. The theme that emanated from the data were: bad communication and lack of trust; more engagements meetings; Need to meet EIA regulations, lack of understanding, need for collaboration, awareness and training; and lack of respect for indigenous knowledge as indicated in the literature already presented in the previous sections.

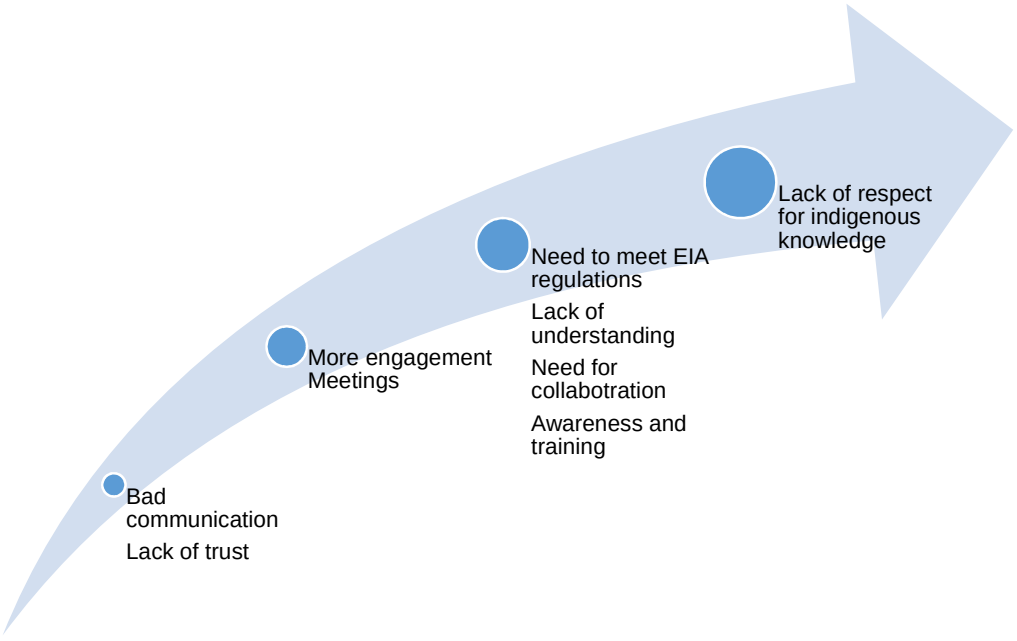

Figure 4.6: Participants indicated the following themes as reasons for the protest

Inadequate communication and a lack of trust

Participants indicated that the reason for protest encompasses inadequate communication and a lack of trust. To eradicate these, more (engagement) meetings are suggested to provide a clear background and schedule for input from communities. Participants maintained:

“The main reason for public protest is inadequate communication. Communities do not trust the transparency of companies as they feel there is also a hidden agenda towards communities”

Participants further maintained:

“Public participation in rural communities must comprise at least three meetings at each venue separated by at least two weeks”.

- **Meeting regulations**

A participant further indicated that projects are conducted only to meet EIA regulations and not for a meaningful exercise.

“Unfortunately, PP is often done only to meet the requirements of the EIA regulations, and not to obtain as much input from diverse groups of people. Input should be considered and incorporated in recommendations and decision-making, and not be observed as obstacles to obtaining a positive decision at all cost”.

- **A lack of understanding**

Often, the technical team does not observe public participation practitioners as important. This indicates that they are not consulted and are not considered during integration meetings and design phases. This indicates that the voice of the public may not be heard.

- **A Lack of respect**

Participants maintained: “A lack of respect for indigenous knowledge and the community concerns are often indicated”.

- **A need for collaboration**

Participants maintained: “There should be much closer collaboration between the SIA consultant and the public participation practitioner”.

- **Awareness and training**

The need for environmental and project education should be assessed and individuals should be trained if needed, ensuring meaningful participation.

4.4 INTERNAL STAKEHOLDER (ESKOM) QUANTITATIVE SURVEY

This section presents the quantitative results of data collected from the 43 the internal stakeholders' (ESKOM) participants.

4.4.1 Demography

Table 4.7: What is the period of your involvement in the Eskom project?

	Freq	Per cent
10-15 years	1	2,17391
1-5 Years	1	2,17391
5-10 years	2	4,34783
>15 years	1	2,17391

Table 4.7 measures participants' involvement during their experience in projects. Participants (2 of 43) indicated involvement in the Eskom project between five to ten years, whilst two were involved for over 10 years, and one for less than five years.

Table 4.8: What is your job title?

	Eskom	
	Frequency	Per cent
Programme managers	4	9%
Other	15	37%
Environmental adviser	7	15%
Project engineer	7	15%
Project coordinator	1	2%
Land development adviser	1	2%
Stakeholder management adviser	2	4%
Project manager	3	7%
Missing	4	9%
Total	43	100%

From 43 participants, environment advisers (7) and project engineers (7) were the most significant, compared to participants in the survey. Four programme managers, three project managers, two stakeholder management advisers, and a project coordinator and land development adviser, were involved, respectively. Most participants are categorised as ‘others’.

4.4.2 Effectiveness of public participation in infrastructure projects

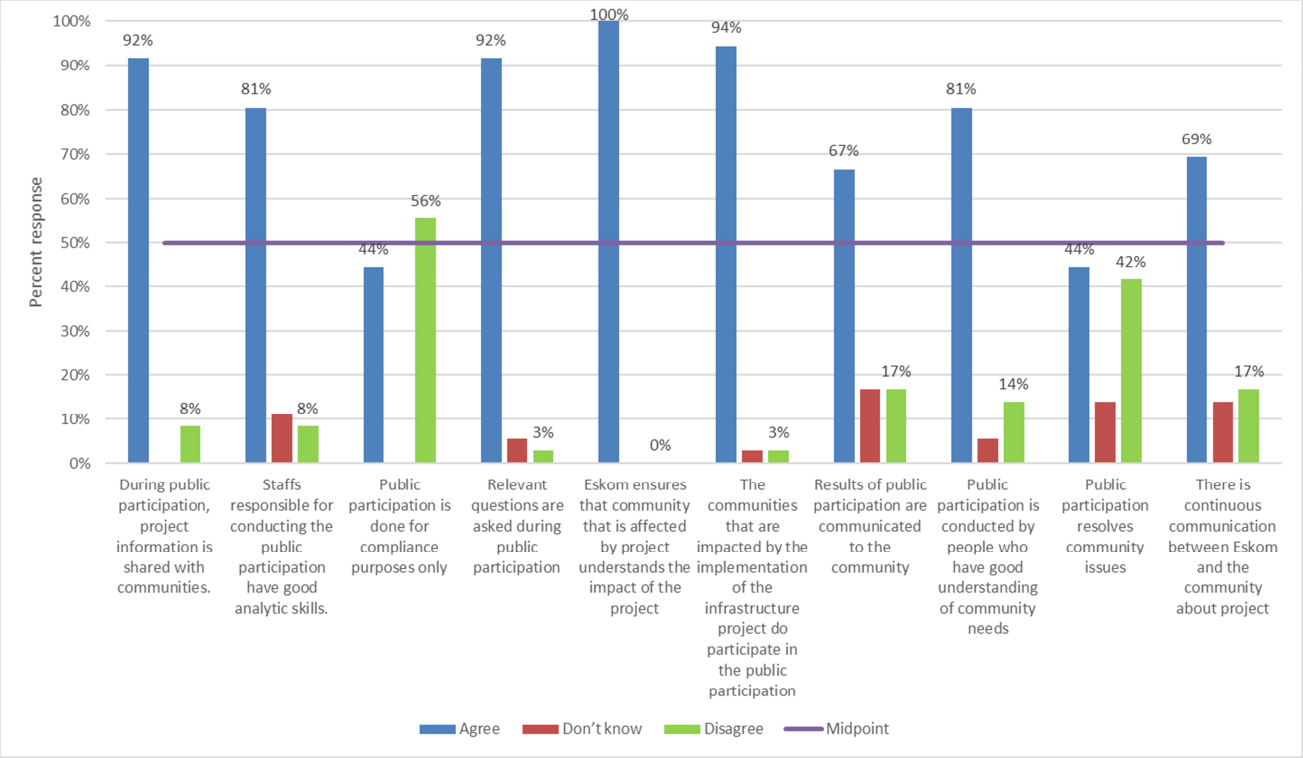

Figure 4.7: Effectiveness of public participation in infrastructure projects

The results in Figure 4.7 indicate that a significant majority of participants agree that during public participation, project information is shared with communities (92%); staff responsible for conducting the public participation hold advantageous analytic skills (81%); relevant questions were directed during public participation (92%); Eskom ensured that the community is positively affected by the project by understanding the impact of the project (100%); communities affected by implementing the infrastructure project are involved in public participation (94%); results of public participation are communicated to the community (67%); public participation is conducted by individuals with a proficient understanding of community needs (81%); it suggests continuous communication between Eskom and the community on project undertakings (69%); 44% of participants sensed that public participation is executed for compliance purposes only, contrary to 56% who disagreed; 44% agreed that public participation assists in resolving community issues, below the 50% margin similar to those who disagreed.

Table 4.9: T-Test results Effectiveness of public participation in infrastructure projects

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p-value
Agree	0,764	0,199	10	0,06297	0,621441	0,906336	0,5	4,191	9	0,002339
Neither agree nor disagree	0,069	0,064	10	0,020391	0,023316	0,115573	0,5	-21,115	9	0,000000
Disagree	0,167	0,181	10	0,057228	0,037208	0,296125	0,5	-5,825	9	0,000252

Results in Table 4.9 reveal on average, that most participants agreed that public participation in infrastructure projects is effective, attributable to a p-value of 0.002, indicating average results of participants that agreed, are significantly higher than 50% and differ from those unsure and that disagreed since they are significantly lower than the midpoint of 50%. Adequate evidence concludes that public participation in infrastructure projects is effective.

4.4.3 Measuring the association between public protests and public participation

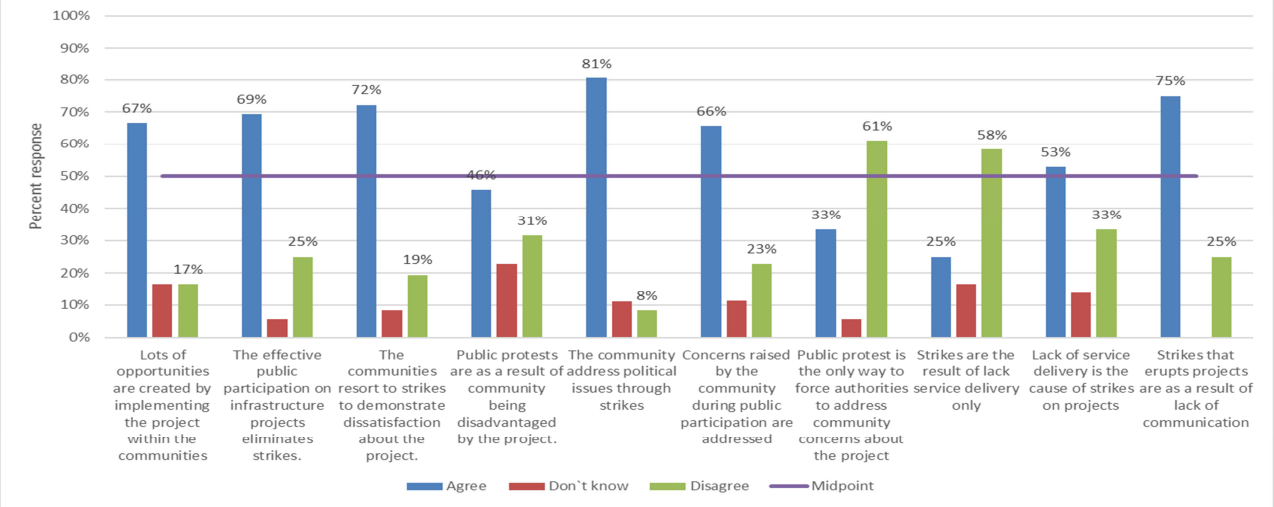

Figure 4.8: The association between public protests and public participation

Results in Figure 4.8 indicate that most participants agreed that sundry opportunities are created by implementing the project in communities (67%); the effective public participation in infrastructure projects eliminates protests (69%); communities resort to protests to demonstrate dissatisfaction concerning the project (72%); the community addresses political concerns through protests (81%); concerns raised by the community during public participation are addressed (66%); a lack of service delivery is the cause of protests on projects (53%); protests erupt projects because of a lack of communication, whilst 44% agreed that public protests are initiated when the project disadvantaged the community. Conversely, most participants disagreed that public protest is the only way to force authorities to address community concerns regarding the project (61%) and protests are the result of a lack of service delivery only (58%).

Table 4.10: T-Test results association between public protests and public participation

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confide influence 5%) Confidence	Reference	t-value	df	p-value		
Agree	0,586	0,187	10	0,059044	0,452864	0,719996	0,5		1,464	9	0,177273
Neither agree nor disagree	0,112	0,067	10	0,021092	0,064366	0,159794	0,5		-18,392	9	0,000000
Disagree	0,302	0,171	10	0,054191	0,178941	0,424119	0,5		-3,662	9	0,005216

Results in Table 4.10 reveal that on average, most participants that agreed do not significantly differ from the midpoint of 50% since the p-value of 0.177 is greater than the 0.05 significance level. A significant difference exists between those unsure and those that disagreed on an association between public protests and public participation since the average is below the midpoint of 50%. This indicated that fewer participants were unsure or disagreed. Based on these results, inadequate evidence is available to conclude an association between public protests and public participation (p-value = 0,23).

4.4.4 Measuring the impact of public participation in the community

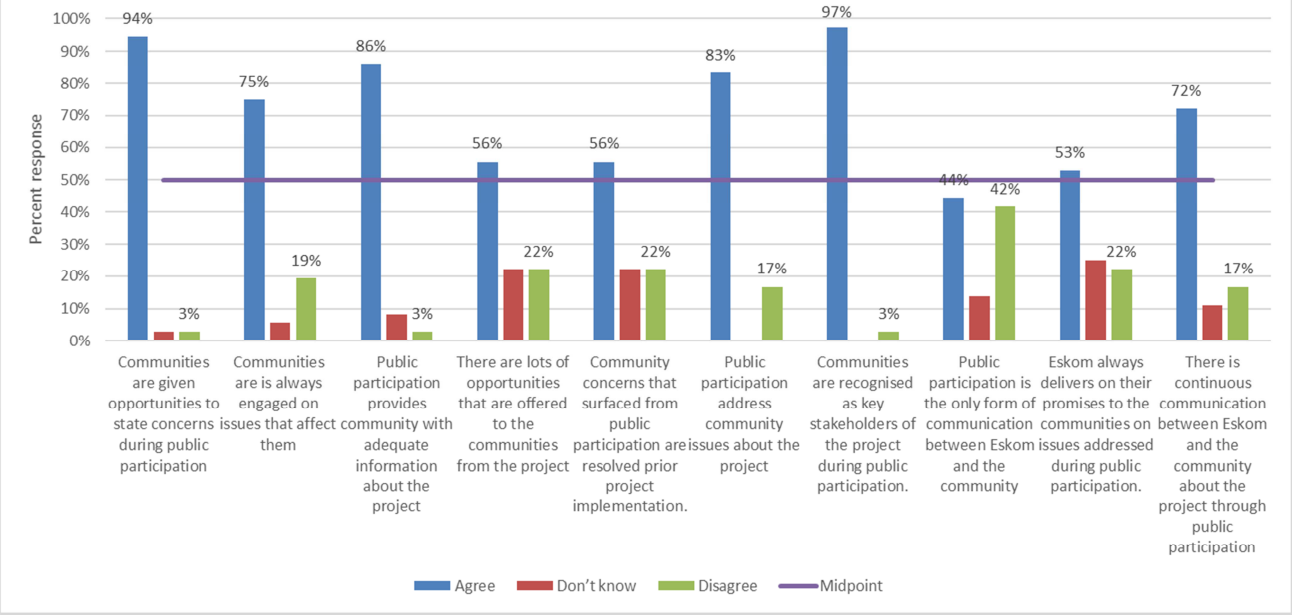

Figure 4.9: The impact of public participation in the community

In assessing the impact of public participation in the community, according to Figure 4.9, most participants agreed that communities are provided opportunities to state concerns during public participation (94%); communities are always engaged with concerns affecting them (75%); public participation provides community with adequate information about the project (86%); the project provides sundry opportunities to communities (56%); community concerns surfaced from public participation, are resolved before project implementation (56%); public participation addresses community concerns about the project (83%); Communities are recognised as main

project stakeholders during public participation (97%); Eskom always delivers on their promises to communities on concerns addressed during public participation (53%); continuous communication between Eskom and the community about the project through public participation (72%); whilst those agreed that public participation is the only form of communication between Eskom and the community, were below 50%.

Table 4.11: T-Test results of the impact of public participation in the community

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p-value
Agree	0,717	0,187	10	0,059114	0,582941	0,850393	0,5	3,665	9	0,005193
Neither agree nor disagree	0,111	0,094	10	0,02986	0,043563	0,17866	0,5	-13,024	9	0,000000
Disagree	0,169	0,120	10	0,038053	0,083362	0,255527	0,5	-8,687	9	0,000011

The T-Test results in Table 4.11 revealed that participants that agreed, were significantly higher than the 50% midpoint, compared to less unsure or disagreed. The evidence is based on a p-value of 0.005, less than a 0.05 level of significance. These confirm the existence of adequate evidence to conclude that public participation in the community has a positive influence on the project (p-value = 0,0017).

4.4.5 Measuring the improvement

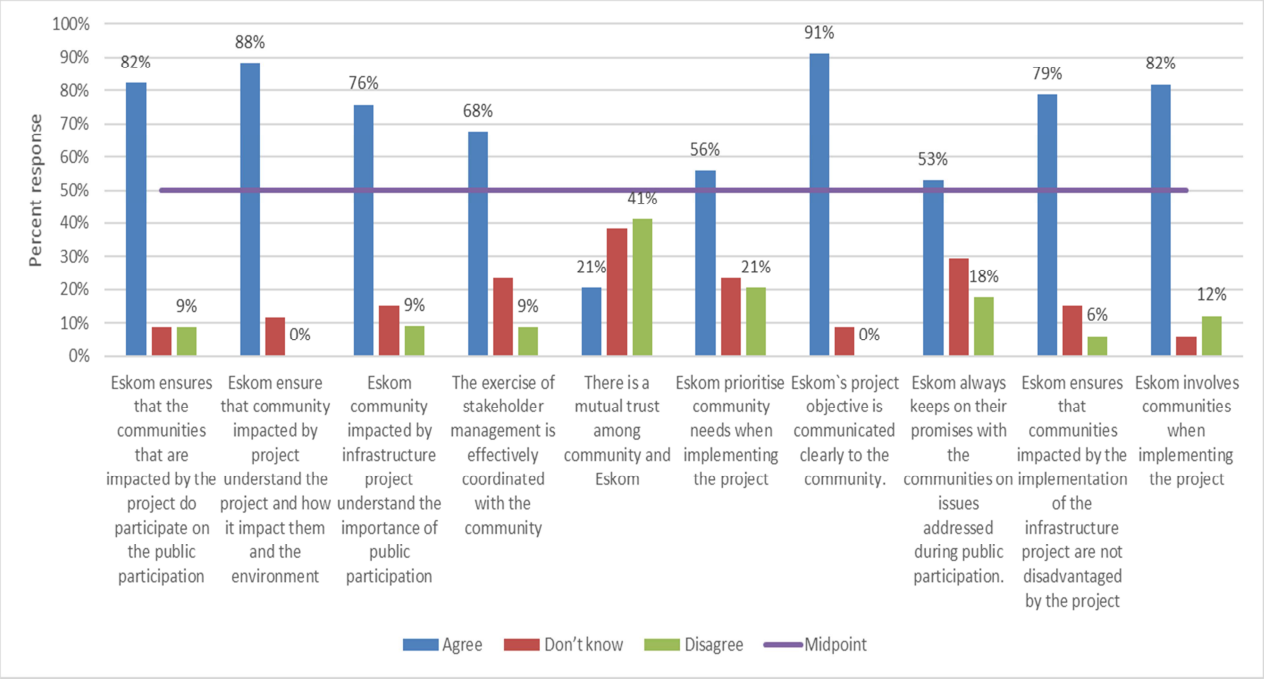

Figure 4.10: Improvement

In assessing an Eskom improvement, results in Figure 4.10 indicate that most participants agreed that Eskom ensures that communities are affected by the project, ensuring public participation (82%); Eskom ensures the community affected by the project, understands the project and how it impacts them and the environment (88%); the Eskom community affected by infrastructure project, understands the importance of public participation (76%). The exercise of stakeholder management is effectively coordinated with the community (68%). Eskom prioritises community needs during project implementation (56%); Eskom's project objective is communicated to the community (91%); Eskom always deliver on their promises with communities on concerns addressed during public participation (53%); Eskom ensures communities

affected by implementing the infrastructure project, are not disadvantaged by the project (79%); Eskom involves communities upon project implementation (82%); whilst a trivial of 21% agreed, a mutual trust exists amongst community members, compared to 41% that disagreed.

Table 4.12: T-Test results on improvements

	Mean	Std.Dv.	N	Std.Err.	(-95%) Confidence	(+95%) Confidence	Reference	t-value	df	p-value
Agree	0,695	0,214	10	0,067653	0,542129	0,848211	0,5	2,885	9	0,018034
Neither agree nor disagree	0,180	0,104	10	0,032783	0,106309	0,254631	0,5	-9,747	9	0,000004
Disagree	0,124	0,120	10	0,038104	0,038123	0,210517	0,5	-9,859	9	0,000004

The T-Test results in Table 4.11, reveal that most participants that agreed, were significantly higher than the 50% midpoint, compared to fewer unsure or disagreed. The evidence is based on a p-value of 0.005, less than 0.05 level of significance. These observations confirm adequate existence of evidence, concluding that public participation in the community, positively influences the project; (p-value = 0,00024).

4.4.6 Comparison results between the community and Eskom agree on responses

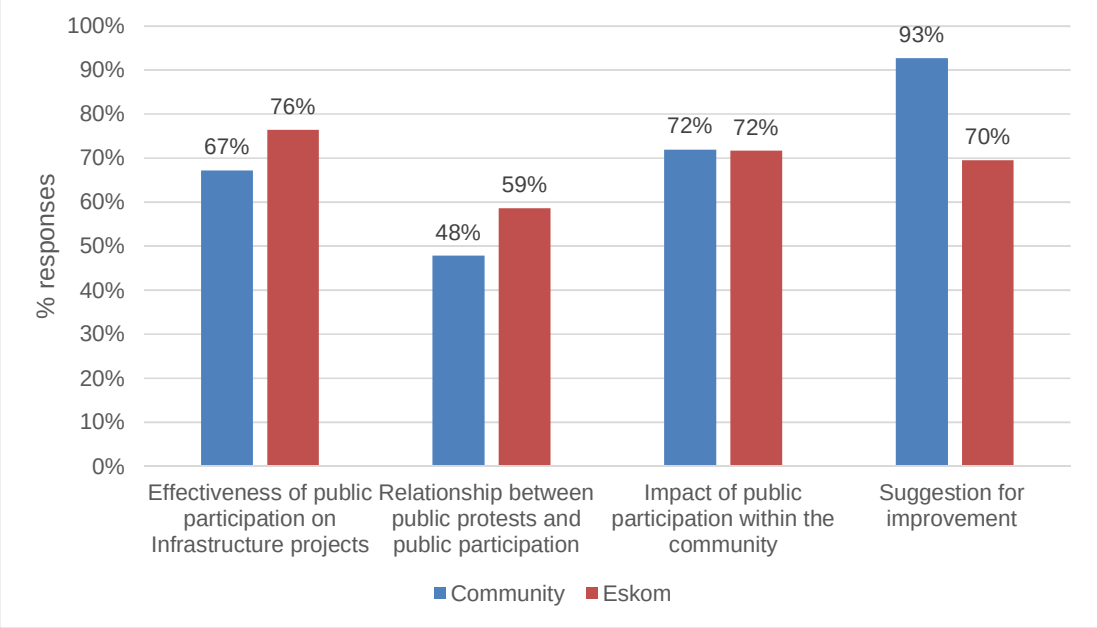

Figure 4.11: Comparison results between community and Eskom agree on responses

The results in Figure 4.11 indicate that the community (67%) and Eskom (76%) agree that public participation in infrastructure projects is effective; furthermore, agree public participation has an impact in the community (72%), whilst 93% of the community participants agree it is important for Eskom to ensure the community is positively affected by the project and are involved with public participation; the community affected by the project, understands how the project will impact them; the community affected by the infrastructure project understands the importance of public participation; mutual trust must exist between the community and Eskom to prioritise community needs during project implementation; Eskom participants (70%) agree that Eskom ensures that the

community is positively affected by the project, ensuring public participation; the community affected by the project understands the project and how it impacts them and the environment;

Eskom community affected by the infrastructure project understand the importance of public participation. The exercise of stakeholder management is effectively coordinated with the community; a mutual trust exists amongst the community and Eskom; Eskom prioritises community needs during project implementation; Eskom's project objective is communicated to the community; Eskom always delivers on its promises to the communities on issues addressed during public participation; Eskom ensures that communities affected by the implementation of the infrastructure project, are not disadvantaged by the project; Eskom involves communities during project implementation. Results indicate that only 59% of Eskom participants agreed on an association between public protests and public participation, compared to 48% from community participants.

4.4.7 Correlation analyses between community and Eskom participant's responses

Table 4.13: Correlation analyses of community and Eskom responses

Eskom responses	Correlation
Effectiveness of public participation in infrastructure projects	91,77%
Association between public protests and public participation	83,24%
Impact of public participation in the community	100,00%
Suggestions for improvements	75,50%

Results in Table 4.13 indicate a strong correlation of 91% between the community and Eskom participants' responses to effectiveness of public participation in infrastructure projects; 83% to an association between public protests and public participation; 100%

to impact of public participation in the community; and 76% to suggestions for improvements.

Results further indicate the level of association is significant at less than 0.05, confirming that community responses and Eskom participants, are associated and results are comparable.

Table 4.14: T-Test analysis

Mean	Community	0,69932
Mean	Eskom	0,69054
t-value		0,08815
df		6
p		0,93263
t separ.	var.est.	0,08815
df		3,96799
p	2-sided	0,93403
Valid N	Community	4
Valid N	Eskom	4
Std.Dev.	Community	0,18447
Std.Dev.	Eskom	0,07511
F-ratio	Variances	6,03264
p	Variances	0,17408
Levene	F(1,df)	1,33597
df	Levene	6
p	Levene	0,29169

The T-Test (Table 4.14) results further indicate, no significant difference exists between responses amongst community participants and Eskom participants. This is attributable to T-Test less than the expected value and a p-value of 0.93 for T-Test, 0.17 for F test and 0.29 for Leven's test are greater than 0.05; the community and Eskom participants agreed to the effectiveness of public participation in infrastructure projects; that there is no association between public protests and public participation.

4.4.8 Discussion of the findings concerning the research objectives

4.4.8.1 Objective One: To examines how public participation is conducted on infrastructure projects in Eskom

In line with De Villiers, (2014), who indicated that public participation is a two-way communication and collaborative problem-solving mechanism to achieve more acceptable representatives and decisions, Eskom has adopted the same approach in conducting public participation.

Eskom public participation process is as follows:

The stakeholders for conducting public participation on infrastructure projects in Eskom comprise internal and external stakeholders such as environmental advisers (Eskom, 2017); project managers, legal advisers, stakeholder manager. Environmental advisers are the internal project stakeholders that drive all environmental-related matters for the infrastructure projects. For the understanding of the public participation process in Eskom, Environmental advisers were consulted for this study.

This supported by the qualitative results were one of the eight (8) respondents indicated that: “Eskom cannot work in isolation, is reliant on National Environment Management Act, 1998 (Act No. 107 of 1998) (NEMA) which also provides the environmental impact assessment (EIA) process” (Respondent 07).

Further to this process, amongst other project deliverables, environmental advisers are required to ensure that there is full compliance to all environmental legislative and no legal contraventions that occur on infrastructure projects. The public participation process includes the assessment of whether there would be listed activities for the project and if the listed activities would require public participation. This process is also supported by face-to-face interview results indicating reasons why Eskom does depend on consultants in executing public participation mandate. (Respondent 08)

Environmental advisers produce an official report to the project manager, which states whether the public participation is required or not for the project.

Once it has been identified that there is a need for public participation then the consultants get appointed to conduct the public participation (Respondent 05). The project manager ensures that there are funds to conduct public participation and allocate time to allow the process to take place. This process is conducted during the planning phase of the project, prior execution of the infrastructure project. Consultants are appointed to conduct public participation to ensure that public participation is conducted by skilled work resources and ensure that all compliances are adhered to (Respondent 08). This process is normally led by the environmental advisers who are guided by the National Environment Management Act, 1998 (Act No. 107 of 1998) (NEMA).

> *"Key to this process is the public participation element, which is also legislated. It forms the integral part of the EIA process and comments and inputs from the interested and/or affected parties are taken into consideration by the competent authority when making decisions on applications"* (National Environment Management Act, 1998 (Act No. 107 of 1998, p7).

The public participation process conducted by consultants gets monitored by environmental adviser who accepts and signed off the report once completed. The project is unable to proceed to implementation until this process has been concluded (Respondent 08).

The results displayed in Figure 4.6 of this study reveal that most participants agree that during public participation:

- Project information is shared with communities
- Staff responsible for conducting public participation holds advantageous analytic skills. Relevant questions were directed during public participation
- Eskom ensured that the community is positively affected by the project by understanding the impact of the project
- Communities affected by implementing the infrastructure project are involved in public participation
- Public participation results are communicated to the community

- Individuals with a proficient understanding of community needs, conduct public participation
- Suggest continuous communication between Eskom and the community on project undertakings

Only 44% of participants acknowledged that public participation is executed for compliance purposes only, contrary to 56% who disagreed; 44% agreed that public participation assists in resolving community concerns, as below the 50% margin, similar to those who disagreed in line with Burkey (2002, p.56) way of defining public participation. He Burkey (2002, p.56) defines “public participation as a basic human right which demonstrates respect for disadvantaged groups” and have the view that through participation that the public can express their opinions concerning, for example, how public goods are managed and how their tax funds are consumed (Bekker, 1996) as a basic human right which demonstrates respect for disadvantaged groups”. It is through participation that the public can express their opinions concerning, for example, how public goods are managed and how their tax funds are consumed (Bekker, 1996).

This study established that on average, most participants agreed to public participation in infrastructure projects as effective (p-value = 0,004), indicating average results of participants that agreed, as significantly higher than 50%; those unsure and that disagreed, are significantly lower than the midpoint of 50%. Adequate evidence concludes public participation in infrastructure projects as effective within Eskom. Results also indicate that (Table 4.13) a strong correlation of 91% between the community and Eskom participants’ responses concerning the effectiveness of public participation in infrastructure projects.

Although the results indicate effective public participation from meeting outcomes in line with Burkey (2002) the study established that Eskom does not employ any specific model to conduct public participation. The South African Government legislature and framework guide the process of conducting public participation. The literature reveals numerous methodologies available in the market, established as effective during public participation, such as e-governance, normative model and Easton levels of public participation (Qina, 2015; Bickerstaff et al*.,* 2002; Arnstein, 1969; Mayekiso, et al., 2013).

4.4.8.2 Objective Two: Investigates causes of public protests on infrastructure projects in Eskom

From the results presented in Chapter 4, Figure 4.8, it is evident that communities resort to public protests because communities addressed their political concerns. These results are supported by few authors namely, Pithouse, (2007); Steyn, (2015), Mpehle, (2012); and Theletsane, (2012). These authors are of the view that public protest participants take this action, demonstrating their dissatisfaction of certain matters, or raising concerns to the leaders (Mpehle, 2012; Theletsane, 2012). Results in Figure 4.7 reveal that most participants agreed that:

- Communities resort to protests to demonstrate dissatisfaction about the project
- Sundry opportunities are created by implementing the project in communities
- Effective public participation in infrastructure projects has a positive impact on the community resulting in fewer protests
- The community addresses political concerns through protests
- Concerns raised by the community during public participation are addressed
- A lack of service delivery causes project protests
- Protests erupt projects because of a lack of communication

Whilst participants were not sure that public protests are initiated when the project disadvantaged the community, most participants conversely, disagreed that public protest is the only way to force authorities to address project community concerns. The results of a lack of service delivery contribute to public protests. These results indicate the causes of public protests on infrastructure projects in Eskom. The data collected cannot confirm adequate evidence to conclude that public protest and public participation are associated (p-value = 0, 23). No evidence exists to conclude an association between public protests and public participation.

The results are in line with the literature as Mpehle (2012, p.224), indicated that public protests are due to a communication divergence between project stakeholders and the community. In line with this study results, communities can use public protests to air their challenges, for example, as much as demand for employment was at the top of the

list for communities and the public in general, other demands raised, amongst them were related to socioeconomic demands – certain communities put their socioeconomic demands upfront to Eskom; Taxi industries transport opportunities related to the projects, Farm owners raising concerns that include the acquisition of servitudes whereby the landowner or farm owner demands a specific price for lands and servitudes.

4.4.8.3 Objective Three: Investigates whether public protests erupting infrastructure projects in Eskom correlate to public participation

Figure 4.10 indicates that the community (67%) and Eskom (76%) agree that public participation in infrastructure projects is effective; furthermore, participants agreed that public participation impacts the community (72%), whilst 93% of the community participants agreed that it is important for Eskom to ensure the project impacts the community is positive, including public participation; the community affected by the project understands how the project will impact them; community affected by the infrastructure project understands the importance of public participation; mutual trust must exist between the community and Eskom to prioritise community needs during project implementation; Eskom participants (70%) agreed that Eskom ensures positive project influence on the community, ensuring public participation; the community affected by the project, understands the project and its impact on them and the environment. This fact is well elaborated by Hartay (2011) who holds the view that participatory democracy renders continuous civil participation possible in the political process, whilst contributing to the open and transparent work of executive and representative authorities to show how the importance of public participation on infrastructure projects.

Eskom (2017) acknowledges how effective managing public participation is when conducting infrastructure projects. The Eskom community affected by the infrastructure project understands the importance of public participation. The exercise of stakeholder management is effectively coordinated with the community; a mutual trust exists between the community and Eskom; Eskom prioritises community needs during project implementation; Eskom's project objective is communicated to the community; Eskom

always delivers on their promises to the communities on issues addressed during public participation; Eskom ensures that communities affected by implementing the infrastructure project, are not disadvantaged by the project; Eskom involves communities during project implementation.

Hartay, (2014) states the benefits of public participation as creating fair policies/laws reflective of real needs; enriched with additional experience and expertise; facilitating cross-sector dialogue and reaching consensus; adopting more forward and outward observing solutions; ensuring the legitimacy of a proposed regulation and compliance; decreases costs, as parties, can contribute with their resources; increasing partnership, ownership and responsibility in implementation and strengthening democracy, whilst preventing conflict amongst diverse groups and between the public and the government, increasing confidence in public institutions which is also pointed out by participants from the results of this index study.

Relation to whether this any correlation between public protests and participation, results indicate that only 59% of Eskom participants agreed on an association between public protests and public participation. The results further indicate a strong correlation of 83% to an association between public protests and public participation (Table 4.13); 100% agrees on the impact of public participation in the community, and 76% to suggestions for improvements. These results show that where public participation is effective and professionally managed, there are fewer public protests experienced. (Eskom 2017; Hartay, 2014)

4.4.8.4 Objective Four: Establishes public participation improvements in infrastructure projects

- In Voss (2014), he reiterates that in certain other cases, public participation initiatives are performed as purposes of compliance, and not necessarily informed by the genuine intent of permitting participants to provide a faithful engagement. This is a challenge that seeks improvement in driving effective public participation.

The T-Test results in Table 4.11 reveal that participants who agreed with public participation improvements statements, were significantly higher than the 50% midpoint,

compared to fewer that were unsure or disagreed. The evidence is based on a p-value of 0.005, less than 0.05 level of significance. These observations confirm adequate existence of evidence to conclude that public participation in the community positively influences the project; (p-value = 0,00024).

Thus the results can conclude most participants agreed that Eskom ensures that communities are affected by the project, ensuring public participation (82%); Eskom ensures the community affected by the project, understands the project and how it impacts them and the environment (88%); the Eskom community affected by an infrastructure project understands the importance of public participation (76%). The exercise of stakeholder management is effectively coordinated with the community (68%).

Eskom prioritises community needs during project implementation (56%); Eskom's project objective is communicated to the community (91%); Eskom always delivers on their promises with communities on concerns addressed during public participation (53%); Eskom ensures communities affected by implementing the infrastructure project, are not disadvantaged by the project (79%); Eskom involves communities during project implementation (82%); whilst a trivial of 21% agreed a mutual trust exists amongst community members, compared to 41% that disagreed. These results also support the views of Eskom (2017) which illustrate a process in place to manage public participant and in line with legislative and regulatory frameworks on public participation in South Africa done for the benefit of the community whilst ensuring project execution and prevention of disruptions.

4.5. SUMMARY OF THE RESULTS

A portion of primary data was collected through attending public participation meetings, concerning Eskom's projects. Various findings were concluded during meeting attendance. A finding from a public participation meeting was unconnected to jobs, or the community benefiting from the project. The meeting concerns were hygienic matters and influences on their properties. The community discontinued an Eskom project. The meeting revealed several public participation meetings before the meeting on that day. The community maintained the following:

"132KV powerlines are possible causes for problem to the brain of children under the age of 13 years. The community experiences problem with the tower which does not look nice and would possibly de-value their properties".

The research also involved the public participation meeting, held in Mpumalanga for an Eskom infrastructure project. During the meeting, it was collected that another public participation meeting was scheduled with the community previously; the meeting could not be held. The meeting was cancelled, attributable to the community commencing with a protest on the day of the meeting. According to project consultants conducting the public participation, the public was disgruntled, attributable to mine activities in their area. This was substantiated by the following questions and concerns raised by the community during the same public participation meeting:

A community member maintained that certain houses are situated in the sinkhole areas; they expressed concern about the mine performance in the area. The community further raised the following concerns:

Previously, the mine relocated people from houses to other residences, did not suit their needs. People were relocated from informal settlements where there are no basic services, such as water and electricity. This was a concern, as they cannot afford to pay for these services, they were relocated to places, such as flat areas with basic services, indicating they need to afford those services, whilst they cannot afford basic services.

People staying in an informal settlement could start a vegetable garden in small areas where land was available, to be self-sustainable concerning nutrition. In a high-density apartment environment, residents should follow rules and regulations. There is no space for a vegetable garden, or it may not be allowed. Those that relocated, should be provided with the same size and type of residence, to replace a 'like by like', change of lifestyle is not acceptable. The community directed the following questions and statements:

"Do not want to see people from Johannesburg working on this project, community needs to benefit? Local businesses need to be considered for employment". Community member. "What skills development Anglo and

Eskom is going to contribute to this community through this project? This is so because there are adults, kids or teenagers who passed their studies but are not working".

The community also maintained:

"There must a community liaison person appointed besides the counsellors, interacting with the community. The finding on public participation meeting was that the community understands the public participation, though they were more concerned about the project's progress, impacting their lives and their children. The unemployment rate in their community is high. They maintained that the project should prioritise employing the community members, especially the youth. This is based on the child headed families struggling financially. It was established that needs amongst communities differ from one another".

Discussion of the findings concerning the research objectives was presented in line with the results and the objectives of the study.

4.6 SUMMARY

This chapter presented the data analysis, interpretation and discussed the results related to the topic of the study. The following chapter presents the conclusion and recommendation of the study.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 details data presentation, interpretation and analyses from primary data. Chapter 5 demonstrates that the study achieved the research aims and objectives. This chapter also reflects the relevance of the literature collected for this study, in responding to appropriate research questions and methodologies employed. The finding includes improvements that should serve as a valuable guide to Eskom and other entities, embarking on public participation in infrastructure projects. The concluding section of this chapter details the proposed divergence for further research.

5.2 CONCLUSION ON RESEARCH AIM AND OBJECTIVES

The study aimed to assess public participation effectiveness on the Infrastructure of South African energy projects. The objectives of the research were to:

- Examine public participation in Eskom infrastructure projects
- Investigate public protest causes in Eskom infrastructure projects
- Investigate if the public protests erupting infrastructure projects in Eskom are related to public participation
- Establish improvements of public participation in infrastructure projects, recommended to Eskom for future initiatives

5.3 FINDINGS FROM THE STUDY

Findings from the literature review and primary research instrument were discussed in this section, confirming the achievement of these objectives. The conclusions comprise answers on how public participation is conducted during an Eskom infrastructure project. Conclusions include models, processes, and improvements to public participation.

The intention of these models, processes and improvements is to be used as a valuable guide to Eskom and other organisations when conducting future infrastructure projects.

The study established that public participation conducted by Eskom on infrastructure projects as effective, although it should be emphasised that most participants did not agree to public participation, serving compliance purposes only. The study also found that public protests on infrastructure projects in Eskom resort to public protests because communities addressed their political concerns in that platform. Suggestion for improvements involved firstly, a process where from the outcome of the interview, the process needs to be followed in detail. Secondly is effective negotiator, who should be appointed to improve public participation

5.4 CONCLUSION OF THE STUDY

The study established that the community, organisations and the society are satisfied that public participation conducted by Eskom on infrastructure projects, is effectively implemented. The association between public protests and public participation is insignificant, although a strong correlation was established between public participation and protests. Impact in the community and improvements were suggested. Public participation can be used as a driver for communication and collaboration with communities during infrastructure project development and execution.

South Africa still experiences high volumes of public protests from unsatisfactory communities; Eskom is not immune to these protests, as certain infrastructure projects in Eskom also experience disruptions and delays, resulting from public protests.

Based on the study results, it can be concluded that:

- A process needs to be followed in detail
- Power utilities should have a good negotiator
- Negotiator requirements are:
    - Understand the community language
    - Understand the dynamics the community experiences
    - Understand the culture of the community
    - Know the protocol used by the community
    - Have good negotiation skills
    - Be patient

- Understand the terminology used by locals
- The negotiator needs to develop trust with community leader councillors
- Abide to commit

A need exists to improve the transparency of the participatory process. A systematic participatory framework is recommended as a guideline for public participation. The literature also revealed the transparency of the participatory process. A systematic participatory framework used as a guideline for public participation would add value to the public.

The challenge influencing public participation is that South African citizens in general, lack access to facilities and information to engage public entities. Disregarding community concerns before project execution, negatively affects the project, leading to public protests. Power utilities should deliver their promises to the community and prevent over-promising and underperformance.

5.5 RECOMMENDATIONS OF THE STUDY

- It is recommended that public participation be considered to achieve value-adding maximum efficient and effective public participation. Various instruments are available in the market in conducting public participation. E-governance is one of the technologically based instruments available, which can be used to conduct public participation. E-governance netted a high-growth in the public participation space. The normative model is one of the public participation models that can be used for conducting public participation. This Model is based on Easton's analytical systems, a model for the transformation of public participation. It affects to enhance public participation in the community.
- Continuous consultation with stakeholders for public participation is recommended. It was substantiated that the project reaps the benefits of support from stakeholders; as a result, stakeholder-related concerns are reduced. Eskom has a choice to adopt and apply "IAP2 principles" and the "spectrum" as one of the public participation strategies and devices.
- It was established that there was no process for public participation regulating the communal land. The national government is still not clear as in some cases

authorities and cultures have more influence in their communities. Although, Eskom took the initiative to develop this process that was adopted by other organisations in South Africa; this study recommends that a process for public participation be developed in the communal land which involves a good negotiator with the following requirements: understand the community language; understand the dynamics that the community experiences; understand the culture of the community; Know the protocol used by the community; have good negotiation skills; must be patient; understand the terminology used by the locals; and the ability to able to develop trust with the community, leader councillors and abide by commitments.

- Divergences were established in monitoring those conducting public participation, identifying the extent they conduct public participation effectively and efficiently as regulated by the framework to safeguard community interests and aspiration of projects in their constituency.
- Using social media to reach out to the community, and continues engagements, was suggested.
- To ensure continuous community trust, effective communication is necessary.

5.6 LIMITATIONS

The limitations of the study were as follows:

Data collection from the contractors is limited to the contractors that active with exception of infrastructure projects during the research period.

There was limited cooperation from the community on sites where public protests were active. This is because the community had no interest in the research, and they did not see it adding value to them.

The community had limited cooperation during data collects, specifically on the online survey and even writing their views on the hardcopy paper. This was because they had limited understating of academic research, lack of trust from the researcher and they did not want to be implicated anywhere.

It was also identified that few of the community members did not participate in the research. The access to the community was denied because the public protests were violent, and the safety of the researcher was taken into consideration. Data was collected from Eskom employees for that particular project after violent public protests, the researcher was able to conduct interviews with the contractors.

The study was limited to Eskom infrastructure projects, affected by public protests during project execution. The study was not conducted for policy purposes, nor to resolve Eskom's management concerns; outcomes emanating though could be instrumental to the power utility and any other organisations.

First, amongst several divisions in Eskom, this study focussed on the department dealing with infrastructure projects only, where public participation was identified as a project requirement, according to the scope of the study. Secondly, the academic requirements for achieving a master's qualification in the specified duration of the study guided the research. This research was limited to academic time constraints, established by the university and the research's financial capability.

5.7 FURTHER STUDY

- The level of literacy for the public and communities affects the understanding behaviours by the public and communities at large. The officials of public participation may have fewer interests or no interest at all in educating the public. No individual takes full responsibility for training the public and communities to provide knowledge on matters that involve them. Therefore, the question is Who is responsible for training the public and communities to provide knowledge on matters that involve them? This is the divergence that has been found by the study for further research. There is a need for education and continuous communication with the community.
- To what extent that public participation is therapeutic, who monitors compliance and its impetus on communities and are there any considerations on incentives for those that have good practices and equally so penalties for non-compliance.
- There is a power struggle between the local traditional leaders and politically appointed leaders' structures leading to public protests due to affiliations.

- The study has established that there is a divergence between public participation and social impact assessment. The public participation should be conducted in such a manner that there is integration between the two processes as communities are more interested in their social needs and benefits.

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LIST OF APPENDICES

APPENDIX A: CONSENT TO CONDUCT A STUDY

Eskom

Date
13 September 2017

Enquiries:
Tel +27 11 800 4958
Cell +27 82 459 2096

Senior Manager AME
Megawatt Park
Maxwell Drive
Sunninghill

Dear Ms Maseko

REQUEST TO CONDUCT A STUDY: IMPACT OF PUBLIC PARTICIPATION ON INFRASTRUCTURE PROJECTS IN ESKOM

I am currently studying Master project management in construction (MSC CPM) at Wits University, for verification purposes I include my student number: 1438541

As part of my studies I am required to compile a thesis on a topic that is relevant to construction project management. The thesis involves a detailed research on the above mentioned topic through surveys, meetings, interviews and data collection

This letter serves as the request for permission to allow me (the researcher) to conduct my research at the Eskom. It would require a few pre-arranged meetings with Eskom employees from different levels to participate on interviews and surveys

I am required by the institution to enforce and comply with all ethical requirements, therefore I assure you that all confidential information will be solely used for the purpose of this research project and will be treated with respect and confidentiality

I, NTHUSENG DLAMINI understand the implications of the agreement as detailed above and confirm my acceptance

Requestor: Nthuseng Dlamini

Signature: ..... Date: 12/10/2017

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Eskom Holdings Limited Reg No 2002/015527/06

Supported by:

.....

Len Turner
Senior Consultant.
Skills and Talent COE

Supported by:

.....

~~**Caroline Mayoza**~~
~~Senior Manager: OCE~~
HAPPY PHOHU
HR BUSINESS PARTNER

06/10/2017

.....

APPROVED / ~~NOT APPROVED~~
Alison Mascko
General Manager: Asset Management execution (AME)

APPENDIX B: PARTICIPANTS' CONSENT

Section 1

Dear Participant,

I am a Master's Student at the University of the Witwatersrand, I am conducting an academic research regarding the effectiveness of public participation in infrastructure projects concerning public protest.

The aim of the enclosed questionnaires is to collect data relative to this study to determine the effectiveness of public participation in infrastructure projects concerning public protest.

The enclosed questionnaires will take seven minutes of your time to complete and take note participation in this study is completely voluntary.
Thank you for taking time to consider participation in my research. Your participation would be greatly appreciated.

Researcher contact details:
Nthuseng Dlamini Tel: 082 459 2098. E-mail: 1438541@students.wits.ac.za
Dr Nthatisi Khatleli (Supervisor) Tel: 011 717 7651 E-mail: Nthatisi.Khatleli@wits.ac.za
Dr Kola Ijasan (Ethics committee head) Tel: 0117177681 E-mail:
Kola.Ijasan@wits.ac.za

Kindly confirm by ticking one of the following boxes.

I confirm I have read and understood the research consent form. I confirm to my consent for participating in the research by selecting the appropriate box as outlined to me.

☐ I provide consent

☐ I do not provide consent

Thank you in advance for participating in my research.

Yours sincerely

Nthuseng Dlamini

APPENDIX C: QUESTIONNAIRE

Survey questionnaires

Research Questionnaire is to determine the effectiveness of Public Participation in infrastructure project and it association with public protests

Section 2: Demographic information

Please mark with an x or (√) in the box with the appropriate response. Mark one box only.

● **What is your function on the project?**	
Environmental consultant	
Community	
Environmental adviser	
Community representative	
Contractor	
Contractors employees	
Consultants	
Community leader	
Other	

SECTION 3: Effectiveness of public participation in infrastructure projects. Please mark with an (x) or (√) in the box with the appropriate response. Mark one box only.

	The following questions are measuring the effectiveness of public participation								
	1 Strongly Disagree	2 Disagree	3 Do not know	4 Agree	5 Strongly agree				
Number									
1	The project provides me with adequate information about the project				1	2	3	4	5
2	Performing public participation add value to me				1	2	3	4	5
3	Public participation provides me the opportunity to voice my concerns about the project				1	2	3	4	5
4	Great ideas come from public participation				1	2	3	4	5
5	Public participation is for compliance purposes only				1	2	3	4	5
6	Important questions are asked during public participation about the project				1	2	3	4	5
7	The community affected by the project do participate on the public participation				1	2	3	4	5
8	Public participation is conducted by people with a good understanding about community								

	needs	1	2	3	4	5
9	The people who conduct the public participation have good analytic skills	1	2	3	4	5
10	My concerns raised during public participation are taken into consideration	1	2	3	4	5

SECTION 4: Association between public protests and public participation

Please mark with an x or (√) in the box with the appropriate response. Mark one box only

The following statement choices measure the association between public protests and public participation								
Number	1 Strongly Disagree	2 Disagree	3 Do not know	4 Agree	5 Strongly agree			
1	Communities do benefit from implementing infrastructure projects			1	2	3	4	5
2	The effective public participation in infrastructure projects eliminates public protests			1	2	3	4	5
3	Communities resort to protest to demonstrate dissatisfaction about the project			1	2	3	4	5
4	Community do not benefit from the project resulting to protests			1	2	3	4	5
5	Community concerns raised during public participation does not obtain addressed, as result the community resort to protests			1	2	3	4	5
6	Public protests are because of the community being disadvantaged by projects			1	2	3	4	5
7	Protests and protests are the only way to force authorities to address community concerns							

		1	2	3	4	5
8	Community protests because their needs are not considered	1	2	3	4	5
9	Community are offered opportunities to benefit from the project causing protests and public protests	1	2	3	4	5

SECTION 5: IMPACT OF PUBLIC PARTICIPATION WITHIN THE COMMUNITY

Please mark with an x or (√) in the box with the appropriate response. Mark one box only

The following statement choices measure the impact of public participation in the community.							
	1 **Strongly Disagree**	**2** **Disagree**	**3** **Do not know**	**4** **Agree**	**5** **Strongly agree**		
Number							
1	Communities are provided opportunities to state concerns during public participation		1	2	3	4	5
2	I am always engaged on concerns affect me by the infrastructure project		1	2	3	4	5
3	The project provides me with adequate information about the project		1	2	3	4	5
4	There are sundry opportunities offered to communities from the project		1	2	3	4	5
5	Concerns from the community surfaced from public participation meeting are recognised.		1	2	3	4	5
6	Public participation address community concerns		1	2	3	4	5
7	Communities have the deciding power for the project.		1	2	3	4	5
8	Community needs are addressed during public						

	participation	1	2	3	4	5
9	There is clear communication to the community about the project.	1	2	3	4	5
10	There is continuous communication between Eskom and the community	1	2	3	4	5

SECTION 6: Suggestion for improvement

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box to rate your level of agreement or disagreement. Mark one box only.

	The following statement choices measure improvement						
Number	**1** **Of no importance at all**	**2** **Of no importance**	**3** **Neutral**	**4** **Of importance**		**5** **Of great importance**	
1	To ensure the community affected by the project participates on the public participation			1	2	3	4	5
2	To ensure community affected by project understand how the project will impact them			1	2	3	4	5
3	To ensures community affected by infrastructure project understand the importance of public participation			1	2	3	4	5
4	There must be mutual trust between community and Eskom			1	2	3	4	5
5	Eskom prioritise community needs during project implementation			1	2	3	4	5

SECTION 7: General comments

Suggest ways through which Eskom can further improve public participation in infrastructure projects. Please use the space provided below to document it.

Thank you for your effort, time and cooperation.

Dear Participant,

I am a Master's Student at the University of the Witwatersrand. I am conducting an academic research regarding the effectiveness of public participation in infrastructure projects concerning public protest.

The aim of the enclosed questionnaires is to collect data relative to this study to determine the effectiveness of public participation in infrastructure projects concerning public protest.

The enclosed questionnaires will take 10 minutes of your time to complete. Note participation in this study is completely voluntary. All information provided through your participation on this study is kept confidential. In addition, your name is not required on the questionnaire; therefore, you will not be identified in the study or in any report on this research. There are no known risks to participate in this research. The data collected through this study are kept for one year in a secured location.

Thank you for taking time to consider participation in my research.

Researcher contact details:
Nthuseng Dlamini Tel: 082 459 2098. E-mail: 1438541@students.wits.ac.za
Dr Nthatisi Khatleli (Supervisor) Tel: 011 717 7651 E-mail: Nthatisi.Khatleli@wits.ac.za
Dr Kola Ijasan (Ethics committee head) Tel: 0117177681 E-mail:
Kola.Ijasan@wits.ac.za

Kindly confirm by ticking one of the following boxes.

I confirm I have read and understood the research consent form. I confirm to my consent for participating in the research by selecting the appropriate box as outlined to me.

☐
I provide consent

☐

I do not provide consent

Thank you in advance for participating in my research.

Yours sincerely

Nthuseng Dlamini

Survey questionnaires

Section 1: Demographic information

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box mark one box only.

• How long were you involved in the Eskom project? •

• years	•
• 1 - 5 years	•
10 - 15 years	
> 15 years	
Never	

● **What is your job title?**	
Project manager	
Environmental adviser	
Project coordinator	
Project engineer	
Programme managers	
Land development adviser	
Stakeholder management adviser	
Other	

Section 2: Effectiveness of public participation on infrastructure projects

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box to rate your level of agreement or disagreement. Mark one box only.

The following statement choices measure the effectiveness of public participation							
Number	**1 Strongly Disagree**	**2 Disagree**	**3 Do not know**	**4 Agree**	**5 Strongly agree**		
1	During public participation, project information is shared with communities.			1	2	3	4	5
2	Staffs responsible for conducting the public participation have good analytic skills.			1	2	3	4	5
3	Public participation is conducted for compliance purposes only			1	2	3	4	5
4	Relevant questions are asked during public participation			1	2	3	4	5
5	Eskom ensures community is affected by project understands the impact of the project			1	2	3	4	5
6	Communities affected by implementing the infrastructure project do participate in the public participation			1	2	3	4	5
7	Results of public participation are communicated to the community			1	2	3	4	5

8	Public participation is conducted by people with a good understanding of community needs	1	2	3	4	5
9	Public participation resolves community issues	1	2	3	4	5
10	There is continuous communication between Eskom and the community about project	1	2	3	4	5

SECTION 3: Association between public protests and public participation

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box to rate your level of agreement or disagreement. Mark one box only.

The following statement choices measure the association between public protests and public participation							
Number	**1 Strongly Disagree**	**2 Disagree**	**3 Do not know**	**4 Agree**	**5 Strongly agree**		
1	Sundry opportunities are created by implementing the project in the communities		1	2	3	4	5
2	The effective public participation in infrastructure projects eliminates protests.		1	2	3	4	5
3	Communities resort to protests to demonstrate dissatisfaction about the project.		1	2	3	4	5
4	Public protests are because of community being disadvantaged by the project.		1	2	3	4	5
5	The community address political concerns through protests		1	2	3	4	5
6	Concerns raised by the community during public participation are addressed		1	2	3	4	5
7	Public protest is the only way to force authorities to address community concerns about the project		1	2	3	4	5

8	Protests are the result of a lack of service delivery only	1	2	3	4	5
9	A lack of service delivery is the cause of protests on projects	1	2	3	4	5
10	Protests erupts projects are because of a lack of communication	1	2	3	4	5

SECTION 4: Impact of public participation in the community.

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box to rate your level of agreement or disagreement. Mark one box only.

The following statement choices measure the impact of public participation in the community.								
Number	**1 Strongly Disagree**	**2 Disagree**	**3 Do not know**	**4 Agree**		**5 Strongly agree**		
1	Communities are provided opportunities to state concerns during public participation			1	2	3	4	5
2	Communities are is always engaged on concerns affect them			1	2	3	4	5
3	Public participation provides community with adequate information about the project			1	2	3	4	5
4	There are sundry opportunities offered to communities from the project			1	2	3	4	5
5	Community concerns surfaced from public participation are resolved prior project implementation.			1	2	3	4	5
6	Public participation address community concerns about the project			1	2	3	4	5
7	Communities are recognised as main stakeholders of the project during public participation.			1	2	3	4	5

8	Public participation is the only form of communication between Eskom and the community	1	2	3	4	5
9	Eskom always delivers on their promises to communities on concerns addressed during public participation.	1	2	3	4	5
10	There is continuous communication between Eskom and the community about the project through public participation	1	2	3	4	5

SECTION 5: SUGGESTION FOR IMPROVEMENT

This section measures areas of improvement. Please put a cross (X) or tick (√) in the applicable box to rate your level of agreement or disagreement. Mark one box only.

The following statement choices measure improvement							
Number	**1** **Strongly Disagree**	**2** **Disagree**	**3** **Do not know**	**4** **Agree**		**5** **Strongly agree**	
1	Eskom ensures communities affected by the project do participate on the public participation			1	2	3	4	5
2	Eskom ensure community affected by project understand the project and how it impact them and the environment			1	2	3	4	5
3	Eskom community affected by infrastructure project understand the importance of public participation			1	2	3	4	5
4	The exercise of stakeholder management is effectively coordinated with the community			1	2	3	4	5
5	There is a mutual trust amongst community and Eskom			1	2	3	4	5
6	Eskom prioritise community needs during project implementation			1	2	3	4	5
7	Eskom's project objective is communicated to the community			1	2	3	4	5
8	Eskom always keeps on their promises with communities on concerns addressed during public participation			1	2	3	4	5

9	Eskom ensures communities affected by implementing the infrastructure project are not disadvantaged by the project	1	2	3	4	5
10	Eskom involves communities during project implementation	1	2	3	4	5

SECTION 6: General comments

Suggest ways through which Eskom can further improve public participation in infrastructure projects. Please use the space provided below to document it.

Thank you for your effort, time and cooperation

APPENDIX D: CRONBACH'S ALPHA TEST FOR RELIABILITY OF RESEARCH INSTRUMENT

```
SAVE OUTFILE='C:\Users\nthuseng\Documents\00 Research Matters\00 Academic Research\00
'+
 'Nthuseng Public Participation\Chapter 5 - Data analysis\BB Nthu.sav' /COMPRESSED.

RELIABILITY
 /VARIABLES=
      Length of time in Eskom Project
      Project information Shared with Communities During PP
      Lack of Service Delivery Is The Cause of Strikes On Projects
      Strikes Are A Result of Lack of Service Delivery
      PP Addresses Community Issues About The Project
      There is Mutual Trust between Eskom and Community
      Communities Are Recognised As Import Stakeholders with Deciding Power
      A lot of Opportunities Are Offered the Community From the Project
 /SCALE('ALL VARIABLES') ALL
 /MODEL=ALPHA
 /STATISTICS=SCALE.


RELIABILITY
 /VARIABLES=
Length of time in Eskom Project
Project information Shared with Communities During PP
Lack of Service Delivery Is The Cause of Strikes On Projects
Strikes Are A Result of Lack of Service Delivery
```

PP Addresses Community Issues About The Project

There is Mutual Trust between Eskom and Community

Communities Are Recognised As Import Stakeholders with Deciding Power

A lot of Opportunities Are Offered the Community From the Project

```
('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL CORRIGENDA
```

Reliability

Notes

Output Created		07-Jan-2018 15:34:13
Comments		
Input	Data	C:\Users\Nthuseng\Documents\00 Research Matters\00 Academic Research\00 Nthuseng public Participation\Chapter 5 - Data analysis\BB Nthu.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure
Syntax		RELIABILITY
		/VARIABLES=
		Length of time in Eskom Project
		Project information Shared with Communities During PP
		Lack of Service Delivery Is The Cause of

		Strikes On Projects Strikes Are A Result of Lack of Service Delivery PP Addresses Community Issues About The Project There is Mutual Trust between Eskom and Community Communities Are Recognised As Import Stakeholders with Deciding Power A lot of Opportunities Are Offered the Community From the Project /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE SCALE /SUMMARY=TOTAL CORRIGENDA
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.005

[DataSet1] C:\Users\Nthuseng\Documents\00 Research Matters\00 Academic Research\00 Nthuseng Public Participation\Chapter 5 - Data analysis\BB Nthu.sav

Warnings

Each of the following component variables has zero variance and is removed from the scale: Eskom Project Objective is Communicated to the Community

The determinant of the covariance matrix is zero or approximately zero. Statistics based on its inverse matrix cannot be computed and they are displayed as system missing values

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	3	100.0
	Excluded[a]	0	.0
	Total	3	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.823	.871	8

Item Statistics

	Mean	Std. Deviation	N

Length of time in Eskom Project	2.6667	1.52753	3
Project Information Shared with Communities During PP	4.6667	.57735	3
Lack of Service Delivery Is The Cause of Strikes On Projects	4.3333	.57735	3
Strikes Are A Result of Lack of Service Delivery	4.3333	1.15470	3
PP Addresses Community Issues About the Project	3.3333	2.08167	3
There is Mutual Trust Between Eskom and Community	3.6667	1.52753	3
Communities Are Recognised As Import Stakeholders with Deciding Power	4.0000	1.73205	3
A lot of Opportunities Are Offered the Community From the Project	2.3333	1.52753	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-item correlations	.459	-.929	1.000	1.929	-1.077	.407	8

Item-Total Statistics

	Scale Mean if Item	Scale Variance if	Corrected Item-Total	Squared Multiple	Cronbach's Alpha if Item Deleted

	Deleted	Item Deleted	Correlation	Correlation	
Length of time in Eskom project	26.6667	42.333	.688		.781
Project information Shared with Communities During PP	24.6667	50.333	.936		.796
Lack of service delivery is the cause of strikes on projects	25.0000	52.000	.721		.808
Strikes are A result of lack of service delivery	25.0000	43.000	.924		.760
PP addresses community issues about the project	26.0000	31.000	.992		.715
There is Mutual Trust between Eskom and Community	25.6667	72.333	-.629		.941
Communities are recognised as import stakeholders with deciding power	25.3333	36.333	.910		.739
A lot of opportunities are offered the community from the project	27.0000	39.000	.891		.748

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
29.3333	58.333	7.63763	8

Reliability

Notes

Output Created		07-Jan-2018 15:31:16
Comments		
Input	Data	C:\Users\Nthuseng\Documents\00 Research Matters\00 Academic Research\00 Nthuseng public Participation\Chapter 5 - Data analysis\BB Nthu.sav
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure

Syntax		RELIABILITY /VARIABLES= Length of time in Eskom Project Project information Shared with Communities During PP Lack of Service Delivery Is The Cause of Strikes On Projects Strikes Are A Result of Lack of Service Delivery PP Addresses Community Issues About The Project There is Mutual Trust between Eskom and Community Communities Are Recognised As Import Stakeholders with Deciding Power A lot of Opportunities Are Offered the Community From the Project /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /STATISTICS=SCALE.
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.024

[DataSet1] C:\Users\Nthuseng\Documents\00 Research Matters\00 Academic Research\00 Nthuseng Public Participation\Chapter 5 - Data analysis\BB Nthu.sav

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	3	100.0
	Excluded[a]	0	.0
	Total	3	100.0

a. List wise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.810	9

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
34.3333	58.333	7.63763	9

APPENDIX E: CERTIFICATE OF EDITING

0019268

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LANGUAGE EDITING CERTIFICATE

Article and report title: An Assessment of Public Participation in the Infrastructure of South African Energy Projects
Author: Nthuseng Dlamini
Institution: University of Witwatersrand
Date Issued: 2019/06/25

Editor: Ms Liza Marx

This document certifies that the manuscript listed above was edited for proper English language, grammar, punctuation, spelling, and overall style. Neither the research content nor the author's intentions were altered in any way during the editing process. Documents receiving this certification should be English ready for publication; however, the author has the ability and choice to accept or reject our suggestions and changes.

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