A review of stakeholder engagement in the Tshwane University of Technology's evaluation of home-based water treatment devices at Makwane: A community perspective

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DECLARATION

I declare that this report is a result of my own work submitted to satisfy the requirements of a Masters in Development and Management in the Faculty of Humanities at North-West University – Potchefstroom Campus.

I have duly acknowledged all sources consulted and listed them fully in the reference list.

‘Mateboho Green

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Keywords: Community development; Community engagement; Stakeholder engagement.

ABSTRACT

Community engagement is widely accepted as one of the three core functions of universities alongside research and teaching. Initially mooted as a social responsiveness programme for higher education, community engagement was in 1997 incorporated into government policy through the White Paper 3 on Transformation of Higher Education. The policy required the higher education sector to correct the social inequalities created by the apartheid system while creating a learning society that would propel itself towards its own reconstruction and development.

South Africa's public universities practise community engagement in numerous models, one of which is community based research, also known as community based participative research (CBPR). This is the model that the Tshwane University of Technology (TUT) researchers adopted in 2014/2015, in evaluating two home-based water treatment devices in a village called Makwane, just outside Roossenekal, south east of the Limpopo province. Like many rural communities with no access to piped bulk water services, the Makwane community, located in an isolated rural part of Limpopo, depends on untreated, contaminated river water for all their domestic needs. This exposes them to waterborne diseases such as diarrhoea, and death, especially among young children. In an attempt to save rural communities from drinking contaminated water, water scientists from TUT chose the Makwane community to evaluate the effectiveness of two TUT-invented home based water treatment devices in ridding raw river water of disease-causing pathogens. After testing the devices in laboratories, the scientists needed to test them in a community setting to ascertain their efficacy before deploying them widely among needy other communities in South Africa. They distributed such devices among 88 households and conducted this research in three phases, one in 2014 and two others in 2015.

The purpose of this study was to review stakeholder engagement practices of the TUT researchers in the community-based research project referred to above. Utilising the qualitative research technique, the researcher administered semi-structured questions in one-on-one interviews with two Makwane community leaders and three focus group sessions with community participants drawn from three of four sections of the Makwane village. The review sought to identify the engagement role players in the TUT-community relationship, to determine the engagement process followed and its frequency, content and quality. The review also identified stakeholder engagement gaps with regard to knowledge

sharing, community empowerment and social transformation, with the intention to draw insights for sharing with the TUT researchers and others within the public university sector who are involved in CBPR.

The qualitative study yielded numerous findings, the most noteworthy of which was that the TUT-Makwane community relationship was not the partnership that the researcher had previously assumed it to be. *Secondly*, TUT's stakeholder engagement was found to have been somewhat self-serving. Engagement appeared to have taken place mainly to get the TUT study off the ground and to see it to completion – but not to sustainably benefit the community. *Thirdly*, even though the home-based water treatment devices did yield clean drinking water for the Makwane households participating in the TUT research, the benefits were short-lived and unsustainable. *Fourthly,* TUT was found to have deployed pre-dominantly transactional engagement behaviour, typically carried out in philanthropic interventions characterised by short-term giving – and the least desired engagement behaviour for people-centred, sustainable development. The *fifth* finding was that even though the TUT researchers did prove beyond doubt that the Makwane community was drinking contaminated water, the decision to prioritise water treatment was outsider-imposed and not arrived at in consensus with the community. These findings led to numerous recommendations for further research and other remedial measures intended for future benefit to communities participating in CBPR, and the universities leading in that research.

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List of acronyms

ANC	African National Congress
AccountAbility	Institute of social and ethical accountability
BSF-Z	Biosand zeolite filter with a built-in 7 cm layer of zeolites
BSZ-SICG	A biosand zeolite filter as above, enhanced to achieve higher pathogen killing power and higher water flow
CBR	Community based research
CBPR	Community based participatory research
CHE	Council on Higher Education
CLO	Community Liaison Officer
CPD	Continuing Professional Development
GRI	Global Reporting Initiative
HESA	Higher Education South Africa
IDSA	Institute of Directors of Southern Africa
IFC	International Finance Corporation
LGBT+	Lesbian, gay, bisexual, transgender and intersex
L1_Q1	Leader 1, Question 1
NCHE	National Commission on Higher Education
RDP	Reconstruction and Development Programme
SABC	South African Broadcasting Corporation
SIPP	Silver impregnated porous pot
SU	Stellenbosch University
TUT	Tshwane University of Technology
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UON	University of Northampton
USAf	Universities South Africa
WBCSD	World Business Council for Sustainable Development
WITS	University of the Witwatersrand

CHAPTER 1: INTRODUCTION TO THE PROBLEM STATEMENT

1.1 Introduction

In the South African public university sector, community engagement is widely accepted as one of the three core functions of universities alongside research and teaching (CHE, 2010:iii; Department of Higher Education and Training, 2013:70). Initially mooted as responsiveness to society by the National Commission on Higher Education (NCHE, 1996:24) as part of its formal advice to then Minister of Education, Professor Sibusiso Bhengu on transforming the university sector (NCHE, 1996:24), community engagement was formally introduced into policy with the White Paper 3 on Transformation of Higher Education in 1997 (Department of Education, 1997). Although the White Paper termed it community service, the concept has, over time, become known as community engagement (CHE, 2010:iii).

Although the concept was still highly contested in the late 2000s (CHE, 2010:iii–vi), research published by the Joint Education Trust in 1997 and 1998 revealed that the majority of public universities at that time had some type of community engagement programmes (Lazarus *et al.*, 2008:66). In 2014, most institutions had built community engagement into their vision and mission declarations and strategic plans (Bawa, 2014:164; CHE cited by Favish, 2015:3). By 2017, community engagement was well entrenched in higher education institutions (Favish & Simpson, 2016:270). However, a closer inspection of community engagement practice through a national survey carried out in 2014 revealed that most institutions had only superficially incorporated community engagement into their programmes (CHE cited by Favish, 2015:3). The question therefore arises of how community engagement continues to evolve in public universities today; how institutions are practising it, and whether their initiatives are yielding the intended outcomes, and if not, where the bottlenecks are and what remedial actions universities need to put into place to improve practice.

This study sought to review Tshwane University of Technology's (TUT's) stakeholder engagement practice within a community-based research study during 2014/15, expounded further shortly. First, the next section offers additional background on the conceptualisation of community engagement within the public university sector.

1.2 Background and Orientation

Although the White Paper 3 on Transformation of Higher Education of 1997 neither mentions the concept community engagement nor attempts to define it (Favish & Simpson, 2016:244), Professor Bhengu wrote in its foreword that the White Paper was providing a policy framework and the ideological thinking behind the transformation of higher education. He also stated the central purpose of the White Paper as being to transform the higher education system in such a way as to correct the inequalities created by the apartheid system; to give effect to South Africa's new social order; to

address priority societal needs and to respond to the dictates of the democratic dispensation (Department of Education, 1997). In paragraph 1.1 of Chapter 1, the White Paper prescribes a role to higher education, of creating a learning society that would drive itself towards its own reconstruction and development (Department of Education, 1997). The Policy re-purposes higher education to facilitate the process of societal transformation laid out in the Reconstruction and Development Programme (RDP), propelled, as stated in paragraph 1.3, by a vision of people-driven development and "a better life for all" (Department of Education, 1997).

Among other matters, the White Paper (in section 1.27 paragraph 8) requires institutions to raise in students, an awareness of the social responsibility role of universities. Section 1.28 encourages partnerships and cooperation amongst higher education institutions and between them and all sectors of society. It also requires of institutions to commit to availing their expertise and infrastructure to community service programmes (Department of Education, 1997). Within that context, the White Paper introduces community service in sections 1.8; 2.36; 2.43; 4.47 and 4.59 (Department of Education, 1997).

The Makwane community, as the setting in which this study was undertaken, is counted among millions of people in South Africa who have no access to piped bulk water services (Momba, 2017a). Such communities, typically residing in isolated rural areas, resort to rivers and streams for all their domestic water needs. This exposes them to waterborne diseases and death, especially among young children (Momba *et al*., 2013a:i). Professor Maggie Momba, an internationally acclaimed microbiologist (TUT, 2019) in the Department of Environmental, Water and Earth Sciences of the Tshwane University of Technology, set out to solve the drinking water problem for the Makwane community. The studies that the TUT carried out specifically from 2014 to 2015 sparked the interest of the author. Before delving into the details of the stakeholder engagement study, the section below first provides some background to the TUT's 2014/15 studies at Makwane.

South Africa's Constitution in Section 27 (1) a) affirms citizens' right to sufficient water (1996:11) and in Section 24 (b) to an environment that does not pose harm to citizens' health and wellbeing (SA, 1996:9). However, millions of citizens remain deprived of portable treated water because of their isolated settlements and fiscal impediments to the provision of these basic services (Momba *et al*., 2013a:i) to such remote sites. In pursuit of health and clean water for these communities, scientists from three public universities including the TUT partnered with independent engineers and the Water Research Commission from 2009 to investigate home-based water treatment devices. The purpose was to enable the affected communities to treat their own water (Momba *et al*., 2013a:i-ii). What these scientists did to achieve that end is summarised below.

From July 2009 to February 2010, the scientists conducted a literature study to identify the most widely used home-based water treatment devices (also called decentralised point-of-use systems or technologies) across the world (Momba *et al*., 2013a:iii). They shortlisted five systems according to

a) their proven decontamination properties as per the South African National Standards for drinking water quality; b) their ability to produce at least 25 litres of water per day; c) affordability; d) ease of use and maintenance. Using water samples from sources in Mpumalanga, Gauteng and the North-West, the scientists conducted tests on these five systems in laboratory settings to investigate their capability to reduce turbidity (greyness) in water and for their ability to remove diarrhoea-causing pathogens from water (Momba *et al*., 2013a:iii).

To test the identified technologies for social acceptability in a specific setting, TUT water researchers, led by Professor Momba, introduced two of these systems to the Makwane community (presumably in 2011/12. The researcher can only estimate the year, but could not verify it with Prof Momba, who declined a request to participate in this review. The assumption is that the social acceptability study took place immediately after the end of the 2009-2010 study and in time for the findings to be published in the 2013a report). The two systems, invented by the TUT water research group (Momba, 2017a) comprised a Biosand zeolite, also known as a BSZ-SICG filter, and a silver impregnated porous pot known as a SIPP filter (Momba, 2017a; Budeli, 2016:v). The biosand zeolite (initially called a BSF-Z) is a 25-litre bucket with a built-in layer of zeolite (a mineral known for its antimicrobial properties). The contaminant killing power of this filter lies in the built-in zeolite layer (Momba *et al*., 2013b:7). The second device, called the silver impregnated porous pot (SIPP), comprised a 25-litre bucket with an open top, and a smaller filter (another plastic bucket with built-in clay-pot lining) made to sit on top of the 25-litre bucket. Water flowing through this smaller pot is purified by a nitrate solution as it permeates the clay bottom and collects in the plastic bucket down below. The antimicrobial properties in the SIPP are concentrated in the silver nitrates mixed into the clay filter (Momba *et al.*, 2013b:4).

In the 2011/12 study, the TUT research team taught members of the 50 sampled households in the Makwane community how the devices functioned; how they should be handled and maintained, and allowed each household one week to try out the systems (Momba *et al.*, 2013a:131). At the end of the one week, the TUT researchers administered a questionnaire seeking to determine user perceptions on the two devices and their social acceptability. Findings showed a community embracing the newly-introduced technologies (Momba *et al.*, 2013a:150).

On conclusion of the 2011/12 study, TUT recommended that the Makwane community be made the site of another year-long pilot study to determine with more certainty the devices with higher contamination removal properties before deploying them throughout needy communities in South Africa. It appears that the TUT study that followed during 2014/15, rolled out by two post-graduate students under the tutelage of Professor Momba, was fulfilling the recommendation mentioned above (Momba *et al*., 2013a:i-xviii), this time deploying improved versions of the biosand zeolite filter (BSZ-SICG) and the silver-impregnated porous pot (SIPP) filter (Budeli, 2016:v). The students were a) Ms Charlotte Reshoketsoe Moropeng, who was a doctoral candidate under Professor Momba's

supervision, and b) Mr Phumudzo Budeli a Masters student, also of Professor Momba's. This study is discussed in further detail in the background section (subsection 3.2) of Chapter 3.

The village of Makwane comprises 88 households (Moropeng, *et al*., 2018:1). As already indicated earlier, due to depending on untreated water for drinking, the Makwane community suffers frequent episodes of diarrhoea. TUT, through the two postgraduate students mentioned, deployed these water treatment technologies at Makwane, with the objective of testing their performance and, in the process, transferring knowledge to the local community (Budeli, 2017). At the end of TUT's 2014/15 study, these two devices were proven to reduce the diarrhoeal burden in the Makwane community by up to 96.2% (Momba, 2017a; Moropeng, *et al*., 2018:1).

The stakeholder engagement review revolves around two concepts, namely community engagement and stakeholder engagement, which are in different contexts often used interchangeably. In this context, it is important to differentiate between and define these two concepts, as this study warrants the use of both terms.

Engagement, as a concept commonly used in human relations management, generically refers to two-way interaction between two or more people. Engagement is carried out to co-create understanding for mutual benefit. The overriding goal of engagement is to share learnings, solve mutual problems or collaborate (G3 Business Solutions, 2009:7).

Tideman (2014), who adds that engagement happens in a two-way reciprocal relationship in which two parties have mutual obligations towards each other, supports this argument. The blogger also states that engagement occurs within a context where two parties are starting or maintaining a relationship. Engagement is therefore an important function in the management of human relationships.

Stakeholders, in turn, are "individuals, groups of individuals or organisations that affect and/or could be affected by an organisation's activities, products or services and associated performance" (AccountAbility, 2015:34). Stakeholders range from those residing in an organisation's internal environment, such as shareholders and employees, or they can be external to the organisation, such as suppliers, media, regulators, government, competitors, donors, non-governmental organisations (NGOs) or communities affected by an organisation's operations (Doorley & Garcia, 2011:339; Steyn & Puth, 2000:54,57).

Stakeholder engagement is therefore: "the process used by an organisation to engage relevant stakeholders for a clear purpose to achieve agreed outcomes. It is now also recognised as a fundamental accountability mechanism, since it obliges an organisation to involve stakeholders in identifying, understanding and responding to sustainability issues and concerns, and to report, explain and answer to stakeholders for decisions, actions and performance" (AccountAbility, 2015:5).

Given that communities constitute one type of stakeholder for any organisation or business, community engagement could ordinarily be interpreted within the foregrounded definition. However, this study distinguishes between generic community engagement and community engagement as a function prescribed by the state to universities to drive social transformation within the reconstruction and development context. Implementing such a programme entails the engagement of a range of stakeholders (for example, local government and other potential partners) way beyond community parameters. To borrow words from the foreword in the AccountAbility Standard (2015:4), in the latter context, engagement is a tool that universities need to use to achieve community participation or inclusivity. This context therefore necessitates dual use in this study, of community engagement as a social transformation programme of universities and stakeholder engagement as a tool to facilitate those community engagement projects or programmes.

Another important concept in this study is development. According to Coetzee (2001:119), development is predominantly described as actions, projects or programmes intended to change situations for the better, especially in the so-called less developed or underdeveloped countries. Whereas Coetzee (2001:119) surmises that development implies a desired change; in other words, departure from a state of disadvantage to better or "advancing away from the inferior," he also cautions against misconstruing development as meaning economic or material advancement. Developmental initiatives should rather concern themselves with human well-being in its broad sense. They should strive, among other ideals, for social justice; eradication of all forms of deprivation; respect for humanity and for cultural living in harmony with the local ecosystem as well as people growth through their own understanding and articulation of their social reality and aspirations (Coetzee, 2001:122–125).

Development is desirable when it is sustainable. According to section 27 of the World Commission on Environment and Development (Brundtlant, 1987), development is sustainable when "it meets the needs of the present without compromising the ability of future generations to meet their own needs." By introducing the concept of sustainable development, the Brundtlant Commission, operating under the auspices of the United Nations, was creating awareness in nations of the finite nature of natural resources. It sought to impose limits on the exploitation of natural resources for today's economic growth, taking into consideration the effect of industrial, technological or social advancement on the natural environment on which humanity depends. Sustainable development, according to sections 27 and 28 of the Brundtland report (1987) championed the need to meet the needs of all, especially the poor; it also moved for effective participation of the poor in decision-making.

The relevance of the concepts of development and sustainable development to this study lies in their forming a foundation for people-centred development that is explored in the central theoretical framework. TUT and the Makwane community must, as their development goals, strive to attain the sustainability of fresh water at Makwane beyond today's generations. They must also aspire to

involve the community in all decision-making that seeks to transform them from their current state of constant exposure to diarrhoea to a disease-free future. This, in accordance with the goals of the White Paper and those of the RDP as explained below.

In the way that community service was conceptualised in the White Paper, it was aligned to the RDP, essentially the social transformation programme that the African National Congress (ANC) adopted with the advent of democracy in 1994. The ANC defined the RDP as "…an integrated, coherent socio-economic development framework. It seeks to mobilise all our people and our country's resources toward the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future" (ANC, 1994:1). The White Paper therefore sought to give effect to the spirit and letter of the RDP. Underpinning the RDP was a philosophy built on six basic principles: 1) an integrated and sustainable programme; 2) a people-driven process; 3) peace and security to all; 4) nation-building; 5) linking reconstruction, development, and 6) the democratisation of South Africa (ANC, 1994:4–7). As will be demonstrated in Chapter 2, the RDP principles dovetail with principles of people-centred development that any university must observe in implementing a community engagement programme. The next section motivates the need for the proposed study.

1.3 Problem Statement

In the course of 2017, Universities South Africa (USAf), an association of all 26 public universities of South Africa, set out to investigate facts on public universities' contribution to national development for profiling on national radio. At the time I was USAf's corporate communications manager and project manager in this regard, and I stumbled upon TUT's water quality research that was being credited for reducing diarrhoea in the Makwane community by up to 93% (Momba, 2017a). Findings of this study presented an excellent narrative on the TUT for profiling among other public institutions. However, the first encounter with a community leader at Makwane revealed an individual very unhappy with what he called TUT's unfulfilled promises to that community (Monate, 2017). I had contacted the community leader to identify community members who could be interviewed on TUT's contribution to their village on national radio. However, the community leader expressed doubt on whether USAf would find a soul willing to speak positively of the TUT (Monate, 2017). This encounter with the community leader sparked my interest in evaluating TUT's stakeholder engagement during the water research project carried out in the Makwane community.

Favish and Simpson (2016:242–243) argue that engagement with communities can be mutually beneficial to the community and academia, adding that effective engagement should be about knowledge, resources and knowledge sharing. Community engagement that fulfils the spirit of the RDP must help communities meet their most pressing needs (Department of Education, 1997). It must leave the community empowered (ANC, 1994:5) and fulfil the transformation imperative expected of a university by "doing good" (CHE, 2010:27).

It is against this background that the need was identified to review the stakeholder engagement process that the TUT researchers had followed when introducing their study to the leaders of the Makwane community and the community members in the Elias Motsoaledi Municipality. It is important to determine the extent to which the community members understood this research project, its objectives, their role in it, the potential benefits or pitfalls, and its implications. It is also important to understand what expectations the TUT researchers raised in the community participants, and to establish the extent to which those expectations were met or unmet. Important indicators of the quality of engagement between the Makwane community and TUT would include but not be limited to the engagement level (AccountAbility, 2015:22); the extent of knowledge sharing (Favish & Simpson, 2016:242–243) and the degree to which the TUT researchers empowered the community -- given that empowerment is an important outcome in the RDP context (ANC, 1994:5).

Furthermore, it is important to establish through the stakeholder engagement review, the value that the TUT research project brought to the community of Makwane. Value could manifest in new knowledge acquisition (Favish & Simpson, 2016:242–243) or social transformation as anticipated in the White Paper 3 (Department of Education, 1997). The next section describes the study objectives, which translate into the key questions that the stakeholder engagement review set out to answer.

1.4 Research Objectives

The objectives of this study were:

Objective 1: To define and explore the concepts *stakeholder* and *stakeholder engagement* and to define *community engagement* as a social transformation programme and a third core function required of public universities. Furthermore, the study would explore the origins of community engagement at South African universities. It would attempt to link stakeholder engagement to participatory communication as discussed in social development theory. In that context, the study would also attempt to link levels of stakeholder engagement to levels of participation as explained in theory.

Objective 2: To explore development as a concept and locate stakeholder engagement/participatory communication for development in the humanist/people-centred development paradigm. The study would further explore best practices in stakeholder engagement as a benchmark for the engagement practice expected of TUT in their interaction with the Elias Motsoaledi Municipality and the Makwane community – the key stakeholder groups relevant to the TUT water research project.

Objective 3: To determine TUT researchers' stakeholder engagement practices within the Elias Motsoaledi Municipality and the Makwane community. The study would seek to identify engagement gaps and their implications for the research process itself, for knowledge sharing, community empowerment and social transformation of the Makwane community.

Objective 4: To draw conclusions and identify insights and lessons learned, and to make recommendations to TUT and possibly the entire university sector.

1.5 Research Questions

Question 1: What are stakeholders, stakeholder engagement, and community? What does community engagement mean as a social transformation programme and as a core function expected of universities? How did community engagement come about and how are South African universities practising it? How does participatory communication link to stakeholder engagement? How do levels of stakeholder engagement link to levels of participation, and what implications do these hold for stakeholder engagement practice?

Question 2: What is development? What is the humanist/people-centred development paradigm and how do stakeholder engagement/participatory communication for development facilitate genuine social transformation? Against what best practices in stakeholder engagement can TUT's engagement practice within the Elias Motsoaledi Municipality and the Makwane community be measured?

Question 3: How was stakeholder engagement used to facilitate the community-based TUT research project at Makwane? What engagement gaps, if any, can be identified in the stakeholder engagement exercise, and what possible consequences did these gaps have on the research process, knowledge sharing with and empowerment of the Makwane community?

Question 4: What conclusions, insights and lessons can be drawn from this study and what recommendations can be made to the TUT research team? Can any lessons be drawn for the Makwane community? Are there other lessons for other public universities?

1.6 Central Theoretical Framework

This study is embedded in three theoretical frameworks, namely development theory; communication for social change theory and corporate communication management theory. The sections below briefly discuss these theories.

From a development perspective, this study subscribes to the idea that development must be people-centred and that those targeted for development interventions must participate in decisions about the choice of those interventions, and in the planning, implementation, monitoring and evaluation thereof. This predisposition is founded on the humanist paradigm or people-centred development, which holds the view that development efforts should target people, primarily, and that the people targeted must be the central players in development initiatives (Korten, 1990:67–70).

People-centred development recognises that people's well-being depends on their ability to manage the earth's finite resources (Korten, 1990:68). Notably, this vision defines positive outcomes of

development in terms of people's well-being as opposed to wealth. It defines well-being in terms of livelihood, security, equity and sustainability (Chambers, 1997, cited in Coetzee, 2001:126). Universities that implement community engagement programmes (by implication, TUT) must therefore adhere to these central tenets of people-centred development if they are to realise true and sustainable social transformation in and for South Africa.

Regarding communication for social development, this discussion is limited to differentiating between communication as applied in the modernisation paradigm of development, and communication as it is used to support people-centred or the humanist paradigm of development. During the era of modernisation communication was driven by the intent to "inform" the less informed people in the underdeveloped world – essentially to "persuade" them to change their backward behaviour and to adopt the innovation brought about by Western thinkers (Parks *et al.*, 2005:3; Servaes, 2008:201). Such communication took place largely in the mass media (Tufte & Mefalopulos, 2009:12). Communication during that era, unilaterally determined by outside agencies such as donor agencies and governments (Parks *et al.*, 2005:3), typically flowed in one direction from the sender to the receiver (Servaes, 2008:201). This approach to communication differed starkly from communication in the people-centred development paradigm, which embraces a participatory approach to development, where people at the centre of the development take an active part in the process, leading to change (Tufte & Mefalopulos, 2009:4).

Contrary to the one-way mass communication approach of the modernisation era, communication in the participatory approach is typically dialogic (Parks *et al.*, 2005:3; Tufte & Mefalopulos, 2009:13) – what is commonly referred to as engaging – hence the term engagement in wider use today. Participatory development is embedded in a broader theory of communication for social change, which the Rockefeller Foundation defines as:

> "…a process of public and private dialogue through which people themselves define who they are, what they need and how to get what they need in order to improve their own lives. It utilises dialogue that leads to collective problem identification, decision-making and community-based implementation of solutions to development issues" (Parks *et al.*, 2005:3).

Participative communication is typically two-way, otherwise the development agent has no way of building relationships, understanding community needs and aspirations and getting their input throughout the development process. This is the ideal type of communication for community engagement programmes. Therefore, universities must recognise and respect this requirement in all their community engagement endeavours.

Finally, the dialogic form of communication championed in the participative humanist paradigm of development is akin to the two-way symmetrical model of communication. This is reminiscent of relations management within the corporate communication discipline (Grunig & Grunig, 1992:289).

Concerned with talking to as well as listening to stakeholders, this model subscribes to organisations explaining themselves to stakeholders in their (internal or external) environment while also seeking to understand those stakeholders. It is therefore an ideal approach to corporate communication, preferred over the press agentry or public information models. In the latter models, organisations' visibility depends solely on dissemination of information – mainly through the mass media (Grunig & Grunig, 1992:288). The two-way symmetrical model lends itself to the organisation influencing its environment, while also absorbing sentiment from its environment that enables it to adapt (Doorley & Garcia, 2011:31–32). By employing the two-way symmetrical model, an organisation uses dialogue to manage issues and differences in stakeholder relationships, to enhance understanding, build, and maintain those relationships (Grunig & White, 1992:39).

Even though the theoretical frameworks discussed above emerge from three distinct disciplines, they ultimately converge on people. If effective participation (or stakeholder engagement) practice is deemed crucial to successful social advancement (Lennie & Tacchi, 2013:12; UNDP, 2009:7), engagement should be the main tool to facilitate project/programme conceptualisation, planning, implementation and, ultimately, dividend sharing. In the context of public universities, community engagement should yield results or dividends consistent with this sector, such as knowledge sharing (ideally in both directions) and community empowerment (Bawa, 2014:156–160; Erasmus, 2005:6, 19).

A literature review in Chapter 2 therefore draws parallels between the three theoretical frameworks and demonstrates how they all come together in support of the central thesis of this enquiry. Ultimately, the study examines TUT's stakeholder engagement at various stages against the normative engagement practices as identified in the literature review. The next section explains the methodology followed in carrying out this study.

1.7 Research Methodology

Rajasekar *et al.,* (2013:5) describe research methodology as a systematic plan according to which a researcher wants to go about solving an identified problem. The methodology presented in a research report suggests a plan for an intended research study.

1.7.1 Research approach

This study took a qualitative research approach; the most suitable for achieving the objectives at hand. Qualitative research enables an in-depth understanding of social phenomena by posing open-ended questions to typically small, non-random samples of people or objects in their natural settings in an effort to provide in-depth descriptions of situations (Patton, 1990:13–14; Palmer & Bolderston, 2006:16). It differs starkly from its quantitative equivalent, which draws larger, often randomly selected representative samples and uses structured and standardised questions to collect numerical data (Patton, 1990:14) as opposed to data represented in word descriptions (Atieno,

2009:17). Qualitative research typically generates realms of descriptive data that must be carefully analysed to draw meaning. It draws its strength from facilitating understanding by answering questions such as what, why and how, and ultimately yields characteristically richly descriptive and detailed reports (Palmer & Bolderston, 2006:16). The qualitative approach therefore lent itself well to the rich data that were anticipated in this study from interviewing the TUT researchers and relevant officials within the Elias Motsoaledi Municipality. Data would also be collected from the Makwane community leaders and from purposefully selected members of the community. Whereas individual interviews were meant for the municipal and community leaders, focus groups were the preferred mode of data collection from the community members as this method would enable participation of many respondents in a cost-effective manner (Freitas *et al.*, 1998:4).

Among the various types of qualitative studies discussed in literature, this study was steeped in phenomenology, which means this inquiry was seeking to study a particular phenomenon. According to Hancock (1998:4), "phenomena may be events, situations, experiences or concepts." In this particular instance, the researcher was seeking to describe TUT's stakeholder engagement performance in a programme of community engagement from the point of view of municipal workers, community leaders and community members.

The value of qualitative research, overall, lies in enabling the researcher to study social phenomena from the perspective of people immersed in the situation of interest. It enables subjects to interpret the phenomena from their own perspective. That is why Bryman (2012:399) holds the view that qualitative research is about "seeing through the eyes of the people being studied."

Because of the conversational nature of data collection, qualitative research allows the interviewer not only to listen, but also observe behavioural nuances in the respondents, which can enrich data quality (Cooper & Schindler, 1998:139). By making use of focus groups, which allow free interaction among respondents so that they can unpack phenomena in their own words, qualitative research can sometimes uncover what the researcher least expects (Cooper & Schindler, 1998:140).

For all the value that qualitative studies offer with respect to explaining social phenomena, they also receive significant criticism. First, it may be hard to sell findings of qualitative research to rigid quantitative research enthusiasts who regard the quantitative method as being more scientific, reliable and therefore more credible (Atieno, 2009:13; Rahman, 2016:105). Rigid subscribers to statistical significance may struggle to take findings from the small, statistically insignificant sample used in a qualitative study seriously. Considering the fact that the researcher in this instance will be dealing with researchers from TUT's "hard" sciences, the risk of believability issues is possible. The researcher therefore has to work hard to demonstrate rigour (Cypress, 2017:253) to present convincing findings.

Quantitative researchers, in particular, find qualitative studies too reliant on the researcher's choice of what is important from among the collected data, making qualitative studies too subjective for their

liking (Bryman, 2012:405). The qualitative researcher's background (age, gender, personality, race or social class) and frame of reference (what they already know or have been exposed to), influence what the researcher notices or picks up during, for instance, ethnographic observations, adding to the subjectivity of qualitative research (Saldanna, 2011:22–23). Quantitative researchers also argue that the open-ended and unstructured nature of questions in qualitative studies make them unsuitable for use in different settings (Bryman, 2012:405). Another more commonly raised shortcoming of qualitative studies is that because they employ non-probability sampling procedures, their findings cannot be generalised to the larger population from which the sample was drawn or to different settings (Atieno, 2009:17; Bryman, 2012:406; Hancock, 1998:3; Patton, 1990:14). With the Makwane case, though, there was no interest in generalising the findings to the entire populations of the Elias Motsoaledi Municipality or Makwane community. The focus was rather on understanding the adequacy and effectiveness of stakeholder engagement from the perspectives of all the identified constituencies. The next section explains how data was collected for this study.

1.7.2 Data collection methods

The data collection methods for this research included a literature review, semi-structured interviews and focus group discussions.

1.7.2.1 Literature review

A literature review is a critical requirement of all scholarly research (Kim, 2018; Webster & Watson, 2002:xiii). Scholars setting out to study a given phenomenon should first establish what is already known and published about that subject. This can be achieved by reviewing the existing body of knowledge in the discipline and key contributors, books and published articles produced on the same and related topics. A thorough analysis of existing literature prevents duplication of what is already known about the field. It also enables the researcher to evaluate the relevance of existing contributions to the narrative that she or he is trying to develop, while also explaining what distinguishes the study from similar work (Bryman, 2012:8–9).

A study with a thorough literature review makes the researcher more credible and earns them the respect of other scholars as the review justifies the study and demonstrates that the researcher is knowledgeable (Kim, 2018). If the point of research is to advance the body of knowledge in the chosen discipline (Bryman, 2012:8–9; Webster & Watson, 2002:xiii), a solid literature review enables the researcher to clearly indicate the specific contribution to the existing body of knowledge, adding to peer respect for the researcher (Bryman, 2012:8).

For this study, the literature review included primary sources such as books, journal articles, conference papers and previous academic studies completed on community and stakeholder engagement. The electronic book catalogue and the catalogue of journals in the Ferdinand Postma Library of the North-West University were consulted on these topics and on development

communication for social change. A Google search led to South Africa's national policy documents on community engagement. The Google search extended to strategy and policy documents of South African universities on community engagement. In addition, the faculty librarian assisted with a perusal of the catalogue of theses and dissertations completed at South African universities. The review also covered globally accepted standards and guidelines on stakeholder engagement.

1.7.2.2 Semi-structured interviews and focus group discussions

In addition to the literature review, the researcher collected data by means of semi-structured interviews. This format is preferred over structured interviews, which rigidly ask the same questions to all subjects to compare responses between interviewees. Structured interviews are somewhat similar to survey questions in that they do not allow for flexibility (Hancock, 1998:9; Palmer & Bolderston, 2006:17). Semi-structured interviews, on the contrary, include a limited set of open-ended general questions aimed at allowing both the interviewer and interviewee(s) to co-determine the direction of the discussion (Gill *et al.*, 2008:291). The interviewee responds in accordance with how she or he understands the issues under discussion, placing emphasis on what they deem most important (Gill *et al.*, 2008:291). The interviewer, in turn, latches onto and follows up on what they find important in the interviewees' responses (Gill *et al.*, 2008:291). The flexibility of semi-structured interviews allows the researcher to generate far richer data, as they allow the interviewer to depart from the prepared questions to notice unexpected, interesting angles in the interviewee's responses (Hancock, 1998:9; Palmer & Bolderston, 2006:17). The semi-structured questions were formulated for both individual interviews and focus group discussions.

The real value of focus groups lies in drawing from strength in numbers to obtain rich data on the respondents' understanding of their world. Focus groups allow for a cross-pollination of ideas as members of the group dissect the topic together (Cooper & Schindler, 1998:138; Palmer & Bolderston, 2006:17; Smithson, 2000:109) and respond to one another's responses. The ensuing debates, disagreements or consensus deepen the discussion under the guidance of a focus group facilitator (Bryman, 2012:501). Thus, the meaning of a specific phenomenon is jointly constructed within the group (Bryman, 2012:50; Smithson, 2000:109).

An added advantage of focus groups is that they enable relatively quick comprehension of the topic under discussion (Cooper & Schindler, 1998:140). Even though some researchers gripe that focus groups are costly (Morgan, 1997:3), others argue that by reaching large numbers in a limited space of time, focus groups make for convenient affordable research (Cooper & Schindler, 1998:140; Freitas *et al.*, 1998:4; Universal Teacher, 2018).

That said, focus group discussions also have downsides. Firstly, while group discussions can contribute to rich and deep data (Palmer & Bolderston, 2006:16; Freitas *et al.*, 1998:4), recruiting participants does not always translate into them showing up for the discussion. While over-recruiting

can help mitigate the situation when some individuals do not show up (Morgan, 1997:15), it can also create a problem when all the recruits show up and the group becomes bigger than desired.

Secondly, focus groups become less effective when some members of the group dominate the discussion and suppress others' views (Smithson, 2000:107–109). While the group moderator can manage the group dynamics to ensure rich participation and to move the discussion along (Cooper & Schindler, 1998:138; Smithson, 2000:108–109), some situations are beyond the moderator's control. An example is when individuals in a focus group go along with what appears to be a normal, dominant or standard standpoint of an issue of discussion and, in the process, suppress their own viewpoints or preferences so that they do not appear deviant (Smithson, 2000:113). Such behaviour may well keep the focus group from yielding as diverse views as the researcher may wish for, or as truly held in the group (Smithson, 2000:113).

Thirdly, focus groups can easily generate an enormous amount of data that take long to transcribe and become complex to analyse (Morgan, 1997:4). The problem worsens when people speak over each other (Universal Teacher, 2018) and the researcher later finds it difficult to distinguish between voices. The researcher can overcome this by laying the ground rules of engagement ahead of each group discussion to minimise challenges.

Finally, it takes an experienced moderator to get everyone to contribute in a focus group session. Some people may open up better in individual interviews than in groups (Bryman, 2012:517–518). In this study, however, the researcher, in anticipation of these problems, intended to lay down ground rules at the beginning of the discussions. She would also prod individuals to contribute.

The researcher also planned to digitally record all interviews and focus group discussions, and to make notes of pertinent observations made, to complement the recordings.

1.7.2.2.1 Sampling

The plan was to target the member of each household who became most involved in the TUT evaluation and stakeholder engagement processes, and, as such, a purposive sampling method would be employed to select respondents for this study. Purposive sampling is a non-probability sampling technique that identifies units of analysis (people, documents or geographical sites) by their relevance to the research question (Bryman, 2012:418). This sampling method is called purposive (or purposeful) because the sample is selected for its potential to generate rich data that is relevant to the core objective(s) of the study (Patton, 1990:169; Sandelowski, 1995:180).

Of the three examples of purposive sampling discussed in Bryman (2012), the most suitable to the proposed study are generic purpose sampling and snowball sampling. In generic purpose sampling, the researcher pre-determines the sampling criteria that will best generate responses to the research questions identified, and then chooses the sample in accordance with the criteria (Bryman, 2012:422). Choosing interviewees for the proposed study would be fairly easy: the interviewees

ought to have either played a key role in stakeholder engagement, or ought to have been at the receiving end of the engagement activity.

The TUT researcher team, for instance, had played a leading role in engaging the Elias Motsoaledi Municipality, the Makwane community leaders and the community members themselves. However, the TUT leading researcher, Prof Maggie Momba, declined to participate in this study, reducing the number of stakeholder groups to three, namely municipal respondents, community leaders and community participants in the TUT project.

In the village, aside from the community leaders who would be interviewed individually, focus group participants would be recruited from people who had participated in the use, maintenance and observation of the water treatment devices and who had stayed in the study and interacted with the TUT team until the end of their data collection. After identifying two or three such participants, the researcher would rely on them to identify fellow villagers whom they knew had stayed in the study until completion. The referral technique, where initial recruits lead to others who fit the qualifying criteria, is called snowball sampling (Bryman, 2012:424).

The researcher therefore envisaged up to four semi-structured interviews, first with the municipal manager and one or two other officials within Elias Motsoaledi. At Makwane, two community leaders who were engaged upon arrival in the village and who were brought to TUT for preliminary training before going back to mobilise the villagers to participate in the TUT research would also be interviewed.

Consistent with the structure of the Makwane community, which is divided into four sections, the researcher planned to identify, recruit and group participants into a focus group per section. However, a maximum of three focus groups was envisaged to limit costs and to keep the data volumes manageable. Focus groups typically include between five and ten participants (Cooper & Schindler, 1998:138; Hancock, 1998:11; Palmer & Bolderston, 2006:17). Data collection was planned over two to three days. It was tempting to conduct all three focus group discussions in one day to minimise costs and to keep the participants in the different focus groups from sharing the content of discussions with others, possibly contaminating others' thoughts and opinions in the process. However, this would take away the opportunity to transcribe each discussion before the next one to learn and apply lessons to the subsequent discussions (Hancock, 1998:15). The researcher was confronted with a hard choice between convenience and minimising costs, and optimising data quality.

As per the field plan, Day 1 would see the researcher meeting and greeting the community leaders and carrying out their individual interviews. Day 2 would be spent identifying community members who had participated in the TUT study; to meet them individually and explain the purpose of the study; to recruit, register and group respondents, to administer the consent form and to schedule meeting times over the next two days.

The process described above raised the question of what sample would be adequate for the proposed study. Bryman (2012:425) juxtaposes views of scholars who argue that a credible qualitative study requires no fewer than 20 interviews, with others who advocate for a minimum of 60. However, Morgan (1997:17) argues that three to five focus groups per study are adequate, and that any more is not likely to shed new light.

While Sandelowski (1995:179) cautions that sample sizes and numbers are as important in qualitative studies as they are in quantitative research, she also adds that the researcher will sense when data has reached a point of what she terms "informational redundancy" or "theoretical saturation" (Sandelowski, 1995:179). In other words, the sample has been exhausted when the responses from individual interviews or focus group discussions become so repetitive that no new information comes to the fore (Freitas *et al*., 1998:11). However, the point of informational redundancy is achieved at different stages in different types of purposeful samples and in different types of qualitative studies, depending on the study objective and research question (Sandelowski, 1995:181–182). The researcher therefore has to exercise judgement about when to stop data collection. In other words, each context should generate a credible justification for the sample size selected (Bryman, 2012:426; Sandelowski, 1995:181–182). In summary, Morgan (1997), while considering costs, advises that "the goal is to do only as many groups as are required to provide a trustworthy answer to the research question… The safest advice is to determine a target number of groups in the planning stage but to have a flexible alternative available if more groups are needed" (Morgan, 1997:17).

1.7.2.2.2 Data analysis

The researcher planned to analyse the data using the thematic method of data analysis. Thematic analysis refers to "the extraction of key themes in one's data" (Bryman, 2012:717). The researcher would follow Taylor-Powell and Renner's (2003:1) methodology of a systematic approach to analysis. They state that the analytical process is dictated by 1) questions that the study is seeking to answer; 2) the management needs of those for whom the study is being conducted; and 3) the resources at hand. They further argue that even though they recommend a systematic approach to data analysis, analysts should open themselves up to go back and forth between the steps summarised below (Taylor-Powell & Renner, 2003:2, 5):

- **Know your data** – by going through all of it at the end of each field visit. This includes reviewing impressions noted during data collection.

- **Keep the analysis focused** – by cross-referencing the data against the questions it is seeking to answer. Notes may be made per question or per respondent or group.

- **Arrange information by clusters** – of themes or patterns (of expressions, opinions, behaviours, ideas or terminology) emerging from the data. For thorough coding, the data

review is typically repetitive as the analyst ensures that the clusters exhaust all the data. This is the heart of qualitative analysis.

- **Pick-up patterns and relationships between clusters** – The analyst notes patterns and analyses them for relevance to the research questions.

- **Interpreting the results** – this requires the analyst to remove him- or herself from the intricate detail to derive meaning in relation to the questions being pursued, while also identifying the most significant lessons, new insights and the application to other settings.

According to Taylor-Powell and Renner (2003:6), it is vital that the analyst masters organising the information when reporting on a qualitative study. The more the findings can be corroborated across multiple data sources, the more credible the study becomes. It is therefore critical that the analyst tracks the trail of information collected to inform the conclusions. This should aid additional analysts who may be invited to assess the findings for credibility. In the next section, the researcher discusses the ethical considerations with respect to the proposed study.

1.8 Ethical Considerations

All research requires empathy with study respondents. If left to chance, research has a potential to harm, to invade respondents' privacy, or to manipulate people into consent or mislead them (Allmark *et al*., 2009:1–7; Bryman, 2012:135). It is therefore paramount that participants in any study be fully informed about a) what they are letting themselves in for; b) any potential risks; and c) their right to withdraw from the study anytime they feel unhappy. This stakeholder engagement review carries no potential for physical harm to the study respondents. While respondents' names were documented in respect of both the individual interviews and the focus groups, the researcher would, in reporting, use codes during to maintain confidentiality.

The researcher also paid specific attention to how she stored field notes. The respondents must feel confident that no one – especially the students who did fieldwork in the area – can detect who said what. The researcher will ensure that no compromising responses are traced back to any individual (Bryman, 2012:153). The researcher was also vigilant about storing the data.

Regardless of the methods used to collect data, ethics decree that researchers avoid deceiving potential interviewees, especially when recruiting them to participate in social research. Researchers can avoid deception by identifying themselves truthfully and informing potential participants honestly about the intentions of the study and what they intend doing with the findings (Bryman, 2012:143–144). Another issue of concern in social research is obtaining informed consent from potential research participants. While a researcher can ask consenting subjects to sign a consent form in their own language (Bryman, 2012:140), researchers must make sure that the subjects are consent-

competent, as some may be mentally incapable of granting such consent for themselves (Dunn & Jeste, 2001:595).

The complexity of data gathering and processing in qualitative studies requires thoroughness in data coding and analysis for credibility (Cypress, 2017:254–256). Rigour in data coding and analysis should enable the researcher to defend their inferences and conclusions. Ethically, the researcher can never be too careful in the analysis of qualitative data. The complexity of qualitative data also requires the researcher to state their limitations in any study openly (Cypress, 2017:259).

Another ethical consideration is the debriefing of participants. People who invest their time to give responses during research deserve to know what the study has found and the meaning and implications of the findings. According to Cooper and Schindler (1998:111), debriefing "…retains the goodwill of the respondent, providing an incentive to participate in future research projects." Debriefing is also a gesture of appreciation and respect towards the respondents. In this study, the researcher would explain that findings from this study were likely to yield lessons for universities and therefore, she would emphasise the likelihood of publishing the findings in academic publications.

1.9 Study Limitations

Although the qualitative technique can provide an in-depth understanding of community members' opinions on the variables being explored, it is impossible to assess the extent of community sentiment numerically without a quantitative component. The research team at TUT, all natural scientist, might regard this study as too subjective and anecdotal (Bryman, 2012:625) and too lacking in numerical inferences for its conclusions to be taken seriously. Even though the leading TUT researcher declined to participate, the intention is to share the study findings with them. To mitigate this limitation, the qualitative report must demonstrate utmost rigour by articulating every detail of the research process, the researcher's choices and data inferences very clearly (Cypress, 2017:260–261).

Since the sample of respondents would be purposely determined and not statistically representative, it would be difficult to generalise the findings to the entire community. However, it was not the researcher's intention to generalise findings of this inquiry to the broader Makwane community. The answers to the central research question would be relevant to a sub-group within the Makwane community (Hancock, 1998:3), meaning people who actively participated in the testing of the two home-based water treatment devices.

Another limitation of qualitative research is that it cannot be replicated in a different setting. Due to its sensitivity to the context of the respondents (Rahman, 2016:105) and the non-transferability of that context, semi-structured questions cannot be transferred to a different setting.

That said, the most significant limitation to this study was limited resources. This study called for prudence on the part of the researcher and a careful balance between controlling an urge to achieve absolute "informational redundance" and containing the data within manageable volumes. The researcher had to bear in mind the labour intensity involved in transcribing and analysing qualitative data (Freitas *et al.*, 1998:4; Hancock, 1998:14), and the fact that she was solely responsible for the end-to-end execution of the project. The way around this would be to limit the number of participants per focus group (not much more than seven) to ensure that each person got optimum time to share their insights.

1.10 Contributions of the Study

The findings of this study could contribute important stakeholder engagement lessons for the benefit of TUT, the community of Makwane, or both. The findings could also contribute important insights to academics across the sector, who are involved in community-based research.

USAf, a coordinating body for South Africa's public universities, has a responsibility to safeguard the credibility and reputation of the sector. If pitfalls are identified in TUT's stakeholder engagement, USAf will need to bring these to the attention of the concerned research team; to TUT's higher authority responsible for research and innovation as well as to other institutions for sector-wide learning. This study could therefore improve community engagement practices of current and future generations of post-graduate students and academics.

Ultimately, this study may succeed in demonstrating the value of combining trans-disciplinary philosophies from development theory, communication for social development theory and corporate communication management theory in creating a stakeholder-centric approach to community-based participatory research.

1.11 Provisional Chapter Layout

The mini-dissertation is structured into four chapters:

Chapter 1 sets the stage and provides the background for this study. It states the research problem, research objectives, research questions and explains the methodology used in the study. It also explains the sampling strategy, data collection methods and data analysis techniques used in the study. It finally details the ethical considerations and the study limitations.

Chapter 2 explores what South African universities know about community engagement and how they are practising it. It defines the concepts community, engagement and stakeholder engagement. It also distinguishes between stakeholder engagement as a function of interaction between an organisation and its relevant constituencies, and community engagement as a social transformation programme expected of public universities. Furthermore, Chapter 2 locates stakeholder engagement in participative, people-centred development theory. It further demonstrates the convergence of

three theoretical frameworks on creating a stakeholder-centric university sector. It details the process involved in effective stakeholder engagement practice, thus setting the standard against which TUT's stakeholder engagement practice is to be measured.

Chapter 3 provides a brief description of the Makwane community as a setting for the TUT research project. It explains how the TUT chose this community and the relationship between the community and the Elias Motsoaledi Municipality, thus explaining the relevance of the various stakeholder groups identified. This description foregrounds the discussion of stakeholder engagement practice of TUT researchers within the identified stakeholder groups. This chapter examines insights and engagement gaps, thus leading the discussion logically to the study conclusions.

Chapter 4 draws conclusions from the study findings and makes recommendations for the TUT research team, as well as the broader public university sector.

CHAPTER 2: LITERATURE REVIEW: EXPLORING COMMUNITY ENGAGEMENT AND PRACTICE IN THE SOUTH AFRICAN UNIVERSITY SECTOR AND LOCATING STAKEHOLDER ENGAGEMENT IN PARTICIPATORY DEVELOPMENT

2.1 Introduction

The literature review was aimed at deepening the understanding of the concept of community engagement as one of the core functions expected of South African universities and the role that stakeholder engagement plays in enhancing social development and good community engagement practices. The review also sought to explore the community engagement terrain in the South African context and to enhance the understanding of what would constitute good stakeholder engagement practice. The purpose of this chapter is therefore to:

- define a) community; b) engagement; c) community engagement; and d) stakeholder engagement as the keywords around which this study revolves;
- explore the origin of community engagement in South Africa and touch briefly on the practice within the South African university sector;
- identify stakeholder engagement in people-centred development; draw parallels between stakeholder engagement, participation/participatory development communication and link levels of participation to levels of stakeholder engagement before examining effective stakeholder engagement practices – globally and at a local community level; and
- demonstrate the convergence of three theoretical frameworks (development theory, communication for social development theory and corporate communication management theory) on creating a stakeholder-centric outlook to community based participatory research.

Ultimately, the literature review sets the standard for effective stakeholder engagement against which to review TUT's stakeholder engagement practices in preparing for, introducing, carrying out and concluding the community-based research partnership with the Makwane community. This study may well affirm, question or add different perspectives (Bryman, 2012:8-9) to at least some of the stakeholder engagement theory and practices explored.

2.2 Defining Key Terms

This study hinges on four key terms: community, engagement, community engagement and stakeholder engagement. In order to avoid conflating the two concepts of community engagement and stakeholder engagement, it is important to differentiate between them, as this study warrants the use of both.

2.2.1 Community

The English Oxford Living Dictionary (2018) defines a community as a "group of people living in the same place or having a particular characteristic in common." In the sociological sense, this definition is similar to that of Neal (2014), who defines community as a cluster of people who interrelate within a defined geographic boundary. Members of a community typically have a common value system, customs and beliefs. According to the English Oxford Living Dictionary (2018), communities can also be clustered by their purposes. It cites as two examples a community of Montreal Italians and the gay community in London, while Fourie (2007:23) speaks of agricultural, language, cultural or professional communities. Communities can also form around interest or identity (Hashagen, 2002:3).

Socially responsible companies typically concern themselves with the wellbeing of local communities among the many groups they affect with their decisions and/or operations. They may choose to engage the identified communities for developmental or other strategic purposes. For such purposes, the Global Reporting Initiative (GRI), the global entity that promotes voluntary reporting on organisations' economic, environmental and social impacts (Blowfield & Murray, 2014:365), defines local communities as "persons or groups of persons living and/or working in any areas that are economically, socially or environmentally impacted (positively or negatively) by an organization's operations" (GRI, 2018:13).

A mining company such as Anglo Platinum defines their community stakeholders as the people living within a 40–60km radius of their operations (according to an unwritten but often repeated policy), and communities from which they source most of their labour (Anglo Platinum, 2009:11). Individual university departments use their own methodologies to delineate communities relevant to their intended purposes. According to the GRI (2018:13), an organisation's local community "can range from persons living adjacent to an organisation's operations, to those living at a distance who are still likely to be impacted by these operations." The Makwane community, participating in the TUT water quality research, qualifies in this sense as a local community to the TUT Department of Environmental, Water and Earth Sciences. Even though Makwane is located about 260km away from the TUT main campus in Pretoria, the TUT's choice of this community for a partner in research was driven by an issue of common concern (Network for Business Sustainability, 2017) – something demonstrating that universities' selected communities need not be located in the immediate vicinity of their campuses. The next section defines stakeholders.

2.2.2 Stakeholders

Stakeholders are "individuals, groups of individuals or organisations that affect and/or could be affected by an organisation's activities, products or services and associated performance." (AccountAbility, 2015:34; GIIRS, *s.a.*). Stakeholders range from those residing in an organisation's internal environment, such as shareholders and employees, or they can be external to the

organisation, such as suppliers, media, regulators, government, competitors, donors, non-governmental organisations or communities affected by an organisation's operations (Doorley & Garcia, 2011:339; Steyn & Puth, 2000:54,57). Other sources, such as GIIRS, cluster stakeholders according to their primary (directly impacted) or secondary (indirectly impacted) links to an organisation. Therefore, if students, academics and researchers are considered primary stakeholders of a university institution, communities could be deemed a secondary stakeholder. Having defined stakeholders, the researcher's attention now turns to engagement below.

2.2.3 Engagement

As a concept commonly used in human relations management, engagement generically refers to two-way interaction between two or more people. Engagement is carried out to co-create understanding for mutual benefit. The overriding goal of engagement is to share lessons, solve mutual problems or collaborate (G3 Business Solutions, 2009:7).

Tideman (2014), who adds that engagement happens in a two-way reciprocal relationship in which two parties have mutual obligations towards each other, supports the definition above. Tideman (2014) adds that engagement occurs within a context where two parties start or maintain a relationship. Engagement is therefore an important function in the management of stakeholder relationships. Given that the proposed study talks of stakeholder engagement within community engagement programmes, it is important to differentiate between the two terms.

2.2.4 Distinguishing between "community engagement" and "stakeholder engagement"

The term "community engagement" could ordinarily be understood within the context of generic interaction between any organisation and a given community. However, for the purpose of this study, there is a distinction between the engagement of a community as a stakeholder type and community engagement as a function prescribed by the state to universities to drive social transformation within the reconstruction and development context. Implementing such a programme entails the engagement of a range of stakeholders (for example, local government, business and other potential partners) way beyond community parameters. This context therefore necessitates dual use of stakeholder engagement as a tool to drive those community engagement projects or programmes, and community engagement as a social transformation programme prescribed to universities as a third core function, in addition to teaching and research.

2.2.4.1 Stakeholder engagement

Stakeholder engagement is "the process used by an organisation to engage relevant stakeholders for a clear purpose to achieve agreed outcomes. It is now also recognised as a fundamental accountability mechanism, since it obliges an organisation to involve stakeholders in identifying, understanding and responding to sustainability issues and concerns, and to report, explain and

answer to stakeholders for decisions, actions and performance." (AccountAbility, 2015:5; GIIRS, *s.a.:*1). Also referred to as stakeholder dialogue (WBCSD, *s.a.:*1) or participation (Involve, 2005), engagement is about listening to, learning about or from, and granting stakeholders due platforms to express their views, so that these can be taken into consideration in organisations' decision-making processes (WBCSD, *s.a.*:2). As the central point of this study, stakeholder engagement is explored in more detail in Section 4.

2.2.4.2 Community engagement

The definition of community engagement, as a function prescribed by higher education and training policy to public universities, has been so widely contested in the university sector that its conceptualisation remained unresolved a full decade after this function was adopted in higher education policy. So contested was the term that in 2009 it was made the subject of a colloquium organised by the Council on Higher Education. At this colloquium, Professor Martin Hall from the University of Salford in the United Kingdom presented a paper to which his counterparts from South Africa's university system responded. The definitions of community engagement proffered at this colloquium ranged from "…a cluster of activities that includes service learning, problem-based teaching and research that addresses specific wants and needs, the pursuit of alternative forms of knowledge and challenges to established authorities that control and direct research systems and the allocation of qualifications" (Hall, 2010:7) to "doing good" (Hall, 2010:27). Professor Loyiso Nongxa, who at that time was the vice-chancellor and principal of the University of the Witwatersrand (CHE, 2010:115), suggested that the notion of "social responsiveness" be built into the conceptualisation framework to enhance academics' understanding of community engagement (Hall, 2010:62). He argued that this was the concept introduced in the White Paper 3 and that it had featured in the United Nations Education, Scientific and Cultural Organisation (UNESCO) declaration of 1998. He further noted that undertaking teaching and research that responded to broader societal needs was more likely to respond to the social and economic situations of disadvantaged communities. Nongxa (cited in Hall, 2010:63-64) also indicated that "…the intent, of course… is that intellectual enquiry be brought to bear on conditions of human distress in any or all of its forms, ultimately with intent of relieving or eliminating it."

Professor Johann Muller, then a curriculum professor in the University of Cape Town's School of Education (CHE, 2010:116), imagined community engagement as a context-driven activity… "depending variously on the mission and strengths of the university that practises it, the state of regional development of the area in which it [the institution] is sited, and the ingenuity of the academics concerned, not to mention the diversity of views and the interests of the local 'communities'." He saw community engagement as being difficult to fit into a box given its historically changing nature (Muller, 2010:69).

Even more inputs emerged at the colloquium, although they were more recommendations towards a national South African consensus over what community engagement was than definitions themselves (Favish, 2010:89-100; Slamat, 2010:104-114). Therefore, the 2009 colloquium did not achieve a common definition.

Another definition on community engagement was presented at the CHE Conference on Community Engagement in Higher Education in 2006. The then vice-chancellor at the University of the Free State, Professor Frederick Fourie, stated that community engagement represents "collaborations and partnerships between the university and the appropriately constituted communities that it serves, aimed at building and exchanging – in a two-way engagement – the knowledge, skills, expertise and resources required to develop and sustain a developing society" (Fourie, 2007:43). Fourie's definition captures the broad purpose of a community-based research project, possibly also reflecting in broad terms the spirit of the TUT research project under scrutiny. Fourie's definition is in concert with that of the Carnegie Foundation, which reads as "the collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity." (Campus Compact, 2016).

From the numerous perspectives explored above, it can be inferred for the purposes of this study that community engagement is a higher-education-based programme aimed at generating and sharing knowledge (Favish & Simpson, 2016:245-247; Lazarus *et al.*, 2008:62-64), thus facilitating social transformation as prescribed in South Africa's policy framework (Department of Education, 1997; NCHE, 1996:24). The definitions provided present community engagement as a systematic interaction with communities relevant to a university, however those communities might be determined and delineated. Community engagement is thus *problem-oriented* (Hall, 2010:7); is *socially responsive* (Department of Education, 1997; Nongxa, 2010:62) and also addresses *identified community development priorities* (Lazarus *et al.,* 2008:63).

Going back to the need to distinguish between stakeholder engagement and community engagement in this context, it is worth mentioning that community engagement is practised in various forms, including, but not limited to, service learning, distance education, knowledge-based community service, community-based research and participatory action research (Favish & Simpson, 2016:250-251; Lazarus *et al*., 2008:63). By contrast, forms of stakeholder engagement (also known as levels) include activities such as information-giving, consultation, involvement, negotiation, collaboration, empowerment and transaction (AccountAbility, 2015:22).

These distinct forms of practice are discussed in further detail in sub-sections 3.2 on Community Engagement Practice in South Africa and 5.1.2.2. on Levels of Participation. With the conceptual background thus summarised, the next section briefly describes how community engagement came about and how it is being practised in South Africa.

2.3 Community Engagement Origins and Practice in South Africa

Community engagement is by now widely accepted as one of the three core functions of universities alongside research and teaching (CHE, 2010:iii; Department of Higher Education and Training, 2013:70). As pointed out in Chapter 1, it was originally conceptualised by the National Commission on Higher Education as responsiveness to society (NCHE, 1996:24). This was part of the NCHE's formal advice to the then Minister of Education, Professor Sibusiso Bhengu, on transforming the university sector (NCHE, 1996:24) after 1994. The White Paper 3 on Transformation of Higher Education in 1997 formally introduced the concept into policy (Department of Education, 1997). Although the White Paper termed it community service, the concept has, over time, become known as community engagement (CHE 2010:iii).

2.3.1 Origins of universities' responsiveness to society

The notion of universities' responsiveness to society was not entirely new to South Africa after 1994. It dates as far back as the mid-1980s when the University of the Witwatersrand (WITS) went through a series of engagements interrogating this concept. Even though WITS debated the matter using institution-based surveys and lectures, and, subsequently held a workshop on this question with peer institutions and organisations, the socio-political nature of the problem made discussions difficult during the oppressive apartheid era. Insufficient expertise at the time and, by implication, lack of empirical knowledge on this aspect of education, meant not enough was known to inform the debates. In the end, this discourse died a natural death (Muller, 2010:70-73).

Since then, at least two South African scholars (Jansen, 2002; Musson, 2006:7) have traced the central thinking in South Africa's transformative education policy to British origins. Mala Singh, who in 2007 was the interim chief executive officer of the CHE, has also acknowledged this British influence to South Africa's national higher education policy (Singh, 2007:18).

In their book, *The New Production of Knowledge,* Gibbons *et al.* (1994:1-16) introduce two theoretical concepts: Mode 1 and Mode 2 knowledge. They define Mode 1 knowledge as the conventional type of knowledge produced in formal academic disciplines, notably natural science or what they call "Newtonian empirical and mathematical physics". Mode 1 knowledge is considered good science practised by scientists (Gibbons *et al.,* 1994:1-3). Mode 2 knowledge, on the other hand, emanates from the application arena, that is "within a broader, transdisciplinary social and economic contexts" (Gibbons *et al.,* 1994:1). Gibbons *et al.* therefore deduce that Mode 1 knowledge resides primarily within universities, whereas Mode 2 knowledge is generated in the societal environment external to academia. Research inclined to responding to societal, industry or governance problems seems to reside in Mode 2 knowledge.

Inspired by this theory of two modes of knowledge, Gibbons *et al.* (1994:14) submit that unless higher education institutions open themselves up to responding to the existence of Mode 1 and Mode 2

knowledge types, they run the risk of isolating themselves from the scientific, technical, ecological and social advances in the Mode 2 knowledge environment. On that basis, the scholars also challenge governments aspiring to become innovatively and globally competitive to generate policies critically questioning the purpose and core function of higher education. The solution, Gibbons *et al.* (1994:15-16) argue, lies in governments injecting into the innovative policies of the institutions that were designed to promote science and technology, sensitivity that "knowledge production is socially distributed."

Such is the theory that Jansen (2002), Musson (2006) and Singh (*in* CHE, 2007:18) believe inspired South Africa's transformative education policy as laid out in the White Paper on Science and Technology (Department of Arts, Culture, Science and Technology, 1996) and in the White Paper 3 on Transformation of Higher Education (Department of Education, 1997). While Jansen (2002*)* claims that these policy documents *"*bear the unmistakeable fingerprints of Gibbons and his colleagues", Musson concurs, adding that Gibbons *et al.*'s influence on South Africa's post-apartheid education policy intensified during Michael Gibbons's tenure as advisor to South Africa's Ministry of Education in 1999 (Musson, 2006:7). Thus, Gibbons *et al.*'s thesis informed the central thoughts in South Africa's white papers on transformation and science and technology. This Mode 1 and Mode 2 thesis sparked off myriad debates within South Africa's higher education sector.

The ensuing debates extended to questions such as what community engagement actually required universities to do (Hall, 2010:23-34); how 'community' should be defined (Hall *in* CHE, 2010:1; Nongxa *in* CHE, 2010:57-58; Slamat, 2010:106-107) as well as whose knowledge mattered and took precedence in university-community exchange relationships (Muller, 2000 cited by Hall, 2010:7; Muller & Subotzky, 2001:176-179). Muller and Subotzky (2001:163-179) argued vociferously against the intimation that Mode 2 knowledge could grow to replace Mode 1 knowledge. Especially in developing countries like South Africa, Muller and Subotzky (2001:179) saw the two modes of knowledge working to complement each other, and more so within community service learning activities.

In summing up this historical perspective, Gibbons *et al.*'s (1994) theory is relevant in that it is the conceptual framework that germinated the community engagement seed in South Africa's policy and that eventually saw community engagement entrenched as the third pillar in the core functions of public universities. The knowledge debate could well have a bearing on what transpired within the TUT-Makwane community research partnership. With that history shared, the discussion now examines briefly how community engagement policy is playing out in South Africa.

2.3.2 Community engagement practice in South Africa

Lazarus *et al.* (2008:63) state that in its ideal form, community engagement combines service with teaching and research, applying the three functions to identified community development initiatives. They illustrate this point in Figure 2-1 below.

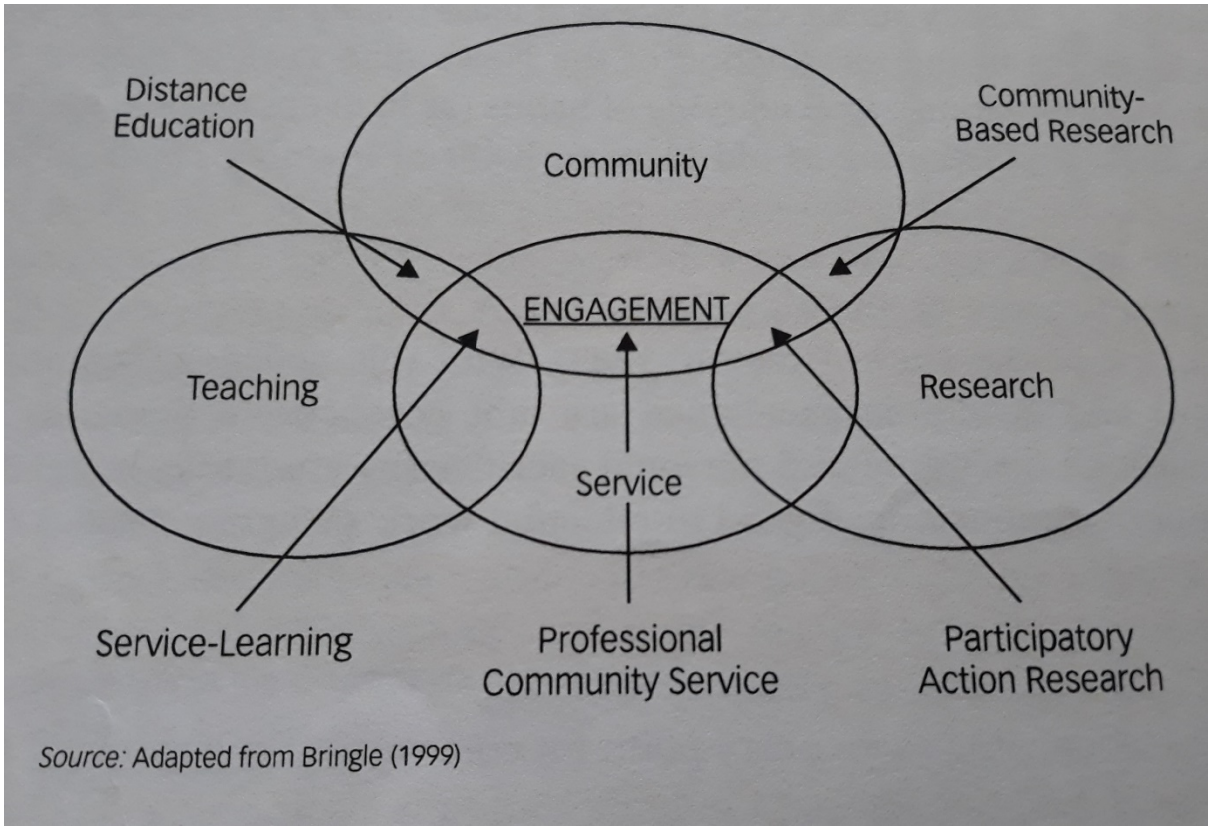

Figure 2-1: Types of community engagement (Lazarus *et al.,* 2008:63)

The diagram above illustrates that community engagement can be practised in many forms, namely distance education; community-based research; participatory action research; professional community service and service-learning (Lazarus *et al.*, 2008:64). Some universities talk of civic engagement, community service and outreach, and volunteering (Luescher-Mamashela *et al.*, 2015:200-201). Another term increasingly gaining popularity is engaged scholarship (Favish & Simpson, 2016:242) or scholarship of engagement (Boyer, 1996:11-20).

These multiple forms of practice are not discussed in detail as the study's delimitations does not allow it. An exception will be made, nonetheless, with two forms of community engagement applicable to the review of the TUT research project.

The first is community-based research. According to Social Impact (SU, 2013), community-based research (CBR) is a research approach in which academic researchers collaborate with an identified community or community-based organisation in seeking answers to a research question of common interest. Community members participate actively in the research process, from defining the research questions to deciding on initiatives to address those questions. The purpose of CBR is to

generate evidence that subsequently informs social action in pursuit of change and social justice. CBR is also commonly referred to as CBRP, or community based participatory research (Jamshidi *et al*., 2014; Kwan & Walsh, 2018; Mikesell, *et al*., 2013).

Partnerships, as a second example applicable to the TUT project, generically describe an approach to research that recognises the importance of working together with one, two or multiple stakeholders, including communities for change and social justice. A partnership is considered a suitable vehicle to achieve "mutual understanding, common good, reciprocity, collaboration in decision-making, shared leadership and transparency regarding outcomes" (Sánchez & Puig, 2014:113).

When assessing the TUT-Makwane research project against the myriad forms of community engagement practised in South African universities, the researcher deduces that the project was a community-based research partnership. This warrants that stakeholder engagement in this project also be examined against best practices within a partnership relationship.

Recognising that community engagement is a social transformation programme that should comply with best practices of social change or development, in the next section, the discussion links stakeholder engagement to participative communication theory with the intent to demonstrate how stakeholder engagement advances people-centred development. The discussion further explores methods of participation and best and worst practices before proceeding to accepted standards in stakeholder engagement.

2.4 Locating Stakeholder Engagement in Participative Development Theory

Since the notion of communication for development purposes was introduced alongside early theories of development thought (Parks *et al.,* 2005:3), it is important to give a brief history of development theory to demonstrate how stakeholder engagement evolved with development thinking. For the purpose of this research, the discussion of the history starts at the modernisation theory of development without implying that this marks the origins of development theory.

2.4.1 Modernisation theory of development

The modernisation theory is the growth-centred paradigm of development that arose post-World War II. The theory claimed that in order for the less developed countries of the world to attain development, they had to follow the industrialisation and economic growth path of their developed Western counterparts (Graaff & Venter, 2001:82). Modernisation was understood as a process of change from a traditional way of life to adopting attributes of advancement as seen in modern technology or modern organisation of society (Coetzee, 2001:27; Davids, 2009:9-11). Modernisation meant adoption of democracy as an ideal political ideology, civilisation of society and adoption of capitalism (Coetzee, 2001:28). According to some modernisation theorists, the extent of modernity achieved by any society could be measured, *inter alia,* by the degree of that society's predisposition

to new knowledge, new experiences; prioritisation of technical skill, acceptance of new form of politics, changing consumer behaviour and openness to social mobility (Inkeles & Smith cited in Coetzee, 2001:31).

The modernisation theory was criticised for over-simplifying development theory – first by assuming that the transition to modernisation was a linear process that entailed movement from a state of underdevelopment to advancement (Coetzee, 2001:32). Some perspectives admonished the theory for totally ignoring that economic growth could take place without disrupting established social relationships and their inherent power dynamics. Others rejected it for assuming that Western civilisation was the ideal and only way of life, and for totally ignoring the effects of colonisation on developing countries (Davids, 2009:12). Modernisation was also criticised for its preoccupation with optimal exploitation of natural resources for economic growth without much regard for long-term consequences, and without much consideration for people and the natural environment in which their livelihoods depended (De Beer & Swanepoel, 2000:65). As part of tracing the origin and evolution of communication for development, the study briefly discusses the dependency theory of development below.

2.4.2 Dependency theory of development

The dependency theory of development emerged in Latin America in the 1960s to shine a spotlight on the failure of the modernisation approach to advance less developed countries of the world (Davids, 2009:12). It denoted a power relationship in which first world countries deployed capital to their underdeveloped counterparts, not to uplift them, but rather to extract what they could from them for their own gain (Graaff & Venter, 2001:81-82). Dependency was orchestrated through unfair trade practices between developed nations and Latin American countries where the latter exported raw materials cheaply and bought them at much higher prices as finished goods. Falling prices of raw materials, coupled with the rising cost of manufactured goods saw developing countries losing far more capital to the north than they gained through international trade (Graaff & Venter, 2001:82).

These patterns informed Andre Gunder Frank's centre-periphery model that explains how Western capitalist economies deliberately organised under-development in countries of the south by siphoning resources from the latter to enrich themselves (the north – the centre) while depressing the south – what Gunder Frank dubbed the periphery (Davids, 2009:13; Graaff & Venter, 2001:82). This tendency was evident at various levels, namely at the national level where resources were tapped from rural parts of developing countries to the more urbanised centres, and from less developed countries to their industrialised counterparts. This kept the less developed countries depressed in underdevelopment while advancing the north even further and perpetuating the dependency of the less developed countries of the south on their developed brothers in the north. The centre believed that the emancipation of the periphery from poverty relied on the centre's self-growth. Such growth, however, depended entirely on the centre growing exponentially, thus becoming enabled to shed the surplus fruits of its own growth to the periphery (Davids, 2009:12-15).

The dependency theory was criticised for blaming the underdevelopment of the south on external factors without paying attention to internal country dynamics. The theory was lambasted for proposing that underdeveloped countries break away from the capitalist exploitative world and adopt socialism as an alternative, with little regard for how the less technologically advanced countries would survive under socialism, which was seen as a failed system (Davids, 2009:15-16).

Ultimately, modernisation and dependency approaches to so-called development proved to be irrelevant to the emancipation of people from poverty or any state of disadvantage. As that failure inspired new thoughts, modern scholars began to realise that development could not be achieved by theorising in perpetuity. As development focus shifted to people (Davids, 2009:17), people-centred development became the new paradigm of the 1990s. But before we discuss people-centred development we must understand what development really means.

2.4.3 Development defined

According to Coetzee (2001:119-120), development refers to desired change from a state of disadvantage, of deprivation, of "worse to better". It connotes movement "away from inferior". Among many aspects, development describes social change on "all aspects of life within a community." It involves increasing the scope of people's choices; knowledge acquisition and access to resources for better living (Coetzee, 2001:120). Supporting the idea of development is the assumption that people can be more than they are (Coetzee, 2001:123). Pursuit for development should therefore be an endeavour for "social justice, consultation and joint decision-making; an end to human suffering replaced with satisfaction of basic needs; respect for local culture and ecosystems and social change through people's own efforts" (Coetzee, 2001:123).

2.4.3.1 What development is not

Contrary to popular belief in the modernisation and dependency eras, development is not about economic growth or material wealth (Coetzee, 2001:121) and therefore, it cannot be measured by people's per capita income (Coetzee, 1989 cited *in* Davids, 2005:23). Neither is it modernisation nor the simple break-away of the Third World from the First-World-orchestrated dependency of the 1960s (Swanepoel, 2000:71).

2.4.4 People-centred approach to development

Development should rather focus on the people themselves, their needs and circumstances (Swanepoel, 2000: 71). It must aspire to secure "the right to live a meaningful life", while also affording due respect to human beings as a very basic requirement (Coetzee, 2001:121). The people-centred development approach incorporates what Davids (2009:27-28) calls the building blocks of development, "namely public participation, social learning, empowerment and sustainability."

These founding principles prescribe a standard that universities must generally observe in community engagement as a social transformation programme. That said, it is important to understand all standards against which the TUT community engagement project is reviewed – hence the discussion below.

David Korten, one of numerous champions of people-centred development, defines this concept as:

> "a process by which the members of society increase their personal and institutional capacities to mobilise and manage resources to produce sustainable and justly distributed improvements in their quality of life consistent with their own aspirations."
>
> (Korten, 1990:76)

Recognising the link between people's well-being and their ability to manage the earth's finite resources, Korten (1990:68) associates people-centred development with sustainability. Thus the vision of people-centred development, also known as the humanist paradigm of development (Davids, 2009:17; Theron, 2009:104), discusses positive spin-offs of development in well-being terms as opposed to opulence. That vision associates well-being with such characteristics such as livelihood, security, equity and sustainability (Chambers, cited by Coetzee, 2001:126).

For that well-being to be unlocked and articulated into vision and objective statements of development programmes, the people approached with a development proposition must participate in the process of creating meanings for themselves. Development action must follow a process where the people define their own needs and aspirations, thus forging their own existence and future. People's participation is thus central to the people-centred approach to development (Coetzee, 2001:125). The next section details participation and how it links to stakeholder engagement.

2.5 Participation

Tufte and Mefalopulos (2009:4) define participation as the "involvement of ordinary people in a development process leading to change." For participation to reap the intended results, it must be genuine. Involve (2005), an international consulting body, distinguishes between mechanistic and humanistic participation. When people's input is sought on a plan or decision to create some semblance of ownership in them, that process is mechanistic, which means superficial or symbolic participation. Participation becomes humanistic (the preferred model) when the goal and objective of the process is to expand people's social contacts, to open their eyes to alternatives and to unlock in them "a sense of their own power and ability." (Involve, 2005:18). The ultimate aim of participation is to facilitate people's decision-making and involvement in the initiatives that change their lives. (De Beer & Swanepoel, 2000:69; Involve, 2005:19).

Given that effective stakeholder engagement should enable genuine community participation within a people-centred development approach if desired social transformation is to be realised, and also recognising that communication is the oil that sets stakeholder engagement and citizen participation in motion, it is important to explore communication as a concept, and, in particular, communication in support of development.

2.5.1 Communication in support of development

The discipline of communication for development emerged alongside the early paradigms of development thought (Parks *et al.,* 2005:3). Two models of communication feature within the development context.

2.5.1.1 Diffusion model

Consistent with the modernisation theory that assumes that the advancement of traditional ignorant countries of the south rested on them following their technologically advanced and "superior" Western brothers (Davids, 2009:9-11), communication within the diffusion model was typically top-down, one-directional and less participatory (Cooper *et al*., 2010:5). It took place with the intent to "inform" the ignorant masses residing in the underdeveloped world, to "persuade" them to change their backward behaviour and to adopt innovation brought about by Western thinkers (Parks *et al.*, 2005:3; Servaes, 2008:201). Such communication, executed largely through the mass media (Tufte & Mefalopulos, 2009:12), typically flowed in one direction from the sender to the receiver (Cooper *et al.,* 2010:5; Servaes, 2008:201). Communication in the diffusion model was laterally determined by outside agencies such as donor agencies and governments (Parks *et al.*, 2005:3).

2.5.1.2 Participatory model

In the participatory model, communication places people at the centre of development where they play an active role in the process leading to change (Tufte & Mefalopulos, 2009:4). Communication takes place in a dialogic exchange (Cooper *et al*., 2010:5) with the people who are empowered to assume control of their own development (Servaes, 2008:203). At the heart of the participatory approach lies the intention to render a voice and decision-making capacity to the typically marginalised groups such as the poor, women and the disabled (Tufte & Mefalopulos, 2009:3). The participatory model places emphasis on the local community as opposed to the broader nation. It also facilitates power-sharing and democracy (Servaes, 2008:203).

2.5.1.2.1 Defining participatory communication

Singhal (2004:142) defines participatory communication as "a dynamic, interactional, and transformative process of dialogue between people, groups, and institutions that enables people, both individually and collectively, to realise their full potential and be engaged in their own welfare."

The concepts of participation, participatory communication and stakeholder engagement/dialogue as defined in this context, all refer to the same activity. They are just termed differently in the different disciplines that propagate two-way communication processes between organisations and other entities. *Participation* and *participatory communication* appear to be the preferred terms in public administration (Arnstein, 1969; Davids *et al.,* 2005; Involve, 2005) and in participatory development theory (Davids *et al*., 2005). *Stakeholder engagement* more commonly features in strategic management literature (Rossouw *et al*., 2003), including in corporate communication or public relations management theory (Grunig, 1992; Ledingham & Brunig, 2003; Steyn & Puth, 2000). What matters is that the act of communication, essentially message transmission from a sender to a receiver and *vice versa* (Servaes, 2008:20), is the oil that sets the participatory communication machinery in motion, even though **not** all communication is participatory (Singhal, 2004:142). It is therefore important to distinguish between desired and unacceptable levels of participation (or of stakeholder engagement).

2.5.1.2.2 Levels of participation

Arnstein (1969), a sceptic of citizen participation, discusses eight levels of participation visually illustrated on an eight-rung ladder of citizen participation. At the one end of the spectrum, (1) citizenship manipulation plays out in the name of participation, whereas at the other end, (8) citizen power prevails. The middle rungs represent varying degrees of tokenism as explained further below.

(8) Citizen control	**Degrees of citizen power**
(7) Delegated power	
(6) Partnership	
(5) Placation	**Degrees of tokenism**
(4) Consultation	
(3) Informing	
(2) Therapy	**Non-participation**
(1) Manipulation	

Figure 2-2: Eight rungs on a ladder of citizen participation

Arnstein (1969:216) argues that even though participation is widely accepted as a lifeblood of democracy, the concept is not as eagerly embraced when it has to benefit the poor or ethnic minority groups (in her American context) such as blacks, Latinos and first nations of North America. Arnstein also observes that participation is deficient if it does not afford people the power they need to influence the process outcome. She writes: “participation without redistribution of power is an empty and frustrating process for the powerless. It allows the powerholders to claim that all sides were considered, but makes it possible for only some of those sides to benefit. It maintains the status

quo." (Arnstein,1969:216). In her analysis of community development research reports after many years of consultancy work and observations in America's urban renewal, anti-poverty and other programmes (Arnstein,1969:216), she identified the following forms of "participation" in action:

- **Manipulation (1) and Therapy (2)** – bureaucrats invite citizens to meetings under the pretext of involving them in planning or executing programmes. Instead, the officials spend time persuading and educating the citizens towards their way of thinking. The citizens end up rubberstamping decisions evidently already taken prior to the meeting. The people leave feeling powerless and manipulated in this token approach to participation (Arnstein,1969:216). This is an example of mechanistic (symbolic, not genuine) participation (Involve, 2005:18).

- **Informing (3) and Consultation (4)** – During so-called information-sharing sessions, communication is predominantly unidirectional. No provision is made for citizens to ask questions for clarity or to offer their opinion. All too often the information sessions are held very late in the planning stage – too late to incorporate citizens' inputs into the planning that is supposed to benefit them. Opinion-seeking platforms may be surveys, neighbourhood or town hall meetings or public hearings. Officials' exclusive tactics include giving meaningless information to create confusion and discourage questions. Ultimately, citizens' inputs neither influence decision-making nor effect the changes they might have requested in programme planning. "Participation" is demonstrated through attendance lists or completing questionnaires. Over time, citizens realise after participating in one survey after another that the time they have invested in these "consultations" has yielded nothing. The exercise is all a farce. This is a token approach to participation (Arnstein,1969:217;219) and another example of the mechanistic model of participation (Involve, 2005:18).

- **Placation (5)** – Even though written policies make provision for citizens to advise officials, the bureaucrats retain the power to make the final decisions. A common strategy is to elect certain representatives of the poor to boards or some decision-making authority. However, these individuals are not capacitated to articulate their views. If they represent a disorganised constituency that does not hold them accountable; if the poor naturally feel inadequate or if the representatives are outnumbered on the decision-making body, they are easily outsmarted. They might well sit on the boards without understanding their roles, rights and responsibilities. They "participate" without benefit, while others profit from their complacency. They sit on the structures only to legitimise decisions of the bureaucrats. This ends up being glorified order tokenism (Arnstein,1969:217, 220).

- **Partnership (6)** – at this level, citizens negotiate power-sharing right from the inception of the relationship. There is consensus to share decision-making power right from planning, execution and through to programme evaluation. A basic protocol is agreed that governs engagement and power-sharing; both sides compromise for common good and there is no

room for any party to change unilaterally what has been agreed. At this level, manifestations of true participation begin to emerge (Arnstein,1969:217, 221). This is an example of the humanistic model of participation in practice (Involve, 2005:18).

- **Delegated power (7) and citizen control (8)** – because of the negotiated power, citizens occupy majority seats around the table, thus gaining an upper hand in decision-making. They begin to exercise control and enjoy equal, if not more power than the bureaucrats. Citizens enjoy veto power in instances where negotiations result in a deadlock. Citizens gain control over certain jurisdictions. They also enjoy full control of policy and management (Arnstein, 1969:217, 222-223). This is another example of humanistic participation in action (Involve, 2005:18).

The value of the analysis above lies in the participation/engagement levels providing a checks-and-balances system to stakeholder engagement practitioners. They must reference all their engagement intentions, plans and activities against it and, most importantly, watch out for token participation – lest they compromise their stakeholder relationships, lose credibility and render their projects failures even before they get off the ground.

2.5.1.2.3 The 3-point engagement continuum

In another exploration, Bowen *et al*. (2008:12) and Cook (2015:3) discuss stakeholder engagement on a three-point continuum. The quality of interaction between an organisation and its stakeholders determines where engagement in a given context can be plotted along this three-point continuum. At one extreme end lies what is termed transactional engagement; transitional engagement occupies the middle point whereas transformational engagement lies at the opposite other end of the continuum (leadership and governance literature cited in Cook, 2015:10 and in Bowen *et al*., 2008:12).

According to Bowen *et al*. (2008:12) **transactional engagement**, at the far left-end of the continuum, is characterised by a) one-way communication from the organisation to the community; b) limited community interaction; c) one-way knowledge transfer and d) organisational monopoly to the engagement process and outcomes. Transactional engagement is commonly seen in philanthropic interventions of “giving;” driving communication through stakeholder skills training and providing other forms of short-term benefits. It is therefore the least appealing engagement behaviour for people-centred, sustainable development.

Transactional engagement differs from **transitional engagement** in that the latter employs two-way communication, even though it does not generate a sufficiently meaningful exchange with the community for the latter to influence the organisational strategy or agenda. Transitional engagement, termed as such because it signifies an attempt to move away from transactional engagement but still does not qualify as the ideal behaviour, does not assure the community that the organisation

has heeded its inputs (Bowen *et al*., 2008:15). To the extent that transitional engagement retains decision-making and full control of resources in the organisation (Bowen *et al*., 2008:15), it is akin to consulting (AccountAbility *et al*., 2005:97; Arnstein, 1969:219-220; Tufte & Mefalopulos, 2009:6) and is therefore somewhat tokenist in nature (Arnstein 1969:217, 219). This behaviour occupies the middle space in the three-point continuum between transactional engagement (Bowen *et al*., 2008:14-15) and another form of engagement discussed below.

At the far right end of the continuum lies the third engagement behaviour termed **transformational engagement** (Bowen *et al*., 2008:14-15). Organisations display attributes of transformational engagement when they gear engagement to social transformation; when they employ two-way communication with their stakeholders and embark on repeated dialogue to build relationships of trust; when their interaction with stakeholders yields shared learning and when partnering entities also jointly control the engagement process for mutual benefits and outcomes. Transformational engagement encourages a multiplicity of viewpoints and distributed power where organisations are also open to having their own opinions swayed by stakeholder thoughts (Bowen *et al.,* 2008:13-14).

Where engagement is truly transformational, its benefits and outcomes accrue to both the organisation and the stakeholders (Bowen *et al*., 2008:15). This means organisations must strive to achieve transformational engagement as the ideal type of engagement for sustainable outcomes. This is the ultimate that universities must aspire to if they want to reach genuine change-oriented community engagement.

2.5.2 Minimising barriers to participation

During stakeholder engagement, it is important to identify obstacles some stakeholders might encounter that could hinder them from participating fully. Lack of understanding of the issues at hand (AccountAbility *et al*., 2005:88) or language and literacy barriers (AccountAbility *et al*., 2005:88) are examples of such obstacles. It is incumbent upon the engaging organisation to invest in capacitating such stakeholders (AccountAbility *et al.,* 2005:88) and to empower them to participate as equal partners in the project. While empowerment in the stakeholder engagement context means granting decision-making power to stakeholders (Involve, 2005:18; AccountAbility *et al.,* 2005:97); granting them power to express a voice on what must be achieved and how to get there (Tufte & Mefalopulos, 2009:7), there is another meaning of empowerment in psychology that pertains to unlocking self-confidence and self-worth in individuals. Empowerment in that sense is defined as “an intentional, ongoing process centred in the local community, involving mutual respect, critical reflection, caring, and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources” (Cornell Empowerment Group cited in Perkins & Zimmerman, 1995:570; Zimmerman, 2012:43).

Empowerment in the psychological sense is also about unlocking potential in humans to help themselves and one another, as opposed to looking up to an external agency to address their needs.

In a social transformation context, an empowerment approach renders an outside professional a facilitator and collaborator as opposed to an expert. The professional seeks to understand local participants by familiarising him/herself with the local culture(s), outlook and daily struggles. As opposed to speaking on behalf of the locals, the professional works in collaboration with them towards specific outcomes (Zimmerman, 2012:44). At the individual level, empowerment requires learning decision-making skills. At the organisational level it means opening up the organisation to sharing responsibilities and leadership, whereas at the community level it connotes access to resources and governance structures. The outcomes, among many others, are a sense of control, genuine participation, policy influence and shared leadership (Zimmerman, 2012: 47).

Within a community-based participatory research project, community empowerment manifests when community participants begin to take initiative; when they become social action oriented, when they take ownership and control, including control of data and how research results are shared, and also when they share in the research benefits (Macaulay *et al.*, cited in Mikesell *et al*., 2013:9). Davids (2009:21) concurs. Among the numerous characteristics of empowerment, he mentions that empowerment proceeds from "insight (inner awareness of one's human abilities and potential) to action (doing)". Davids (2009:21) equates the concept of empowerment to what Paulo Freire (1970) termed *conscientisation*, a term referring to people becoming critically aware of their "circumstances and social reality. This leads to action because they no longer see themselves as victims, but as active individuals with the ability to change their circumstances" (Davids, 2009:21). The empowerment attributes explained above are therefore the ideal towards which those aspiring to achieve social change anywhere must aspire (Zimmerman, 2012:43).

The next section explores stakeholder engagement theory and application as a standard for ideal stakeholder engagement practice.

2.6 Accepted Standards in Stakeholder Engagement

What are cited as good standards of stakeholder engagement practice below comprise ideas drawn from numerous sets of guidelines, of which five are prominent. In no particular order, the author consulted the AccountAbility (AA1000) Stakeholder Engagement Standard (2015); its accompanying Stakeholder Engagement Handbook (AccountAbility *et al*., 2005); the International Finance Corporation (IFC) Stakeholder Engagement Handbook (2007); Involve (2005); the World Business Council for Sustainable Development (WBCSD) Stakeholder Dialogue publication (*s.a.*) and additional other sources.

All these sources are significant. First, the AA1000 Stakeholder Engagement Standard is a product of AccountAbility, a respected international consulting and standards organisation that promotes responsible business practices (AccountAbility, 2016). Working with organisations in all sectors (governments, business and multi-national organisations), AccountAbility has since 1995 provided corporate responsibility and sustainable development solutions to these entities and also helped

entrench accountability in their practices from numerous (governance, ethical, environmental and social) perspectives (AccountAbility, 2015).

Secondly, in 2005, AccountAbility published a Stakeholder Engagement Manual in collaboration with the United Nations Environment Programme and a private consulting entity based in Canada, namely Stakeholder Research Associates. This manual is the most comprehensive how-to guideline, published after extensive consultation with well-known global advocates for environmental and socially responsible behaviour, such as the International Social and Environmental Accreditation and Labelling Alliance; SustainAbility; the Southern African Institute for Environmental Assessment; Business for Social Responsibility and many more (AccountAbility *et al.,* 2005). Because of the richness of its content, this source is the most cited in the analysis below, followed by the AccountAbility (2015) source mentioned above.

Thirdly, the IFC Handbook, which is based on many years' experience in maintaining relationships with community stakeholders, local government, non-governmental and civil society entities (IFC, 2007:3), was found to offer significant insights. The IFC, as an affiliate of the World Bank, operates throughout the world.

The fourth source consulted was Involve, a British non-profit outfit whose interest lies in public participation for purposes of giving effect to democracy. The guideline is a product of extensive research carried out in the United Kingdom in 2004/2005 among people and diverse organisations involved in people participation with the aim of "strengthening democracy, improving the quality of public services, building stronger communities and tackling complex problems." (Involve, 2005:11). The publication therefore shares very practical insights from a public administration perspective.

Finally, WBCSD's stakeholder dialogue approach, though essentially only a declaration of the organisation's policy standpoint, nonetheless adds a useful other business viewpoint on stakeholder engagement. Even though these guidelines overlap extensively, they each contribute unique points on stakeholder engagement that informed the narrative that follows below.

2.6.1 Stakeholder engagement: an overview

Stakeholder engagement cannot be practised only to be seen to be complying with organisational requirements, or to legitimise decisions already made (Arnstein,1969:216; IFC, 2007:2; Involve, 2005:2). Companies cannot deceive themselves into believing they are "engaging" stakeholders when they address them in a one-way fashion at conferences or events (WBCSD, *s.a.*:5). Genuine practice facilitates a two-way exchange, thus enabling understanding, informed decision-making and trust between those it involves (WBCSD, *s.a.*:5). Ideally, stakeholder engagement must be integrated into strategic business processes and practices (AccountAbility, 2015:11; IFC, 2007:2). Organisations must also accept that stakeholder engagement is by nature a lengthy process that cannot be rushed (Involve, 2005:2). It is most effective when it takes place in "a healthy relationship of mutual respect" and takes people along in such a way that their opinion is valued and shapes

decision-making (Involve, 2005:2). Respecting people in engagement processes also requires respect for their time (Accountatibily *et al*., 2005:66). Stakeholder engagement is proactive and starts early (IFC, 2007:4-6; Involve, 2005:23; WBCSD, *s.a.*:5). It is well thought through (AccountAbility *et al.*, 2005:21: IFC, 2007:16) and takes into consideration all the constituencies that business operations are likely to affect, whether positively or negatively (IFC, 2007:14; Involve, 2005:22-29).

Engaging stakeholders generates benefits for everyone concerned. Business-oriented organisations see strategic stakeholder engagement as a tool for identifying new business ventures, fostering relationships, managing risk and achieving better outcomes (IFC, 2007:1). Companies who practise effective stakeholder engagement reap enhanced stakeholder relations and support; brand reputation; speedy rise from crisis situations; product and service innovation driven by response to consumer feedback (IFC, 2007:94). Through engagement, organisations also get to manage change, share information and demonstrate transparency (WBCSD, 2007:2). Social development-inclined entities appreciate stakeholder engagement for its sustainable social development benefits by giving a voice and extending decision-making to people at the receiving end of development. Engagement also enables the identification and formation of partnerships, thus enabling the pooling of resources to solve social problems far more cost-effectively (AccountAbility *et al.*, 2005:9). In public administration, stakeholder engagement enhances democratic processes and accountability. It enhances social unity and justice, increases efficiency and quality in delivery of public services and brings about capacity development and learning (Involve, 2005:10, 20).

Non-engagement also carries consequences for organisations. Because the primary purpose of engagement is to build relationships, companies failing to engage stakeholders can damage relationships, lose stakeholder trust and even suffer monetary losses (IFC, 2007:21). Communities have risen up against infrastructure developments that were sprung upon them without any prior engagement. In some instances, the projects had to be completely abolished, resulting in significant investment losses (Involve, 2005:15).

2.6.2 Principles of engagement

Stakeholder-oriented organisations adopt principles of engagement as part of their broad framework of stakeholder relations policies. To cite some examples, AccountAbility (2015:6) standards of stakeholder engagement practice are informed by three principles: inclusivity, materiality and responsiveness. Inclusivity refers to deliberate inclusion of those affected by an organisation's operations in decision-making that affects them. This principle also pledges sensitivity to voiceless stakeholders, such as the environment and future generations (AccountAbility *et al.*, 2005:13). Materiality means organisational initiatives respond to an existing problem, the significance of which justifies the attention and course of action taken by the organisation and/or the affected stakeholders (AccountAbility, 2015:11). Responsiveness, on the other hand, refers to the organisation's response (decisions, actions, performance and communication) to the identified problem, which is derived after deliberate discussions with the affected stakeholders (AccountAbility, 2015:11).

Other organisations subscribe to a different array of principles. Some of those are transparency; accessibility to all those relevant to the process; voluntary participation on the part of the stakeholders; accountability to both the stakeholders and the commissioning authority; sufficient resources to start and see the process through; power and ability to achieve the set objectives; ability to make a difference and mutual learning and development (Involve, 2005:19). In their stakeholder dialogue approach, WBCSD (*s.a.*:2) subscribes to respect, acknowledgement, and due response to the stakeholder view. According to the IFC (2007:38), engagement stands to succeed when, among other principles, it is "targeted, early, informed, two-way, meaningful, localised, gender-inclusive, free, documented, reported back on and ongoing."

2.6.3 Good practice boils down to process

Ultimately, well-executed stakeholder engagement is a function of a well-designed process. Often intentions are good, but organisations fail in the execution, for example, in their disregard for critical processes (Involve, 2005:14). Even with some fair amount of planning in place, engagement process without a clear purpose and goal, a clear outlay of performance indicators and competent role players is doomed to fail (Involve, 2005:14). Often organisations provide information but do not allow people time to digest it before pressing them for decisions (IFC, 2007:29). Whereas some of the consulted standards champion a five-stage process entailing strategic thinking, analysing and planning, strengthening capacities, designing stakeholder engagement and acting, reviewing and reporting (AccountAbility *et al*., 2005:17-19), other guidelines talk of a nine-point plan that begins with scoping and ends with process review (Involve, 2005:31-48). The IFC Handbook, on the other hand, advocates integrating stakeholder engagement with the project cycle or life span. This means building a stakeholder engagement process into every phase of the project from conceptualisation, through feasibility studies and planning, construction, operations, through to downsizing and decommissioning (IFC, 2007:111-151). Although the terminology may differ, the basic principles overlap, albeit with contextual differences in places. The section below fuses these into one coherent process.

2.6.3.1 Identifying stakeholders

A fundamental prerequisite to effective stakeholder engagement is to know who the stakeholders are in order to know whom to engage, why they are important, how to engage them, when, under what conditions and to achieve what. That is why any strategic thinking about stakeholders starts with identification.

Broadly speaking, an organisation's stakeholders are identifiable by factors linking them to the organisation (AccountAbility, 2015:17; AccountAbility *et al.,* 2005:24). Stakeholders can be considered relevant either by their level of dependency on the organisation's activities to survive (shareholders or employees) or those on whom the organisation depends to be able to operate or survive (employees, shareholders, and also regulators and suppliers, depending on the type or

organisation) (AccountAbility, 2015:17; AccountAbility *et al.,* 2005:24). There may be groups to whom the organisation has a responsibility (AccountAbility, 2015:17; AccountAbility *et al.,* 2005:24), such as patients with regard to a hospital or a pharmaceutical company, or staff and students in the case of a university. The responsibility may be legal or moral, such as in neighbouring communities in the case of mining companies. Some stakeholders can be a cause of tension (AccountAbility, 2015:17) for an organisation, such as students demanding free education in the #FeesMustFall protests. They can be a group with significant influence (AccountAbility, 2015:17; AccountAbility *et al.,* 2005:24), such as student representative councils, especially during #FeesMustFall, or it could be groups with diverse perspectives (AccountAbility, 2015:17), meaning groups not necessarily attached to the organisation, but whose divergent opinions could shed light on a particular challenge. The mass media are one example of groups offering diverse perspectives. People can also be considered stakeholders by their proximity to an organisation's operations (AccountAbility *et al.,* 2005:24). Examples are communities living close enough to mining operations to be affected positively by employment or business opportunities, or negatively by noise, dust or environmental degradation. Stakeholders can be selected by representation (AccountAbility *et al.,* 2005:24; IFC, 2007:20), meaning they are the legitimate nominees of their own interest groups through whom the company is mandated to engage the affected groups. Stakeholders also qualify as such, out of their sheer interest over an issue (IFC, 2007:15), or because they have legal requirements that they expect the organisation to satisfy (IFC, 2007:13). Whatever links a particular group to the organisation, it is important to always bear in mind that a given group can have sub-groups representing divergent interests or concerns within the same group. All these dynamics have to be understood because they have a bearing on the organisation's engagement strategy (IFC, 2007:13).

Community stakeholders can only be identified in consultation with community members in their locality (Community Places, 2014:4; Involve, 2005:34). It is the only way to identify pockets of the community who are likely to be left out, such as minorities (new immigrants, older citizens, the poorest of the poor and marginalised, socially excluded groups such as the lesbian, gay, bisexual, transgender and intersex (LGBT+) or disabled people). By involving community members in stakeholder identification, an organisation enables itself to confirm the legitimacy of interest groups' representatives. It also gets to uncover existing conflicts and customary or religious practices that might inhibit certain engagement processes, such as combining men and women in engagement sessions, skills/literacy levels, or potential engagement barriers such as language, infrastructure, and literacy/numeracy levels (AccountAbility, 2015:20; Community Places, 2014:5; Involve, 2005:28, 40).

In the case of TUT's research to test home-based water treatment devices, stakeholders would have been the entire community of people at Makwane who rely on water from streams for all their domestic use. An additional stakeholder is the Elias Motsoaledi Municipality, whose responsibility it is to implement integrated development programmes as prescribed in Section 29 (iii) of the Municipal

Systems Act (32 of 2000) (SA 2000:26). The municipality therefore takes an interest in, and must know about water interventions concerning communities in their jurisdiction.

2.6.3.2 Analysing and mapping stakeholders

The key to achieving effective stakeholder engagement is through thorough analysis and mapping of the identified stakeholders (AccountAbility, 2015:19; AccountAbility *et al.,* 2005:25; IFC, 2007:14). Stakeholder mapping is the process of "identifying, analysing and prioritising the people and organisations with a stake in your project features and performances." (CPD, 2014). Whereas analysis is about interrogating and understanding the differential roles that stakeholders are likely to play in the engagement process from influencing (favourably or otherwise) to outright opposition (IFC, 2007, 17-19), mapping is about laying out in visual form the levels of influence that each group may have on the project, issue or organisation. Stakeholder mapping enables the entity to prioritise the stakeholders, recognising that engagement is resources-intensive; that the organisation cannot possibly engage all stakeholders at any given time and that some may be more relevant at certain stages of the process than at others (IFC, 2007:16).

The most important pitfall to avoid is leaving people out of the engagement process, either by design or through negligence. Not only would this undermine the principle of inclusivity; it would also bring into question the legitimacy of the engagement process, cause conflicts and risk derailing the whole process (Involve, 2005:28, 36; AccountAbility *et al.*, 2005:27). Once stakeholders are adequately identified, analysed and profiled, engagement planning can start.

2.6.3.3 Determining purpose and scope of engagement

A critical prerequisite to planning is the determination of the engagement intent. An organisation should understand its primary purpose of engagement, what issue to address, who the engagement role players will be within the organisation and what their roles and responsibilities are. These and the desired engagement outcome should be determined ahead of identifying, profiling and mapping stakeholders relevant to the engagement purpose (AccountAbility, 2015:15-16).

During the scoping exercise, a dialogue between the engagement project manager and the sponsoring organisation's management, as contributors, should take place to secure their will to engage stakeholders to meet the organisation's strategic objective. That dialogue also seeks to obtain consensus on whether engagement is likely to yield the desired outcome; to agree on key messaging to those affected and to allocate appropriate resources (money, time and competent staff) to the engagement process (Involve, 2005:31). It is also important to secure early from the contributing stakeholders, the will to take appropriate action once the engagement process has provided desired answers, for example, consensus on a decision or community needs and expectations (Involve, 2005:33-34). In addition to determining whether the engagement exercise is worth embarking on in the first instance (it is pointless to proceed with engagement if chances for

success are questionable), scoping also runs a risk audit to determine reputational, resources or relational risks (Involve, 2005:31).

While a clearly defined purpose goes a long way in determining the success of engagement, the validity of a purpose becomes enhanced when stakeholders are allowed the latitude to put forward "their own agenda for change" (Involve, 2005:32). Ultimately, while considerable spadework will take place at the organisational level, the organisation, as an engaging entity, must involve the affected stakeholders as early in the process of conceptualisation, as possible (IFC, 2007:4-6; Involve, 2005:23; WBCSD, *s.a.*:5).

2.6.3.4 Planning and preparing for engagement

Planning entails deciding on the most important groups to engage and the representatives of those groups, making sure to distinguish between genuine and illegitimate (for example self-appointed) representatives of various groupings (AccountAbility, 2015:17, 20; Involve, 2005:35). At the planning stage, decisions are made on whether whole groups are required or whether representatives will suffice. The process must not concern itself with the numbers or recycle people who are always in the forefront of community dialogues; but rather with engaging the right people (Involve, 2005:35).

Planning also explores what other organisations are already doing about a particular issue of interest. There could be merit in partnering with those entities – especially if there are common interests over the issue. Furthermore, if there are successes already realised from previous management of the issue, the new organisation affected can piggyback on those successes (AccountAbility *et al.*, 2005:56).

Even more importantly, planning takes into consideration engagement tasks involved, the human, financial, technological and financial resources they require, and also putting a reporting mechanism in place (IFC, 2007:100). From the stakeholder perspective, planning takes identifying their expectations, their understanding of the issue; openness to engage; legitimacy of representatives; engagement capacity and relationships between various stakeholder groups and cultural issues to consider in the engagement (AccountAbility *et al.*, 2005:66). Planning must also factor in flexibility (Community Places, 2014:6). Anticipated timelines may have to be adjusted when stakeholders delay the process for whatever reason. What is important is to gain their trust and keep them interested in the dialogue until the engagement objectives are realised (Community Places, 2014:6).

Finally, planning entails setting performance indicators for quality engagement and also engagement output and outcomes. Outputs, which refer to "the tangible products of a process", may be information materials, meetings or workshops involving different groups and reports. They are enablers towards the generation of desired outcomes (Involve, 2005:37). Outcomes, on the other hand, are the end results of an engagement process, or as aptly stated by Involve, are "the fundamental difference that a process makes, its overall results and impacts." They are distinct expressions of what an engagement process is intended to achieve. Examples of outcomes are:

improved relationships; consensus on a policy framework, project or programme direction; innovation/new ideas; formation of new partnerships; diffusion of conflict; winning support for a new initiative; behaviour change (Involve, 2005:38). Setting these performance indicators should ideally involve stakeholders who are investing time and other resources and have a vested interest to reap meaningful outcomes from the process (AccountAbility, 2015:25-26).

Having decided on engagement outputs and required resources (time, human, financial and technological), engagement owners must assess what it will take to produce those outputs, as well as the capacity building required to equip the key engagement role players. If a need is identified to capacitate either engagement owners or stakeholders, they must follow through on it for effective engagement. Capacity may have to be developed in understanding the issues at hand, understanding the stakeholders involved and the appropriate engagement approaches. Equally, capacity gaps in stakeholders must be addressed to reduce the risk of excluding them. Engagement owners must ensure that stakeholders are sufficiently informed about the issues at stake. If need be, stakeholders must be afforded sufficient time to form opinions so as to engage as equals. Effective engagement requires trust, and trust is earned over time. It may prove worthwhile to invest in capacitating stakeholders to mitigate engagement risks (AccountAbility, 2015:25-26).

2.6.3.5 Determining levels of engagement

Even though stakeholder engagement, by nature, is a two-way process, the type of relationship that the engagement custodian within the organisation aspires to build with a specific stakeholder determines the level of engagement they will pursue with regard to that stakeholder (AccountAbility *et al.*, 2005:61). Limiting interaction to information-sharing without an attempt to build relationships, while not considered to be true engagement, may be sufficient for what the organisation is looking to achieve. Information-sharing may also be the first step as the organisation starts to work on its relationship with a stakeholder (AccountAbility *et al.*, 2005:61). Such engagement may evolve through consultation and collaboration (AccountAbility, 2015:20-21) until it assumes a deep and genuine two-way form (AccountAbility *et al.*, 2005:61), leading to solid relationship building and, ultimately, joint decision-making. In other words, the level of engagement that an organisation assumes with a given stakeholder follows a deliberate thought-through decision informed by the organisation's engagement objective and goals, and the type of relationship it aspires to build with that particular stakeholder (AccountAbility *et al.*, 2005:61).

2.6.3.6 Executing engagement

The organisation is ready to implement engagement once the strategic thinking through is done on whom to engage, where, why, to achieve what, by when, using which methods. There is a wide range of engagement methods at organisations' disposal. They range from one-on-one meetings, small groups workshops and presentations, focus group sessions and go all the way to town-hall type meetings (G3 Business Solutions, 2010:1-10). Each approach presents its own sets of

advantages and shortcomings. All of these should be taken into consideration in relation to its suitability to the stakeholder, the organisation's purpose and goal of engagement, the type of issue involved and the state or nature of the relationship (AccountAbility *et al.*, 2005:99).

Because community stakeholders are the biggest concern in this study, the section below explores a few examples of engagement methods most commonly used in community engagement, especially in a South African setting.

- *One-on-one meetings* typically take place between an organisation's representative and one person from the stakeholder environment. They are often deployed to meet & greet, to explore issues or to "test the water" in the stakeholder environment. The benefits of one-on-one meetings include that they provide a "safe platform" for initial interaction; they allow mutual learning and are suitable for initial consultation (AccountAbility *et al.*, 2005:101).

- *Workshops and presentations* are small group gatherings of one or more stakeholder groups intended to share information on a topic or issue of common interest. The purpose may be to solve a problem or to seek understanding on an issue. It is a suitable relationship-building method between experts and stakeholders. It enables brainstorming on social programme strategies; on analysis of issues or impacts. Advantages of this approach include effective relationship building; it instils ownership in participants; enables in-depth discussion of issues and enables proper management of controversial or emotive topics. This method may lend credibility to decisions (G3 Business Solutions, 2010:2).

- *Focus group discussions,* typically facilitated by an independent party, are suitable for providing in-depth information on stakeholder perceptions on an organisation or particular issue, and, to an extent, can be deployed to identify the developmental needs of a community. Advantages of this method include demonstrating organisational commitment to engagement, its effectiveness in building a network of relationships, obtaining detailed stakeholder feedback and allowing issues to be substantiated (AccountAbility *et al.*, 2005:103; G3 Business Solutions, 2010:3).

- *Small group/committee meetings* are used when an engagement with a representative group (community liaison or executive committee) of a particular group is required. This type of meeting explores issues of particular interest in the constituency represented. Meetings can be held to plan projects or discuss project progress. In a community situation, a liaison committee can be used to share project updates if the committee can be trusted to disseminate the information to the rest of the community. Small group meetings enable discussion of sensitive or controversial issues; they enable building of trust; are suitable for managing conflicts and demonstrate company commitment to engagement (G3 Business Solutions, 2010:3).

- *Surveys* are tools used to elicit views, identify stakeholders or assess needs of large numbers of people through a representative more manageable sample. When well designed and planned they can generate credible data on stakeholder needs, views or perceptions. They are a good method for measuring social and economic impacts and stakeholder relationships. They can be administered in person, telephonically, by post, via e-mail or online and therefore can be undertaken over a large geographical area (AccountAbility *et al.*, 2005:104; G3 Business Solutions, 2010:6).

- *Public or town hall meetings* gather large groups of people, thus allowing for formal dissemination of information to many people concentrated in a common geographic area (AccountAbility *et al.*, 2005:104; G3 Business Solutions, 2010:4). They are more suitable for environmental impact assessments (EIAs) and discussion of non-controversial issues. The value of public meetings lies in them being transparent as community members directly experience and witness the process (IFC, 2007:22). Convenors also have to demonstrate genuine interest in consultation and must enable the community to elect their own representatives to the process. Even if the company subsequently meets with community representatives, community members by then know more or less what to demand. On that basis they can demand accountability from their representatives (IFC, 2007: 22).

  Even more importantly, the company should present from the outset and openly, what aspects of the project design stakeholders may influence, and which are out of bounds. The company must also clarify how feedback will be given to the community on decisions taken, post consultation. Demonstrating the changes made in the project plan as a result of community inputs or grievances is most likely to generate goodwill, trust and solidify the relationship (IFC, 2007:40).

- *Comments, suggestions or feedback sheets/boxes* are provisions made for stakeholders to give written feedback, express their concerns or submit grievances. This is a suitable platform for stakeholders who cannot attend regular forums. It also enables anonymous feedback from people who would so prefer, or who are reluctant to air their views to large audiences (G3 Business Solutions, 2010:6).

Once the organisation has planned engagement and worked out the most mutually suitable methods and platforms, it is ready to engage. Invitations to a stakeholder meeting may also be issued via one or a combination of platforms, namely phone calls, letters, e-mail, social or relevant mass media (AccountAbility, 2015:27). However, in the case of remote community leaders with limited to no access to communication technology and facilities, also with varying literacy levels, personal visits may be the preferred way to deliver an invitation to an engagement event.

All engagement events should pay attention to logistics. The accessibility of the engagement venue, appropriateness to stakeholder needs (such as wheelchairs) must be taken into consideration.

Engagement timing must also respect stakeholder commitments and cultural activities. With regard to rural communities, events need to respect ploughing or harvest time, cultural festivals (such as graduation from initiation schools, or funerals) (AccountAbility *et al.,* 2005:114).

Documenting the proceedings of each engagement action is a fundamental requirement of successful engagement (AccountAbility *et al*., 2005:114; IFC, 2007:40). It is the responsibility of the commissioning organisation and engagement owner to document the date, place, time, the participating (and non-participating) groups as well as the issues discussed on the day. The scribe summarises key concerns, expectations and perceptions raised, key discussions, decisions, recommendations and actions (AccountAbility, 2015:29). Commitments made by the organisation on the day should be recorded (IFC, 2007:40). The value of this record comes when the engagement owner analyses it to facilitate decision-making in the organisation (AccountAbility, 2015:29), on the basis of which the engagement owner compiles a report that the organisation subsequently disseminates among the participating stakeholder groups and more broadly (AccountAbility, 2015: 30).

2.6.3.7 Reviewing, improving and reporting

In compliance with the requirements of AccountAbility standards, the engagement owner evaluates the engagement process, actions and event to identify areas for improvement of future performance. Lessons from this process are shared widely and are used to guide future engagement methods, processes and actions, and are also used to inform future engagement goals. Finally, findings are integrated into sustainability reporting and future strategy and policy documents (AccountAbility, 2015:31).

Even more importantly, reporting back to the consulted stakeholders is a moral obligation on the part of the commissioning organisation. It is a matter of common courtesy to share the outcome of the stakeholder inputs collected and to inform the people what decisions were taken; if any suggestions were rejected which and why. Closing this communication loop not only manages expectations, it keeps the engagement door open on the part of stakeholders, cements trust and mitigates scepticism (IFC, 2007:41).

As a good business practice, AccountAbility's 1000 Stakeholder Engagement Standard requires that companies report publicly on stakeholder engagement. (2015:32). This requirement is recognised and echoed in South Africa in King IV and its predecessors (IDSA, 2016:71). Traditionally, reporting on stakeholder engagement is incorporated into the organisation's annual, financial, integrated, or sustainability report, and also via the organisation's website. Additional or selected reporting may also be pursued through the mass media (AccountAbility, 2015:32). Again, while these reporting methods may suit the more sophisticated stakeholders residing in better organised, infrastructure settings, consideration must be given to the less literate and remote communities, for whom reporting may need to follow the face-to-face approach.

The accepted stakeholder engagement practices as explored in detail in this section create a benchmark against which the TUT could be expected to have performed at all their engagement touchpoints within their community based research partnership. Also taking into account, the fact that TUT was in a partnership relationship with the Makwane community on this research project, it is important to understand engagement principles that must be heeded in developing and maintaining partnerships, which the next section briefly discusses.

2.7 Forming Partnerships Through Stakeholder Engagement

Sánchez and Puig (2014:113) argue that partnerships are the main vehicle for achieving a truly engaged university. They propose five factors that must be taken into consideration in building a partnership and these are: determining the aim of the partnership*;* identifying partners and roles; determining the vision of engagement in this context; pre-determining engagement outcomes and impact as well as reflection and evaluation. These factors dovetail excellently with the good practices of stakeholder engagement processes outlined above. The principles, processes and approaches of stakeholder engagement explored in the previous section provide a blueprint for what actions must be followed in unlocking people-centred development, a preferred approach to implementing reconstruction and development in South Africa – and therefore the best approach for community engagement programmes.

The collective of these widely-accepted practices provide guidelines for what broad dimensions should be looked at in reviewing the TUT engagement with the Elias Motsoaledi Municipality and the Makwane community. So, what are the implications of all these guidelines and standards for the current research?

2.8 Conclusion: Stakeholder Engagement Is Transdisciplinary

In the context of the TUT intervention at Makwane, which is recognised as a community engagement project, stakeholder engagement finds traction within the people-centred paradigm of development theory. However, stakeholder engagement also has a home in other disciplines' theoretical frameworks, including in communication for social development theory and also corporate communication theory.

Whereas the people-centred paradigm of development emphasises a focus on people (Coetzee, 2001:121; Davids, 2009:18), communication for social development theory champions participatory two-way communication (Cooper *et al.*, 2010:5; Parks *et al.*, 2005: 3; Tufte & Mefalopulos, 2009:7) to unlock meaningful people's (citizen) participation. The dialogic approach to communication is echoed in the preferred two-way symmetrical communication model of corporate communication management (Grunig & White, 1992:39), which is more suitable for building and maintaining stakeholder relationships, creating mutual understanding and for managing conflict.

The confluence of these three theories on stakeholder engagement demonstrates the need for a transdisciplinary approach to community engagement, if universities are to achieve a stakeholder-centric outlook to projects. The transdisciplinary approach means that where a natural science department falls short on community/social development skills, a humanities-inclined development department will step in and make up for that shortfall. Even better, the input of a communication management department in the planning and execution of community engagement programmes will ensure that the university follows due processes from a relational point of view. The transdisciplinary approach ensures that all perspectives are considered for good overall practice, enhanced outcomes and finally, solid reputations for universities executing projects with non-academic entities including communities.

CHAPTER 3: DATA COLLECTION AND FINDINGS

3.1 Introduction

This chapter sets out to answer the third of four research objectives tabled for this study in Chapter 1. This research objective sought to determine the practices of stakeholder engagement within the TUT community-based study and to identify engagement gaps and consequences on the research process itself, knowledge-sharing; community empowerment and social transformation of the Makwane community. This chapter therefore provides answers to a) how stakeholder engagement was used to facilitate the community-based TUT research project at Makwane; b) engagement gaps identified in the stakeholder engagement exercise, and c) the implications of these gaps for the research process, knowledge sharing with, and empowerment of the Makwane community.

Keeping in mind that the TUT research team declined to participate in this study, the key stakeholder groups accessible for data collection in this regard were:

- Relevant officials within the Elias Motsoaledi Municipality under whose jurisdiction the village of Makwane is located;
- Makwane community leaders who facilitated the TUT's entry to their village; and
- Members of the Makwane community who participated in the TUT research.

3.2 A recap on the TUT-Makwane Study Background

As explained in Section 1.2 of Chapter 1, after testing the social acceptability of two TUT-invented home-based water treatment systems in 50 households of the Makwane community, Professor Momba's water research group recommended that the two devices be implemented as a pilot project, still at Makwane, before they could be distributed elsewhere in South Africa (Momba *et al*., 2013a:xvii). Two post-graduate students from the TUT carried out the pilot project as part of the requirements of doctoral and Master's degrees, respectively.

First, it is important to explain briefly how the two students went about the pilot project as it sets the stage for the stakeholder engagement enquiry at hand. From July to August 2014 (ahead of deployment of the two water filters in the Makwane community in 2015), the Master's student administered a questionnaire-based survey in the Makwane community (Budeli, 2016:73). The aim was primarily to familiarise himself with the people of Makwane, their traditions and language before implementing the development intervention (Budeli, 2016:73). Secondarily, the questionnaire gathered information on Makwane's water sources, existing sanitation facilities, household hygiene practices and their impact on community health. Furthermore, the questionnaire also sought to determine the incidence of water-borne diseases including diarrhoea within the Makwane community

(Budeli, 2016:74). This phase found that over 70% or three-quarters of the community relied on river/stream water; 6,8% harvested rainwater during rainy seasons, while over 45% used spring water as an alternative while also using stream/river water (Budeli, 2016:77). The majority of households were not treating their water and 41% had no access to improved sanitation facilities (Budeli, 2016:80). A larger part (61,5%) of the households with access to pit toilets did not allow children under the age of 12 to use these facilities for fear that the children could drown in the toilets (Budeli, 2016:80). Consequently, those without access to toilets and the children under the age of 12 relieved themselves out in the open (Budeli, 2016:81). Regarding health problems, the 2014 survey also revealed that the most common disease troubling the Makwane community was diarrhoea, and that most cases were reported in children below the age of five (Budeli, 2016:83).

In the second phase of the study, which took place during 2015 and coincided with the TUT deploying the water treatment devices to the Makwane community, both students were involved in the field study. Every fortnight from March to June 2015, the Master's student collected water samples from the main water source at Makwane, with the aim of assessing the microbial quality of untreated drinking water and its quality after treatment in the two filters referred to earlier (Budeli, 2016:vi). The final leg of the TUT research, which involved the doctoral candidate, took place from April to September 2015, the aim being to assess the reduction of diarrhoeal diseases at Makwane, particularly after the deployment of the BSZ-SICG and SIPP filters in the community (Moropeng *et al.,* 2018: 1). After six months, findings from this phase indicated a 96,2% decrease in the incidence of diarrhoea in the community, thus demonstrating very firmly the value of home-based water treatment devices in providing safe drinking water to needy rural areas (Moropeng *et al,* 2018: 1).

The 2014/15 TUT study therefore provides the context within which stakeholders were engaged, hence this review. The next section introduces the stakeholder landscape around the TUT-Makwane project ahead of explaining the study context.

3.3 Stakeholders on the Ground

Taking into consideration the claims made in the TUT reports to the effect that permission to proceed with their study was granted by the municipal manager, municipal councillor and the local municipal committee (Budeli, 2016:74; Moropeng, *et al*., 2018:4), investigations within the Elias Motsoaledi Municipality to verify this with the purpose of identifying appropriate respondents, yielded no results. The sitting municipal manager incumbent, Ms Maena Maredi, did not recall engaging with Prof Momba or any of the TUT team on the Makwane research project. On closer inspection it turns out that Ms Maredi only took up the position in December 2014 (Maredi, 2019) after phase one of the TUT study (from July-August 2014) had already been completed.

Although this could mean that the TUT team engaged her predecessor, the current municipal manager insisted that water provision is not a competency of her local municipality and that any discussion over water would have been carried out with the Greater Sekhukhune District Municipality

(Maredi, 2018). On the insistence of the researcher to investigate this matter further, the municipal manager referred the researcher to other officials, namely Mr Tshepo Mthombeni, the current Environmental Officer or Ms Olaotswe Kegopotsemang, the current Director: Community Services. However, these officials only joined the municipality much later than the periods specified and therefore had no insight into this project. Neither the Manager: Inter-governmental Relations (Mr Jimmy Mathebe) nor the former Director: Community Services (Mr Elias K Tshesane) who has since left the municipality, had ever met with the TUT researchers. During subsequent inquiries, it emerged that the Elias Motsoaledi Municipal Manager incumbent in 2014 is now occupying a similar position in Mpumalanga's Nkangala District Municipality (Maredi, 2019). In the end, the participation of the Elias Motsoaledi Municipality in this study could only be examined through a gentleman who was once a Ward 30 Councillor from 2011 to 2016 and whose ward included Makwane (Malekane, 2018). Even he had very little information, and, as a result, the interview with him was very brief. During data collection, three interviewees, including the former ward councillor, mentioned that the water treatment systems introduced at Makwane were first presented to the Elias Motsoaledi Municipality's satellite office in Roossenekal in the presence of the Makwane community representatives. However, one community leader said the persons involved at that time had since left (Magakwe, 2018), while the former Ward 30 councillor struggled to remember the names (Malekane, 2018) of those who were involved. In hindsight, the researcher wishes she had visited the satellite office in Roossenekal, if only to verify that indeed no one there qualified to participate in this study. Since no attempt was made to track the former municipal manager in her new post in Mpumalanga, this study predominantly represents the Makwane community perspective, punctuated with additional inputs as explained below.

The interview with the former Ward 30 councillor revealed the involvement of Mapochs Iron and Steel mine, a mining operation neighbouring the village of Makwane, in the TUT project. It was liquidated in 2016. The former Ward 30 councillor told the researcher that he and others had approached the mine authorities to assist the Makwane community with purifying stream water to make it safe for drinking. Apparently, as part of their social labour plan, Mapochs mine management agreed to get involved (Malekane, 2018). A telephonic interview was subsequently secured with a former community liaison officer (CLO) of Mapochs Mine and the individual confirmed the former councillor's account (Nkosi, 2018).

In at least one of the TUT's published works on the Makwane research project, one clergyman, Pastor Cletus Damba, is credited for facilitating the TUT's entry to the Elias Motsoaledi Municipality and the Makwane community itself (Momba *et al*., 2013a:131). An online search led the researcher to his Facebook account which helped track him down. In a brief recorded telephonic discussion, he shed some light, even though he refused to answer follow-up questions thereafter. Even though Pastor Damba was not extensively involved with the TUT researchers, he did witness TUT's engagement with the municipal satellite office in Roossenekal ahead of deploying the water treatment devices in 2015 (Damba, 2018). At least one community leader also verified that the

clergyman was present at a community meeting during which the TUT researchers facilitated the selection of community members for training in Pretoria on manufacturing the water treatment devices. His input, for what it was worth, is included in the write-up.

From the Makwane community perspective, contrary to the claims made previously by the doctoral student to the effect that each of the four sections of the village of Makwane has a dedicated leader (Moropeng, 2016), the researcher was able to ascertain that only two community leaders facilitated the TUT's engagement with the community. Both of these leaders confirmed this fact (Magakwe, 2018; Monate, 2018) and interviews in the category of community leaders were limited to these individuals.

Ultimately, data were collected from the two proven community leaders who were in the thick of the TUT's engagement with the community throughout the 2014/15 study; the former Ward 30 councillor; the former CLO of Mapochs Iron and Steel mine; Pastor Cletus Damba as an independent informant and, finally, the Makwane community members themselves.

3.4 The Study Context

The researcher left Pretoria on the morning of Tuesday, 2 October, 2018 with a plan to complete this study in three days, ending on Thursday, 4 October. The plan to start with leadership interviews on Day 1 changed when challenges arose within the Elias Motsoaledi Municipality as explained earlier. The researcher therefore decided to dedicate Day 1 to interviewing the community leadership and to start the identification and recruitment of focus group participants on the same day.

Whereas the researcher had anticipated carrying out two focus group sessions on Day 2 and completing the third on the last day, circumstances on the ground dictated otherwise. First, weather forecasts were anticipating rainfall on Thursday, 4 October. Locals have always discouraged visiting the village on rainy days, especially when one has to drive through and penetrate the various sections. Once the roads change from dusty to muddy, they become impassable. It was not advisable to be in that vicinity on a rainy day. Secondly, Thursday, 4 October coincided with a social grants payday at Roossenekal. All social grants recipients were destined to be away on that day and transport complexities in this remote rural village are such that one could not estimate for how long the people would be away.

It was therefore in the interest of the researcher to complete all the village-based data collection during the course of Wednesday. The uncertain weather conditions and the costs of staying an additional day made stretching the fieldwork to Friday risky. To add more complexity to the situation, a villager had died at Lepurung, one of the three sections earmarked for a focus group discussion. In this tight-knit community, every adult spoken to planned to attend the funeral during the early hours of Wednesday. Any planned focus group session could not start earlier than 10:00. That was the time that everyone anticipated they would have exhausted their support functions to the bereaved

family. Only thereafter could they carry on with their lives. While the prospect of conducting all three anticipated focus group sessions in one day was far from ideal, it became the only option.

By 12:00 noon on Wednesday, 3 October, a strong wind had started to blow, raising dust and making for less than ideal recording conditions at Ditakaneng and Lepurung. Notwithstanding that the Makwane community is close-knit and rallies together around feasts, funerals and other cultural activities, community members preferred to hold meetings in open common spaces, as opposed to assembling in someone's yard, let alone inside a neighbour's home (Masha, 2018). This means all the group discussions were subject to outside noises, but wind noise particularly became a problem with the second and third sessions. It occasionally drowned some participants' voices, rendering parts of the digital recordings totally inaudible. In some cases, the interviewer's paraphrasing of the drowned response becomes the only saviour of what could have been completely lost content excerpts.

3.4.1 Some background on Makwane

The village of Makwane is situated about eight kilometres to the north of Roossenekal, a small mining town south-east of the Limpopo province. The village, comprising 88 households and a population of 480 at the time of the 2014/15 study, is divided into four sections, namely Nkakaboleng, New Stands (also called Nkandla), Ditakaneng and Lepururu (Moropeng *et al.*, 2018:4).

Makwane is one of the 17 villages allocated to Ward 30 of the Elias Motsoaledi Municipality, whose seat is in Groblersdal, a town at the southern-most tip of the Limpopo province. Elias Motsoaledi is one of four local municipalities belonging to the Greater Sekhukhune District Municipality (Wikipedia, 2018). According to Section 29 (iii) of the Municipal Systems Act (32 of 2000), development planning concerning any place within the jurisdiction of a local municipality must take place in consultation with that municipality and be included in the integrated development plan (SA, 2000:26). Therefore, the municipality had to be consulted on the planned water treatment research in the Makwane community (Nkosi, 2018) and also had to be kept in the loop about all developments taking place within the context of this project.

3.4.2 Field logistics

In order to contain costs, this study was limited to three of the four sections of the Makwane village. The researcher excluded Nkakaboleng because of its (reportedly) sparsely scattered households (Magakwe, 2018) and the potential difficulty it presented with recruiting participants for focus group discussions. Due to the obscured location of Nkakaboleng, the researcher never even reached that part of Makwane. Work therefore proceeded in the order described below.

3.4.2.1 Day 1: Interviews with Makwane community leaders

At the first community leader's homestead in the Ditakaneng Section, the researcher stumbled upon a local teacher who happened to be a blood sister of the leader. As the researcher explained the objectives of this study and all conditions for participating, the teacher took a keen interest and offered to organise a focus group of villagers in her section. She knew the people who had participated in the TUT study well and offered to assemble no more than 12 of them for a session at 12:00 the following day. The researcher went on to interview the community leader, at the end of which she drove back to New Stands for another interview with the second leader. When the second interview was completed, the researcher, accompanied by a local volunteer who knew the individuals who had participated in the TUT study, walked from homestead to homestead to recruit people for another focus group session. The researcher managed to capture the interest of 10 women. They consented to meet at an agreed homestead at 10:00 the following day.

3.4.2.2 Day 2: Three focus group sessions

The first session, at New Stands, started a few minutes before 11:00 with only six of the recruited 10 participants. Ditakaneng followed shortly after 12:00 with 10 participants. At Lepurung, just over two kilometres away, the researcher started at a specific homestead as advised by a resident of New Stands. The lady of the house agreed to participate and pointed the researcher to the next home, where the researcher was assigned two children to take her to other homes as she recruited for the last group. By 15:00, the researcher had secured a sufficient number of participants. On arrival at the agreed meeting spot, no fewer than 13 women had assembled there. It appeared that some had taken the liberty to invite more people as they walked through the village. The researcher turned no one away. However, only eight of the women completed the remaining consent forms. The older women suggested that the younger ones sign up as some among them were illiterate. The session started shortly after 15:20 and ended by 16:00.

All meetings started with a detailed briefing of the participants on the study objectives. The researcher explained what she intended to do with the findings and checked that everyone gathered did want to participate. The researcher explained the need to complete the consent forms (see **Appendix Five)** in Sepedi in duplicate. She administered forms, and only once these had been signed did the actual session begin.

3.4.2.3 Day 3: Interview with the former Ward 30 councillor

This interview took place at Kutollo, 36 km north of Makwane. It lasted only 20 minutes, after which the researcher proceeded to Groblersdal, the seat of the Elias Motsoaledi Municipality (on her return journey to Pretoria). As things turned out, after being sent from one official to another, the researcher left Groblersdal with further referrals. She did not secure a single interview.

Overall, the focus group discussions and semi-structured interviews lasted an average of 30 minutes. Discussions with the Mapochs Mine CLO and the independent engagement facilitator (the clergyman) took place telephonically in the second week of October.

3.5 Methodology of Analysis

3.5.1 Analytical Approach

Data collected in this study was subjected to a thematic analysis, a technique described as the most common in qualitative research (Braun & Clarke, 2006:77; Bryman, 2012:578; UON, 2018:1). Thematic analysis is "a method for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006:79). It seeks to identify main ideas or most recurring patterns in the data, commonly referred to as "themes" (UON, 2018:1), even though the recurrence of ideas does not on its own always qualify them as themes, but rather, their relevance to the research questions (Braun & Clarke, 2006:82; Bryman, 2012:580). Themes provide a foundation for meaning in data, from which important theoretical deductions are made in support of relevant literature, or in providing answers to the research questions (Braun & Clarke, 2006: 82; Bryman, 2012:580). Stated differently, themes are the nerve-centres of qualitative data. This is where data interpretation takes place and where answers lie about the phenomenon under investigation (Boyatzis 1998, cited *in* Braun & Clarke, 2006:88).

In analysing data, qualitative researchers can choose the inductive (bottom-up) thematic approach or opt for the deductive top-down thematic analysis (Braun & Clarke, 2006:83; UON, 2018:1). In the inductive approach, the analyst draws themes directly from the data, hence the bottom-up reference, whereas in the deductive option, the researcher analyses the data against pre-determined themes drawn out of an existing theoretical framework (Braun & Clarke, 2006:83; UON, 2018:1). The semi-structured questions posed to respondents in this study were rooted in the theoretical framework defined from the literature review. Although the researcher allowed themes to emerge organically from the collected data, the data were still read through the lens of the research questions, thus demonstrating that data are never studied in a knowledge vacuum (Braun & Clarke, 2006:84). The researcher, mindful of keeping pre-knowledge and her own biases in check, remained open, nonetheless, to different perspectives in the data (Erlingsson & Brysiewicz, 2017:97). It could be argued, therefore, that the extent to which the research questions provided the key to data analysis (Ngulube, 2015:5), and the extent to which the researcher allowed the data free reign in generating themes, both inductive and deductive approaches were at play here. This, according to Taylor-Powell and Renner (2003:3), is permissible. Besides, at some point further down the road, the researcher will revert to the theoretical framework to identify gaps in the TUT stakeholder engagement practices evident in the themes, thus invoking the deductive approach yet again.

In reporting the findings of this study, the researcher goes beyond just echoing the themes and regurgitating the data extracts. The researcher also took into consideration a) the evident patterns,

b) aspects of what was left unsaid; and c) the nuances observed in body language, when creating meaning. When an analyst goes beyond semantic content of data and interrogates the underlying assumptions shaping that content, the process is called latent themes analysis. The flipside of this, or when a researcher limits their analysis to what the data stated explicitly, is termed semantic themes analysis (Braun & Clarke, 2006: 84). According to Braun and Clarke (2006:84) when meaning is constructed by assessing respondents' accounts of their social experience against their sociocultural context and structural conditions, the analysis is steeped in the constructionist paradigm. Constructionism, as defined in Bryman (2012:33) is "an ontological position that asserts that social phenomena and their meanings are continually being accomplished by social actors. It implies that social phenomena and categories are not only produced through social interaction but that they are in a constant state of revision." The implication is that the findings of this study depict a combination of the respondents' expressed social reality and a representation of this reality through the researcher's eyes and interpretation.

3.5.2 Steps followed in processing the data

In accordance with a set convention in qualitative research, all collected data were digitally recorded and therefore, the next logical step was to transcribe the data to make it accessible for analysis (Burnard, 1991:461; Erlingsson & Brysiewicz, 2017:94; UON, 2018:1). To enable secondary analysis by at least one other researcher (an academic and part-time post-graduate supervisor at the University of Johannesburg (UJ), who is a senior manager at USAf) as is widely recommended for analysis validity (Burnard, 1991:463; Erlingsson & Brysiewicz, 2017:99; Taylor-Powell & Renner, 2003:9), during the transcription process, the researcher simultaneously translated into English, the data that were generated entirely in Sepedi. Once Stage 1 of transcription was completed, the researcher listened again to the recordings and went through the first set of transcripts, with the purpose of refining the translation and checking that all nuances of the discussions, including hesitation, emotion, punctuation and silence were captured in the transcripts. This listening and re-listening enabled the researcher to familiarise herself more with the data (Erlingsson & Brysiewicz, 2017:94), as a result of which she made observations missed during data collection and made additional notes (Taylor-Powell & Renner, 2003:2).

In preparation for the first stage of analysis, the researcher refined the semi-structured questions; numbered them and allocated a distinct colour to each one of them. The use of colour to differentiate between data elements was an idea obtained from Burnard (1991:463). The researcher adapted the colour-coding convention in accordance with her needs. Initially there was a list of ten questions. However, two more questions were identified from the rich data, and this grew the list to 12 questions as illustrated in the colour key below. Note that the labels per question are simply shorthand for the semi-structured questions posed in the study that are listed in **Appendix 1**. While the labels could be mistaken for pre-codes or even pre-determined themes, the researcher treated them as mere

guidelines for organising the data into a manageable structure. All themes used in interpreting the findings were identified straight out of the collected data.

Question 1	Engagement objectives and goals
Question 2	Engagement frequency and content
Question 3	Typical engagers
Question 4	Engagement methods
Question 5	Engagement challenges/problems
Question 6	Community expectations
Question 7	Realisation of TUT objective
Question 8	Difference or significant change
Question 9	TUT learning from community
Question 10	Desired behaviour on part of TUT
Question 11	Lifestyle change
Question 12	Closing feedback

Figure 3-3: Colour key

The idea of commencing the analysis by focusing on the questions was one of Taylor-Powell and Renner's (2003:2) suggestions. They write: "Identify a few key questions that you want your analysis to answer. Write these down. These will help you decide how to begin. These questions may change as you work with the data, but will help you get started." The researcher re-created copies of all the transcripts so that she could work from them, keeping one master copy of each intact for future reference. This was to ensure no loss of context as the data got fragmented for analysis (Burnard, 1991:463; Taylor-Powell & Renner, 2003:8). She then worked through all transcripts to identify responses to each of the 12 questions. On the transcript, Question 1 on the TUT's stated research objectives and goals at Makwane was numbered Q1 and highlighted in the colour corresponding with Question 1 on the colour key. The entire discussion on the transcript relevant to this question was shaded in the same colour, and thus the researcher continued until data were exhausted on all eight transcripts generated from the fieldwork, in accordance with the questions. As the researcher followed Taylor-Powell and Renner's suggestion, she was also exercising the flexibility allowed in thematic analysis (Braun & Clarke, 2006:76, 88, 96) to do what she thought would work for her, as long as she remained systematic (Burnard, 1991:465). Flexibility is allowed as long as the researcher explains his or her methodological choices and reasons in the write-up (Braun & Clarke, 2006:86; Taylor-Powell & Renner, 2003:9) and maintains consistency in the application of those choices (Braun & Clarke, 2006:83). According to Taylor-Powell and Renner (2003:9), exercising transparency on the methodology of analysis enables another person to understand the analyst's decisions and how these led to the interpretations.

Once all the data was colour-coded as explained above, the researcher went on to develop a table of three columns depicting data extracts, codes, categories and themes. While this technique was borrowed and adapted from Erlingsson and Brysiewicz (2017:94-97), the process actually combined step-by-step guidance for novice thematic analysts obtained from numerous other sources (Braun & Clarke, 2006: 86-96; Burnard, 1991:462-465; Taylor-Powell & Renner, 2003:2-5). While some scholars seem to prefer starting the dedicated analysis process by drawing the bigger picture (themes) from their data before delving into the coding process (Burnard, 1991:462), others start at the very micro level by coding and categorising ideas and working their way towards finding key themes in the data (Erlingsson & Brysiewicz, 2017:94-97). The researcher followed the latter approach. Most importantly, qualitative researchers are advised to listen for patterns of meaning during the data collection process, which means analysis begins with the very first interview (Braun & Clarke, 2006:86) and solidifies during the dedicated analysis process of the transcripts. Either way, qualitative analysts enjoy some freedom to choose between analytic options (Braun & Clarke, 2006:97) to find the best fit for their situation.

In accordance with the Erlingsson and Brysiewicz's (2017:94-97) approach, the researcher dedicated a table with three columns (collapsing the theme and categories column into one column) to each of the 12 questions (see **Appendix 2**). She then combed through each transcript to identify data extracts responding to each question and copied and pasted them into the corresponding column. As guided in Taylor-Powell and Renner (2003:8), each chunk of data extract was labelled with an identifier showing the transcript origin of the piece (L1_Q1 for leader one, question one or FG1_Q1 for focus group one, question one). Once this step was completed for Question 1, before further analysis could be carried out, the researcher shared this sheet with the secondary analyst for further processing of the Q1 data in accordance with the latter's understanding. This explains the similarities to Column 1 of Appendix 2 (the researcher and primary analyst's coding sheet for Q1) and Appendix 3 (the secondary analyst's coding sheet). As the next step, the researcher condensed each extract into a meaning unit and placed it next to the corresponding extract in the same column (Erlingsson & Brysiewicz, 2017:96). The researcher next allocated labels to these meaning units and placed them in the Codes column. Then she listed the categories drawn from the codes in Column 3, and, above these, she displayed the themes she identified. The researcher repeated this exercise for all the transcripts and all 12 questions, completing all the information fields accordingly.

This lengthy process demonstrates what Erlingsson and Brysiewicz (2017:95) capture aptly where they state:

> "Content analysis, as in all qualitative analysis, is a reflective process. There is no "step1, 2, 3, done!" linear progression in the analysis. This means that identifying and condensing meaning units, coding and categorising are not one-time events. It is a continuous process of coding and categorising then returning to the raw data to reflect on our initial analysis. Are you still satisfied with the length of meaning

> units? Do the condensed meaning units and codes still "fit" with each other? Do the codes still fit into this particular category? Typically, a fair amount of adjusting is needed after the first analysis endeavour."

This statement proved even truer when the academic who did secondary analysis on the researcher's Question 1 submitted her independent take of analysis of this specific question. In comparing her own coding sheet with the secondary analyst's, the researcher found that the latter's methodology was a lot more detailed and looked far more laborious than hers. However, the two analyses did agree on themes and the researcher proceeded with interpretation and writing up. Examples of the researcher and the secondary analyst's work done on Question 1 as an attempt to demonstrate rigor in the researcher's methodology (Erlingsson & Brysiewicz, 2017:99) and validity of analysis (Burnard, 1991:463-464) are appended as **Appendix 2** and **Appendix 3,** respectively.

Once the themes were identified per question, the researcher highlighted each theme, per question, in a particular colour (the colour scheme chosen per question is unique to that question and is totally unrelated to the equivalent in other questions). She next allocated the same colour to the codes and categories supporting that theme. Next, she created a separate matrix below the initial table, this time depicting the emerging theme(s), their sub-categories and supporting quotes (retrieved from the data extracts). It was from this final matrix that the researcher was able to draw meanings (see the second matrix in **Appendix 2**).

It is necessary to mention that a fair amount of unusable data (dross) that did little to answer the research questions (Burnard, 1991:464; Erlingsson & Brysiewicz, 2017:97) was also identified in the raw data. However, a significant amount was found to provide a rich understanding of the social and environmental context (Erlingsson & Brysiewicz, 2017:97) of Makwane. To some extent this data are included in the analysis to deepen the reader's understanding of the social reality (Erlingsson & Brysiewicz, 2017:97) of the Makwane community.

As a final step towards consolidating all the emerging themes into one separate sheet, the researcher went through all the transcripts once again to assess whether the themes had completely and accurately represented the respondents' views to identify outliers worth reporting on, and to check whether anything else would emerge. This process enabled her to refine the themes further. Those belonging more or less together were combined, resulting in five key themes to report on. Consolidating and re-organising the themes was an idea discovered in Frith and Gleeson's (2004:48) study report, which was mentioned in Braune and Clarke (2006:93-94) as a good example of presenting a thematically analysed study. This made the information a lot more manageable than when seen through the 12 coding sheets. Equipped with this bigger picture, the researcher was ready to report her findings.

3.6 Study Findings

This section reports the study findings based on the five clusters of key identified themes, supporting them with carefully selected verbatim respondent quotes. These clusters are: a) the TUT's stated objectives and goals; b) Stakeholder engagement practices (engagement players; frequency and content, methods and level as well as challenges); c) Community expectations: met or unmet? d) Significant community gains; and e) Other changes (expressed or implied): lifestyle change and knowledge exchange (see **Appendix 4** for the consolidated themes).

By referring to relevant theory and sharing insights drawn from observations on the ground, the researcher interprets the findings, states the gaps identified in stakeholder engagement and stops just short of making conclusions and recommendations per finding. The latter are left for the concluding chapter – Chapter 4. This section is structured to present firstly, the study findings before proceeding to a full discussion, interpretation and insights after all the themes are exhausted.

3.6.1 Clarity of the TUT study objectives and goals

From what the researcher could deduce from community members' responses, the intentions of the TUT research team were clearly and openly stated to the Makwane community and, to the extent that this could be established, the Elias Motsoaledi Municipality**.** The most common responses to the questions: "*What objectives and goals were the TUT researchers looking to achieve at Makwane? What did the research team tell you during the first meeting or during your initial encounter with them*?" were that the TUT came to Makwane to purify highly contaminated stream water and to render it drinkable for humans; to test the state of treated and untreated water and to teach the community how to treat their own water. To illustrate this point, some word-for-word data extracts are shared below, starting first with community leaders' responses.

"*They said that the water that we drink has bacteria and is not fit for drinking*," **Leader 1** stated. "*They wanted to introduce appropriate technology to address this problem*…. *Because they had brought these buckets, they added that they were here to check whether people were happy to use them...They also taught us to construct the devices, equipping us with the skill to manufacture them for the market in future. They also guided us on how to care for the devices through cleaning them, etc*." – **Leader 1**.

"*They told us they were here to research on the water to make it safe to drink,"* stated **Leader 2.** This leader also added that the TUT investigators had said they were looking *"to find ways to use the water problem to create employment solutions for our community … They were saying, if these devices could generate self-employment for anyone, we should be the first group to be trained to manufacture them for ourselves, and to supply others with a similar need."* He went on to state that the TUT researchers had told them they were at Makwane *"…to investigate what was best for the community, on the basis of which they would approach funders and municipalities to say 'please*

assist this particular community. They have no clean water. They share drinking water with animals; or they drink contaminated water.'" – **Leader 2***.*

From the subsequent focus group discussions, the researcher received the following responses to the objectives and goals question:

"*They said they wanted to treat our drinking water so we would drink it in a clean state*," said one of the respondents from **Focus Group 1**. "*They even took some of the stream water with them for purposes of testing whether it was fit for drinking*." Still from this group, the response continued: "*After about a week of their initial visit they returned with the verdict that the water that we were drinking was not fit for human consumption and that to make the water drinkable, we needed to treat it. That's when they mentioned the treatment devices and offered to help us purify our water. They went on to teach us to filter the stream water using the devices they provided*."

"*They gathered us to tell us they were here to teach us about water*," was one input from **Focus Group 2**. "… *to teach us how to purify our water so that we drink clean water*…. *Then they offloaded the water treatment devices and allocated them to us, telling us that they wanted to end the incidence of "tenge"* [stomach illnesses] *among us*." Yet another response from the same group was "*They told us they had been here before and tested water from our river and found it highly contaminated. That is how they had come up with the idea of these home based water treatment devices*. … *They wanted the clean water to achieve wellbeing in us."*

"*They said they wanted to help us purify our drinking water… because they had discovered that we were drinking contaminated water,"* were some of the responses offered from **Focus Group 3**. *"They explained that once we took to drinking clean water, all water-borne ailments that might have afflicted us in the past would go away."*

There is ample overlap in the responses of the leaders and community members. Responses are quoted generously to illustrate the clear pattern that emerged in this regard. The TUT objectives and goals question elicited similar responses from three other interviewees. The first was the former CLO of Mapochs Iron and Steel mine, who told the researcher that "*the TUT team came and told us they had a way of purifying that water and render it drinkable by the community. Their aim was to kill whatever insects… to purify the water before people could drink….In the long run they wanted to educate these community members to purify their own water themselves*."

A similar account was heard from the clergyman who worked in Makwane as a community development facilitator from Umsizi Sustainable Social Solutions (hereafter called Umsizi), an organisation that installed tunnels for vegetable production at Makwane and also guided community members in water harvesting. Mapochs Mine, as part of their local economic development contribution, had deployed Umsizi at Makwane. This is what the clergyman said of the TUT

professor: "*Maggie said to me 'yes, we want to come and clean water, the health side of water with the Makwana* [sic]."

Even the former Ward 30 councillor's response echoes the same sentiment. Having attended only two of TUT's engagement sessions, the former Councillor said of TUT's self-introduction to the Makwane community: "*They stated at the initial meeting that they wanted to address the water problem at Makwane by introducing a purifying system… so that people could treat their own drinking water…They just explained how the devices functioned. The community welcomed the idea and expressed a desire for a lot of them to be trained in the use of the home based water treatment systems. One of the reasons that they* [the community] *agreed is that they wished for every household to be equipped to treat their own water. Those were some of the things that were agreed upon*." The Ward 30 councillor said he had not witnessed any other engagement with the community and could only contribute this much to the inquiry.

3.6.1.1 Researcher's impression

The researcher finds it interesting that apart from the two community leaders, no other respondent associated the TUT's project in the village with "research." Out of what transpired during early engagement it seems that the community members perceive the TUT team as "service" providers. In other words, the community saw the TUT team as a) solution-finders to the Makwane water problem; b) deliverers of the means to purify contaminated water; c) trainers in the use of water treatment devices; and d) potential catalysts for an income generation opportunity that could be created by the water problem. The researcher also finds it peculiar that only the community leaders showed a more holistic understanding of this as a research project, and that the benefits accruing to the community were outcomes of a research project. From a best practice point of view, this reveals a flaw in the TUT engagement of the community stakeholders. The researchers did not give the whole story and, in a way, under-represented their intentions. This went against what engagement commissioning entities are required to do in terms of transparency and full disclosure of project intentions in the target communities (AccountAbility, 2015:5; IFC,2007: 22; Involve, 2005:19). Further analysis in this regard is offered under Discussion in Section 3.7.

For now, the researcher proceeds to examine the TUT researchers' engagement practices as experienced and perceived by the community members.

3.6.2 Stakeholder engagement practices

3.6.2.1 Engagement role players

The first question posed on engagement role players said: *"Who typically held conversations with you or interacted with you, and over how long a period?"* According to the respondents, the key engagement role players on the part of the TUT were the head of the research team and two other individuals. The responses only vary in detail as we see in some of the verbatim accounts shared

below [additions in square brackets represent the researcher's interpretation for clarity where necessary]. Again, the researcher commences with responses from the community leaders.

"*It was Shoki* [the doctoral student]; *Phumudzo* [the Master's student] *and Cordolia* [new name previously unheard of]," **Leader 1** explained. "*Apparently they* [sic]; [Cordolia] *were* [sic] *from the Finance division of TUT*. *The others were from the Department of Environmental Science."* "*I remember Professor Momba among that team, accompanied by two students whose names now escape me."* **Leader 2** said*. "Yes the research team spent a year here."*

During the interview with Leader 2, who happened to be one of ten community members selected for training in Pretoria on the manufacturing of the water treatment devices, the researcher asked him in one follow-up question to share what transpired at the training. He responded as follows. *"At the training Prof Momba delegated the training to two of her students who showed us, 'this is how you make this, how you build that, and this is how you use this, and this is what you should not do'".* **Leader 2** continued*, "The training lasted five days. We left here on a Sunday and came back the following Friday."*

Like with Leader 2, remembering the names of the key engagement role players became a bit of a mission for the community members. *"No there were three of them coming together,"* was the first response from **Focus Group 1.** "*They seemed to take turns."* "*There were three people from the onset,"* the second response goes*. "But during their repeat visits we saw another plump lady."* - **Focus Group 1.**

"There was also a petite young man in the team."- **Focus Group 1.** *"Three people frequented this community,"* was the last response on this question from **Focus Group 1**. *"I cannot remember how long they said they needed to achieve their objective."*

"There was Shoki," a respondent from **Focus Group 2** said*. "I remember her. She was accompanied by a man..."* "*There was a mature lady among them, a younger lady called Sokwe* [sic]*,"* one response was offered from **Focus Group 3***: "…and the third was Makuwa. There were three of them."*

3.6.2.1.1 Researcher's impressions

The researcher found it strange that community members could not remember the names of the TUT research team they had welcomed into their homes on a weekly basis (Moropeng *et al*., 2018:5) for a prolonged period during 2014/15. The basic purpose of stakeholder engagement is to build relationships through dialogue in a way that facilitates mutual understanding. Remembering the names of engagement partners should be a natural outcome of a quality relationship, especially where engagement is supposed to have occurred over a period of close to a year. The researcher therefore doubts that a quality relationship had developed between the TUT researchers and the community members participating in their project. Nonetheless, moving on, the researcher examined

the frequency of engagement from the community's perspective and the nature of content shared at contact.

3.6.2.2 Engagement frequency and key content

The next question was "*How often did the TUT research team talk to you as community members? What transpired during these encounters*?" Responses turned out to be quite dubious, especially with regard to the frequency of visits.

"*I do not remember how often they came in a month*" **Leader 1** said. "*I remember that they were here at the end of the month and at some other point*. *They also rotated through sections so it is difficult to keep track of how frequently they came*." "*They also administered certain questionnaires during their visits*" – **Leader 1**. "*Yes they took samples of it* [water] *back with them for testing in the laboratory…Even though they never brought their lab equipment here, they were able to show that this test yielded this finding and that test, that finding, which is how they were able to demonstrate that water from our streams was not fit for drinking*."

"*I cannot say for certain how frequently they were coming"* **Leader 2***. "I could say they were visiting two times in a month to check on these devices, in each household."*

"Suffice it to say that they came to monitor usage of these devices per household and to collect samples of the filtered water" **Leader 2***. "On arrival at our homes they inquired about our experiences with the filtered water, asking questions such as 'how is the filtered water handling you? What is your experience of it?'"*

Community members also only dimly recalled the frequency of visits by the TUT researchers. However, on the content of their discussions they offered clearer responses that generated a pattern across all the focus groups.

"*They came once a month*," was one response offered in **Focus Group 1**. "*They checked whether in using the devices we were following instructions." "They came twice in a month,"* said the second response from **Focus Group 2***. "Then they came back frequently to check on the water coming out at the bottom of these devices." "They checked whether we were following their instructions on using the treatment devices. They also checked whether we were handling the devices and caring for them as we should. …Oh, there were no mistakes."* -- **Focus Group 2.** *"They visited numerous times,"* – **Focus Group 3***. "They would come, let some time lapse and come again." "They would skip one week after one visit and come again in the next one."* -- **Focus Group 3.** *"Their main concern was to ascertain that we were using the devices. They asked questions like 'have you been filtering the water?' They also checked that we were using and handling the containers as initially instructed."* -- **Focus Group 3.**

3.6.2.2.1 Researcher's impression

Even though understanding the frequency of engagement was necessary for the researcher, the community members' unclear recollection of the frequency of what transpired in this regard may not impact the findings materially. Regarding the content of engagement, the participants' responses clearly show that the biggest concern of the TUT researchers was that the community members' handling of the devices should be correct and that it should help their research process along.

3.6.2.3 Engagement methods and level

Still within the scope of engagement, another question asked was "*What methods did they use to reach you – from first contact until they had achieved their goal*?" Answers to these questions follow below. That there are no responses from **Leader 1** and **Focus Group 3** in this respect, suggests that this question was not posed in these two instances.

"*Our first contact with the TUT team was facilitated by Umsizi* [Sustainable Social Solutions]*, a company that partnered Mapochs Mine on vegetable production in tunnels, and water harvesting. Pastor* [Cletus] *Damba,* [Umsizi's Implementation Facilitator], *mentioned that TUT wanted to get involved in the water department*," said **Leader 2**. "*He facilitated the first meeting with TUT at the Elias Motsoaledi Municipal satellite offices in Roossenekal. I took John Monate along and thereafter, TUT was able to mobilise the community through us."* – **Leader 2.** "*They* [TUT] *called us on our mobile phones to organise meetings."* – **Leader 2.**

Community members also added their bit on the methods used by the TUT researchers to reach them. "*They used to call and notify us that they would be here on such and such a date… They called one person who would then pass the word around*." – **Focus Group 1.** "*We never knew. They never said when they would be coming."* --**Focus Group 2.** "*At the beginning, they would mention, let's say they were here on a Tuesday. They would say "we will be here again next Saturday." But as time went on they stopped alerting us to their next visits. They just showed up*." – **Focus Group 2.** "*Sometimes they alerted John by phone*." -- **Focus Group 2**. "*Yes. But often they just arrived unexpected*." -- **Focus Group 2**.

Regarding engagement frequency and content, not much could be obtained from the Umsizi facilitator, the former Ward 30 councillor and the former Mapochs mine CLO. They could not provide much information beyond the statement of the TUT's project objective. The former Ward councillor said he had witnessed the TUT researchers at engagement only twice. The first instance was at the Elias Motsoaledi Municipality's satellite office at Roossenekal, and the second was when the TUT researchers brought the idea to the community (Malekane, 2018). The Umsizi facilitator (that is the clergyman) had been privy to three counts of TUT's engagement: at the municipal satellite offices in Roossenekal, when the TUT team made their first demonstration to the community at Makwane, and finally the day the ten trainees were to be nominated for training (Damba, 2018). The content of what

was discussed at all these encounters has already been discussed under sub-section 6.1, under Clarity of the TUT project objective.

From Mapochs Mine, the former CLO admitted that she had had little contact with the research team as all engagement between her company and the TUT professor was driven by and from Highveld Steel, their smelter company that was located in Witbank. She had only witnessed TUT's engagement with the community the day they introduced their technology in the Makwane village. "Thereafter I dealt directly with the people on the ground. On that basis I reported developments to the municipality within the context of our social and labour plan" (Nkosi, 2018).

The TUT's published works on the Makwane project show that even though the institution recommended a year-long pilot project back in 2009, on the ground, the pilot project was split into three phases that were rolled out during distinct and separate periods. The first phase took place from July to August 2014 through an administered questionnaire-based survey in which the Master's student took the lead (Budeli, 2016:73). The Budeli report does not specify the frequency of visits to the village during the administration of the survey questionnaire. The second phase, also led by the Master's student, entailed fortnightly collection of water samples between March and June 2015 (Budeli, 2016:105). The final leg of the TUT pilot, during which the water treatment devices were distributed in the village for observation, took place from April to September 2015 (Moropeng *et al*., 2018:1). During this phase, both the Master's student and the Doctoral candidate visited the participating households on a weekly basis for their fieldwork (Moropeng *et al*., 2018:5).

3.6.2.3.1 Researcher's deduction

Evidently, engagement with community members was primarily face-to-face, either through group gatherings (of which there were not many) or during the weekly or fortnightly household visits. This is generally a good practice (AccountAbility *et al.*, 2005:101). Face-to-face communication, when handled well, gives each role player an opportunity to ask questions for clarity. Face-to-face interaction is also excellently suited for a semiliterate community, where people can all hear information directly from the sender in their own language. This is one instance of excellent practice on the part of the TUT researchers. Although showing up in the village without prior warning may be perceived as disrespect to the participants, there is a possibility that the researchers needed to see whether the latter kept to the drill (of filtering the water) even when no-one was watching. Without the TUT researchers' participation, one could only speculate on this aspect.

Although each of the TUT's published works (Budeli 2016; Moropeng *et al*., 2018) documents a shorter duration (two, four and six months, respectively) of each study phase in the TUT project, the community members can be forgiven for believing that the project was year-long when one considers July 2014 to September 2015. Even though there were breaks between the questionnaire administration in 2014 and the subsequent phases of the TUT enquiry in 2015, to the receiving community (which was not documenting the events and had no reason to do so) this might have

been experienced as a continuing full-year interaction. The researcher is of the opinion that the dates and frequency information are immaterial given the time lapse from 2014/15. The researcher also doubts that the uncertainty in some of these details affects the community's recollection of their relational experience.

What the researcher deduces from all the accounts above is that even though the TUT researchers seemed open in their engagement with the community, the content they shared was highly measured. First, the researchers did not explicitly present this as a research project. Instead, they told the community they were here to solve the problem of contaminated water. They also did not explain the different study phases and what they aimed to achieve. It appears as though the researchers concluded that because they were dealing with a semi-literate community, they needed to disclose only enough to get the people using the water treatment devices so that the researchers could make the necessary observations. On the one hand, not disclosing full information could be seen to have been unethical. On another, what the TUT researchers told the community only served to raise community expectations, which the TUT researchers did not go on to manage through communication. By failing to invest more time in explaining fully what they were about, the TUT researchers also failed to educate and enable understanding among the community members of research, its role and what this specific project meant for water-starved communities like them in South Africa. This is discussed further in subsections 3.7.2 and 3.9.3.

Before proceeding to the next theme it is important to briefly examine engagement challenges during the TUT-Makwane relationship.

3.6.2.4 Engagement challenges

The question posed to respondents in this regard was*: "Did you ever experience any difficulties at any stage of the process of TUT researchers talking to you as a community?"* In this instance we examine community members' opinions before juxtaposing them against those of their leaders.

"*We never experienced any challenges*," was the first response from **Focus Group 1**. *"We don't know whether they picked up challenges in engaging us. But we, on our side, never experienced any problems*" – **Focus Group 1**. *"Yes everything went well except that they did not fulfil that one promise of training all of us in manufacturing these systems,*" the second response said from **Focus Group 1**. *"Not once* [did we experience challenges]. *They were always happy and friendly."* -- **Focus Group 2**. *"At our homesteads they addressed us pleasantly and with respect."* -- **Focus Group 2.** "*We cannot fault their interaction with us at all."* -- **Focus Group 2**. *"They were always happy and always departed in that state*." -- **Focus Group 2.** "*No there were no challenges*," – a group of them responded together during the **Focus Group 2** discussion**.** *"Everything went smoothly, without any glitches whatsoever,*" was the final response from **Focus Group 2** in this regard**.**

Contrary to the predominantly positive predisposition evident in the statements above, not all community participants remained receptive to the TUT researchers throughout their field observations. The leaders' responses shed some new light below.

"No. There were no challenges," was the initial response from **Leader 1**. "…*except that there were instances where some of the participants got impatient and were not that welcoming of the researchers…There were times when, as the researchers were arriving to do their normal observations, household members were only just pouring in raw water into the buckets.*" – **Leader 1**. "*Some were losing it* [interest] *yes*. *Occasionally you would find participants who seemed uninterested. They were not committed to filling up the devices and therefore did not want to engage the team, coming up with excuses like 'there was no water.' I can nonetheless say that the majority, up to 80% were genuinely interested.*" – **Leader 1**.

"The one challenge that I remember picking up was that our people were becoming irritated by the researchers." **Leader 2** confirms the views shared by his counterpart. "*The people's eyes were set on obtaining clean water* [that is, bulk water supply] *and somehow, they seemed to expect TUT to resolve their water problem. When they did not see this materialising, some got impatient and did not bother to be there for the research team during their regular visits.* "*Notwithstanding that* [that they knew the team was coming], *Yes. Some would actually lock their doors and leave when they saw the researchers doing their rounds. When they did not see TUT delivering piped water they lost interest in them and slackened off on their previous cooperation with the researchers*. *I even suspect that the waning interest in some community members negatively affected some of their* [researchers'] *investigations. That must have affected the accuracy of their findings in certain cases*." -- **Leader 2**. "*That is one challenge that I observed. But I would be lying to say I detected a problem on the part of the researchers*." -- **Leader 2**.

3.6.2.4.1 Researcher's impression

At face value, one might not interpret the data extracts above as "engagement" challenges *per se*. However, the researcher sees these reported behaviours as a form of protest by the community participants to the research team due to some kind of discontent. To understand this, we have to look at the perceptions that the TUT research team created in their messages from the outset, the impressions these made and the (unmanaged) expectations these generated in the community members. The researcher discusses this further in subsection 3.7.2.

3.6.2.5 No closing feedback

A final and very important question on engagement sought to find out whether the TUT researchers ever shared closing feedback with the Makwane community about what they had found in their investigation in the months spent in the village and what the way forward would be. The responses to this question were as follows:

"*No they never explained to us*." – **Focus Group 1**. "Did they not explain what the next steps were going to be after that investigation?" the researcher asked. "*They just stopped coming to the village*," two individuals commented together. "*That's how we noticed that they had completed their project*." – **Focus Group 1**. "Did they ever mention any longer term plan, beyond this period of treating the water with you?" was the next question from the researcher. "*No, there was no such mention*." – **Focus Group 2**. "*In fact even when they were done we realised when they were no more coming that they had actually completed their mission*." – **Focus Group 2**. "Was there feedback to the community about what they had found in the months that they had spent here? "*No there was none. In fact we noticed when they stopped coming that the project had wound up*." – **Focus Group 3**. **"***They told us nothing*." – **Focus Group 3**. "How did you know when they were done?" the researcher posed the question to the participants in the third focus group. *"We realised when they stopped their visits*," a few respond together in **Focus Group 3**. "*I personally once inquired with John Makuwa* [sic.] [it should be John Monate the community leader], *long after the team had departed, informing him of the reduced sand in my filter. I was seeking to understand whether the team intended coming back for anything. But I never got a clear answer from him*."

3.6.2.5.1 Researcher's impressions

The above account of how the TUT team concluded their presence in the Makwane village raises questions about ethical conduct in research in general, but even more importantly, community-based research. Long before the fieldwork concerning this study got underway, the researcher sent a written inquiry to the TUT, seeking to establish whether the university had any policy or protocol document guiding researchers on stakeholder engagement within TUT-led research projects. A designated official to whom the researcher was referred responded in the negative (Mphidi, 2018). The only policy that the TUT had in place, a copy of which the official shared with the researcher, regulated the costing of contract research projects commissioned to the TUT by outside entities (Mphidi, 2018). This matter is re-visited briefly in subsections 3.7.2 and in 3.9.6 before a recommendation is made of it in Chapter 4.

3.6.3 Significant community gains attributed to the TUT encounter

Two distinct questions pertaining to outcomes were posed to the respondents. The information below pertains to the first question: "*Did the encounter with the TUT researchers bring about any change in your lives at all? If yes, what was that*?" The responses, summarised into one sentence, said the community gained eye-opening information. They also developed new habits that led to improved health in those who drank the treated water. In the respondents' own words:

"*After being trained on how to purify water, people started drinking clean water. The incidence of diarrhoea came down*." – **Leader 1**. "*People learnt of alternative methods of purifying drinking water, such as adding bleach to it or boiling it… I would say that was all new information for us.*" *"They also showed us how birds and domestic animals also contaminate water sources with germs while*

drinking from open sources. I learnt that even rainwater gets contaminated to an extent because it washes off bacteria contained in and deposited with birds' droppings. That bacteria ends up in the water that we harvest from our roofs for domestic purposes…" – **Leader 2.** *"So from our contact with the TUT team we learnt that it is paramount to treat stream water before drinking it…Equipped with this knowledge, and with the consumption of cleaner water, our people began to change and look like those living in cities."* – **Leader 2***.*

"*I learnt that river water is not good for human consumption, and that even if I do not treat it using the devices allocated, I need to at least boil it before I drink it*." --**Focus Group 1**. *"Previously, our children, as well as adults, experienced frequent episodes of diarrhoea. Now there is a difference. Things are better*." **Focus Group 1.** *"They also enlightened us on something we had never known before, that the water we had relied on for years was badly contaminated."* – **Focus Group 2**. "*Water filtered in the devices tastes starkly different from the river water. It is clean and much more pleasant to drink. The device also has a cooling effect on the water*." – **Focus Group 2**. *"Our stomach ailments stopped because we were drinking clean water*." **Focus Group 2** "*We certainly saw a great difference when we started drinking clean, tasty water. We were satisfied and felt fulfilled*." – **Focus Group 3**.

3.6.3.1 Researcher's impression

It was most heartening to listen to the accounts above, of community members testifying about a change for the better based on the contribution of the TUT researchers. It was equally disappointing to learn later in the discussions that this positive change did not last long.

3.6.4 TUT objectives: achieved, or not?

The second outcomes-based question was "*Do you think the objectives and goals set by TUT were achieved?*" The responses to this second question did not retain the enthusiasm with which the respondents shared the information above.

"*To an extent yes*." **Leader 1** responded. "*They struggled with some of the participants who disappointed them. Not everyone who got the devices used them. You do know, don't you, that while some people adopt an innovation others will not? At the end of that research they did indicate that the devices were proven effective, especially when cared for in ways that they had taught us*." This individual did little to hide his disappointment, though. "*According to what they told us, they were supposed to initiate an on-going project with us. That they did not achieve*."

"Even though they never returned to debrief us on their findings, I believe they did achieve what they set out to achieve in the first place," **Leader 2** said. "*I cannot imagine that they could spend a whole year here and not achieve what they set out to achieve through their research. Even though they did not feedback to us*."

"*Water coming out of the treatment devices was clean and therefore, TUT achieved its objective,"* is the answer received from **Focus Group 1**. No other answer was added to this one. "*Yes the objective was realised because our water improved"* – **Focus Group 2**. "*When that water came out at the bottom it was clean and much cooler than it was initially… We liked and embraced the treatment devices. But we do not have them anymore. They got damaged."* – is all that could be gleaned from **Focus Group 3** in this context.

Further responses below somewhat explain the waned enthusiasm above. "*We did see some difference but we ran out of water at Makwane. When we did there was nothing to pour into the devices and we stopped* [treating our water]." – **Focus Group 1.** *"We live well, free of any stomach ailments. Though that is now coming back because we are back to consuming not so clean water*." -- **Focus Group 2**. *"We were satisfied and felt fulfilled. But we have regressed in every way and have become sickly again*." -- **Focus Group 3**.

To the extent that the water treatment devices were proven efficacious in ridding stream water of diarrhoeal disease-causing microbes, it could be concluded that the TUT researchers achieved their research objectives. This inference is validated by the published results of the TUT study (Moropeng *et al*., 2018:1), which read:

> "*The findings of the current study unequivocally demonstrated that the BSZ-SICG and SIPP filters were able to reduce the incidence of diarrhoea by 96.2%. These findings further demonstrate the importance of household water treatment systems (HWTS) interventions in rural areas to bring about meaningful reductions in diarrhoeal diseases by providing safe potable water*."

However, as accounts of community members indicate, these benefits were short-lived. The former CLO of Mapochs Mine, while acknowledging that the TUT did not quite achieve its objective, was quick to accept the blame for how things turned out at Makwane.

"*The problem became the equipment that was used to purify that water. Somewhere somehow Mapochs Mine failed to buy the equipment for individuals. Each and every individual around that area was supposed to secure that equipment to purify their own water because TUT would not be able to travel from Pretoria daily to do that. They were meant to equip the people to continue beyond their time*. *Our company failed because somehow somewhere it became liquidated because of financial management or whatever… I don't know. They were no more profiting from their operation here and therefore decided to close shop. So we failed there."*

3.6.4.1 Researcher's impressions

Had the TUT fully disclosed the nature of their project, explained their budget limitations and also explained that they were looking for a third party to step in where the institution fell short, the community members' expectations would have been managed. The disappointment evident now

would probably have been prevented. It is important to note that if Mapochs Mine ever committed to securing the devices for each household, this was not mentioned by a single respondent in the community. With the mining company liquidated in 2016 (Nkosi, 2018), its staff long scattered and without the participation of the TUT researchers, there was no way of verifying this perspective. However, the researcher does know from her discussions with Prof Momba in 2017 that the latter intended to request state funding through the Department of Science and Technology to implement the social action component that would have made good on the promises to the community. The two community leaders interviewed were privy to this fact. However, it seems that the TUT research team shared a lot more with the leaders than with the community members themselves. In order to manage expectations, Prof Momba should have also mentioned this to the community. She should also have explained to them that it could take years for this intervention to materialise, if at all. The researcher's observations made in this regard will yield a recommendation in the concluding Chapter 4.

3.6.5 Other changes

3.6.5.1 Lifestyle or behavioural change

At least one community leader was asked: "*Have community members now retained the new behaviours adopted with the new knowledge obtained from the TUT researchers*?" *"I do not necessarily check on people so I would not know."* **Leader 1** said*. "Many* [devices] *have since been damaged and are no more in use. One of them had layers of sand built into it* [the BSF filter]*. Over time, the sand gets eroded and requires replenishing….So the devices do not function optimally anymore…Even the SIPP* [the one with a built-in clay pot] *reaches the end of life at some point. The research team had indicated a one to two year life span. The last we heard of them was when they had taken samples of water to test whether the devices were still performing optimally after one year"* – **Leader 1.**

It appears that this question was omitted in the interview with the second community leader, albeit erroneously, and not by choice on the part of the interviewer. Turning to community members, verbatim accounts of the conversations appear below. When asked whether they still filtered their water today, members of the first focus group went silent. Of the six participants in the group, four raised their hands when asked how many still depended on stream water for drinking.

"*My device has since broken and I have nothing to filter with*," was one response in **Focus Group 1.** "So do you all boil your water now before drinking it," the researcher asked. There was reluctance to respond*.* "You do know now, don't you, that even if you have no means to filter the water you can at least boil it?" the researcher asked again. *"Or add bleach to it,"* another interjected. -- **Focus Group 1.** "Did they teach you how much bleach to add to how much water?" the researcher prodded, to more silence. "To what extent have your lives changed since you adopted the habit of boiling river

water before drinking it?" Still, the researcher's questions were met with silence. At this point the researcher gave up and changed the topic.

The question of whether the community had adopted the new habit of treating water as a lifestyle appears to have elicited discomfort among the first focus group's participants because they chose to not answer it. Responses did come forth, nonetheless, from the second and third focus groups. *"But now we have a major problem. The river has dried up and there is no water in the village* [they murmur inaudibly among themselves]. *To those of us who still have those purifying containers, they are of no use because there is no water to treat now. There is no water here."* – response one, **Focus Group 2***. "The river has run dry. There is no more water to draw from it. Now we are forced to walk up the mountain in search of water from a spring in the woods higher up," said* response two, **Focus Group 2***. "The devices are now damaged,"* was the third response from **Focus Group 2**. *"We no more filter our water."*

At this point the researcher followed up with this question: "Had they not taught you additional methods of treating contaminated water to render it drinkable? If yes, is it not time then to invoke those other methods now that the devices are shattered?" the researcher asked. "*No*," said one response [from a hesitant group, together]. – **Focus Group 2.** "Nothing, nothing at all?" the researcher went on to probe. "I seem to remember others telling me that…" At this point one of the participants interrupted. "*They also advised us to boil the water and to cool it before drinking it, or to add bleach to it*," respondent two said from **Focus Group 2**. "Does that ring a bell in others? How come the teacher among you is the only one who remembers this fact? Ladies, don't you remember the TUT people advising you to boil your water as an alternative to filtering it through their devices?" ***"****Yes they did teach us that*." -- **Focus Group 2.** "But now you've forgotten," replied the researcher. "*We forgot about those other methods*," the others answered together in **Focus Group 2**.

"But do you now realise the importance of remembering that information, especially now that the devices are no more usable?" the researcher went on to ask. "Especially now that you're admitting that the old-time stomach ailments are back? Do you not see the value of following the advice from the TUT team to boil your water?" *"But there is actually nothing to even boil*," the first response was, still in **Focus Group 2**. "*Only thick mud remains in the river. Water has dried up. So even if we wanted to boil it there is really nothing to boil*." *"Some of us rely on bought water now,*" said a group together. "*But in the absence of jobs there is not even money to buy so we go without and go thirsty*. [someone interjects] *We go to bed on empty stomachs. The fact is that few of us have a steady income and affordability is another matter. This therefore means there is no water to keep our families clean. Those who cannot buy climb this mountain to draw water from a well deep in the woods*" – **Focus Group 2**. *"No. We do not have the devices anymore so we drink the water raw like we used to before*." – **Focus Group 3**. *"No we do not* [filter water]," a few say in unison in **Focus Group 3.** "*It's been a year now*," was the response from **Focus Group 3** to the question: "Since when have you regressed to this situation?"

There were some exceptions to the rule, though. "*I personally still filter my water,"* one lady said in **Focus Group 3***. "I still have the BSZ sand filter pot*." "*She is the only one that still filters*," a group echoed. [Another lady raises her hand to signal that she also still treats her water]. -- **Focus Group 3***. "Mine is not the clay pot. I was given a BSZ filter with layers of sand in it*," the first respondent alluded to above, explains. "*The problem with it is that as time goes by, the sand layers wear away. In the time that the researchers were here, they used to replenish the sand when it wore off. But now I use the filter in its present state. …The purifying power must be significantly diminished*."

As the researcher was sifting through this data, one response (essentially an outlier) stood out from **Focus Group 1,** even though the researcher had not made much of it during the discussion in the village. This respondent had just said even though they saw positive difference from treating their drinking water, they stopped when the river dried up and there was no more water to draw from it. "But what then were you drinking? How did you cook for your families when there was no water?" the researcher asked. "We resorted to boiling the water," was the next response. "Water from where, when your only source had dried up?" the researcher followed up. "We got discouraged because one of the devices [the BSF bucket with sand layers] took up to three days to yield a reasonable amount of drinking water. I got tired of waiting for three days to get that minimal amount and resorted to boiling my water. But even the boiling had its own challenges. The boiled water took too long to cool and be available for drinking." Although this came across as blatant self-contradiction, this was a friendly discussion and not an interrogation. The researcher therefore gave up at this point and moved on. Weeks later, as the researcher was reading through the TUT's published works (Momba *et al*., 2013a), it became clear that this individual must have participated in the initial (one-week) social acceptability evaluation of 2012. In initial observations, the water researchers had observed that the water flow rate in the filtering devices was affected by the state of the raw water in terms of turbidity (greyness) and the concentration levels of chlorophyll in it (Momba, *et al.*, 2013a:vii). From the observations made in 2012, modifications were made to the BSF-Z to improve its pathogen removal properties and to improve its water flow rate. By 2014, the flow rate of 19,2 litres per hour in the previous BSF-Z was improved in the resultant BSZ-SICZ to 38,6 litres per hour (Moropeng *et al*., 2018:3). In other words, the respondent was referring to her experience of water conditions of 2012, not 2015. In other words, that respondent had been wrongfully recruited into this focus group.

3.6.5.1.1 Researcher's deduction

From the conversations shared above, one gathers that the water purifying benefit to the Makwane community lasted either as long as the treatment devices retained their pollutant removal properties or as long as water flowed in the local stream. However, the bouts of silence in the discussion leave one wondering about the extent to which the respondents were fully open about the issues on which they made inputs. That the devices had a limited lifespan was confirmed by the doctoral candidate in the research team (Moropeng, 2018), who said the SIPP had an average lifespan of 12 months, twice that of the BSZ-SICG. However, by replenishing the silver granules built into the clay pot within

the SIPP and mixed into the sand layers of the BSZ-SICG, the pollutant removal power can be restored in both devices (Moropeng, 2018).

3.6.5.2 Knowledge exchange

When the researcher asked the respondents whether the TUT research team had learnt anything from them as members of the Makwane community, the question seemed to puzzle them at first. However, responses that came forth thereafter boiled down to "I do not know." One leader said "*I really have no idea. They never shared anything to that effect*." The next leader said "*I do not remember them mentioning learning anything from us.*" One lady from the first focus group was a little more optimistic: "*They must have learnt something from us. If not they would have returned to learn something*." Yet another (from the second focus group) emphatically stated that "*They learnt that our children will forever suffer from water-borne ailments because of the water that they are forced by circumstances to ingest*." The final response, from the third focus group, summed the community response: "*We do not have an answer to that question because if they learned anything from us they never told us about it. We therefore do not know*."

3.6.5.2.1 Researcher impressions

Chances are that if the TUT research team had invested in a meaningful and lasting relationship with the Makwane community they could have picked up on distinct, indigenous knowledge in the community. Whether the TUT researchers were open to learning, and whether they learned anything at all from this community, we may never know. However, it is widely acknowledged that community-based participatory research unlocks knowledge and action to generate sustainable social change (Collins et al., 2018:884; Mikesell *et al*., 2013:9). It also facilitates mutually beneficial knowledge exchange between the researcher and the researched (Bawa, 2014:156-159; Freire, 1970:63). Even the most illiterate, marginalised or oppressed people have interacted with the world around them and learned a thing or two from it (Freire, 1970:63). It is that type of knowledge that the people of Makwane could have imparted to the TUT researchers.

3.6.6 Community expectations: met or unmet?

When asked what their expectations of the TUT research team were, community members were once again puzzled. They almost asked, "What do you mean by expectations?" Invariably, their response to this question was that they did not expect much from the research team until the team offered things to them.

3.6.6.1 Create employment

Leader 1 said "*Yes, I most definitely looked forward to them helping reduce unemployment in the project that they said they were looking to initiate here…. They mentioned that they would look for*

financial assistance to get the project off the ground, to enable us to manufacture these devices for our own village and other communities in the province with similar problems to ours."

3.6.6.2 Apply this technology to much bigger reservoirs

Leader 2 said he wished TUT "*could magnify this solution and apply it to bigger volumes of water collected in Jojo tanks or bigger reservoirs so that much more water could be treated for the whole community*." He, for one, said he had categorically requested this much of the researchers, explaining that even though their devices were proving themselves efficacious, "*they were too small to satisfy needs of a whole family. Look, out of those few litres we gathered per day we drank, washed dishes and did very little else*."

3.6.6.3 Dig us a borehole

One of the women in **Focus Group 2** said she personally wished [but never expressed it] "*that they could dig us a borehole and also test its underground water, to see how it compared with the water we draw from the river*."

By and large, it is pointless to discuss whether the community expectations were met, or otherwise, if none of the members expressed them to the TUT research team. The exception is the leader who, when asking for the water to be treated in bigger reservoirs, was told to wait until the research had yielded results on the basis of which the researchers would seek funding to explore doing more. Even more interestingly, the community expectations of the TUT team became much more explicit when provided as responses to the indirect question: "What could TUT have done better?"

3.6.6.4 Allocate a water treatment device to every single household

This close-knit community actually preferred a universal benefit accessible to everyone in the village. Supporting statements in this regard included: "*I would wish for them to deposit a water treatment device in each and every household in my community so that we get a universal benefit of clean drinking water*." -- **Leader 1**. "*We wish they could allocate a water treatment device to every single household. Not every household got a device. They were meant to bring more. But as it turned out, those who missed out the first time around ended up not getting any*." – **Focus Group 3.**

3.6.6.5 Supply us with water; that is our biggest problem

The villagers said if the clock could be turned back and the TUT researchers returned to Makwane, one thing they could do better was to supply them with clean water; to dig them a borehole and to erect them standpipes. In their own words they said, "*Sometimes, in drawing water we find dead carcases in the river. All we do is eject the carcass, go on to draw water and go and drink. What choice do we have*?" a woman said in **Focus Group 2**. "*Some of us survive by asking for R2 donations to buy water so I can cook for my children*," another in the same **Focus Group 2** said.

"*Our biggest problem is water, for which we now have no choice but to climb the mountain and risk snake bites to survive. There are plenty of snakes in the woods up there, and the most dangerous. You find the mokopa (black mamba) in there, the tlhoare (python) and many others. A man was once bitten and died*." -- **Focus Group 2**.

3.6.6.6 Take our plight to our municipality

When asked whether they were aware that TUT was a university and not a government agency whose responsibility it could be to provide water, complaints from especially Focus Groups 2 and 3 demonstrated complete loss of confidence in the local municipality. "*Because we have complained forever about our plight,"* a woman in **Focus Group 2** said. *"The officials do not take us seriously. That is why we're suggesting that TUT take our water plea to them. Perhaps they will respond better to them*." At Lepurung, a community member said "*the Municipality dug a borehole for us but did not erect a stand pipe. Only the Municipal officers are able to pump out water from the borehole into the Jojo tank that they provided for the village. But they come seldom to pump the water*." – **Focus Group 3**.

3.6.6.6.1 Researcher's impression

Evidently, of the many community expectations mentioned above, only one was expressed to the TUT researchers. The TUT researchers also never promised water to the people **(Leader 2, Q1**). However, once the community members had formed a perception that the TUT team was their redeemer, they developed these many expectations and, strangely, started expecting the TUT to deliver them, even though they had not even turned these wishes into requests. Ultimately, the comments above show that at the centre of the Makwane community's frustration is the absence of clean water. Even though the community conferred unfair expectations on the TUT team, with more and better engagement, the latter could have managed the situation better. The next section draws from the Makwane community's narratives to make sense of the TUT stakeholder engagement practices.

3.7 Discussion

In this section, in keeping with the overall objective of this study, the discussion examines TUT's stakeholder engagement practices using the Makwane community's perceptions, truths and meaning. It thereafter turns to a review of the execution of the TUT research project within the broader framework of participative communication / stakeholder engagement theory, South Africa's relevant policy parameters and globally acceptable engagement practices. The section also looks at what was said or done and what was **not** said or done to identify engagement gaps.

3.7.1 TUT objectives and goals

According to Moropeng *et al*. (2018:2), "the aim of the TUT study [the third and final phase in 2015] was threefold: *first*, to enhance the performance of the BSF-Z and SIPP filters in terms of pathogens removal and flow rate; *secondly*, to deploy these devices in every household of the Makwane village and investigate their performance while they are in use in homes; and, *thirdly*, to ascertain their performance in eradicating or reducing the burden of diarrhoeal diseases."

Please note that two technical names are used for the biosand filter. The biosand filter that was evaluated in the 2010–2012 studies was the BSF-Z (Moropeng *et al*., 2018:2). Following laboratory observations and users' feedback, improvements were made to this filter to improve its ability to kill disease-causing bacteria and to improve its water flow rate from 19,2 litres per hour to 38,6 litres per hour (Moropeng *et al*., 2018:3). TUT renamed the improved version the BSZ-SICG, which is the filter deployed in Makwane, with the SIPP, in 2015 (Moropeng *et al*., 2018:1). The stakeholder engagement study is, however, not concerned with the terminology regarding the biosand filter as long as there is sufficient distinction between the filter and the silver-impregnated porous pot (SIPP). The study at hand is rather concerned about the process, quality and outcomes of stakeholder engagement around the TUT study.

Although Moropeng *et al*. (2018:5) reiterate that all 88 households of Makwane (100%) got at least one system, community members in all three focus group sessions disputed this fact. The Master's student's dissertation, based on Phase 1 and 2 of the TUT project in 2014, states the total number of Makwane households as 94 (Budeli, 2016: 73), which on its own implies that not all households received the devices. Seeing that the TUT team was not available to clarify this issue, the researcher chooses to focus on stakeholder engagement, instead of dwelling on this discrepancy.

The TUT objectives, as stated above, clearly connote a short-term research project. These objectives could be achieved with or without extensive relationship-building. This scenario could explain why Prof Maggie Momba did not concern herself too much with relationship-building with the community prior to the project start, and relationship maintenance beyond completion of the study. It may explain her approach to start engaging the relevant stakeholders just in time to obtain approval from the municipality and the community, and to get on with the study immediately thereafter. Such a practice is acknowledged in the *information-sharing* and *consultation* levels of stakeholder engagement (AccountAbility, 2005:97; AccountAbility, 2015:22; Arnstein, 1969:217), which Tufte and Mefalopulos (2009:6) call *passive participation*. At these levels, organisations seek to inform stakeholders and even hear their inputs to an extent, even though the "listening" on the part of the researcher is limited to simply hearing responses to their own questions. At the consultative level, the "engaging" organisation hears stakeholder inputs but makes decisions unilaterally

(AccountAbiity, 2005:97; Arnstein, 1969:217; Tufte & Mefalopulos, 2009:6). After making the decision, the "engaging" organisation may choose whether to inform the stakeholder or not, of the decisions made (AccountAbility, 2005: 97). These levels of engagement, manifesting in TUT's practice, would have been tolerable if the water research was just another study whose goal was limited to advancing the existing body of knowledge about point-of-use water systems and to publishing in academic journals.

However, Prof. Momba did refer to their research at Makwane as a community engagement project (Momba, 2017b). The Department of Environmental, Water and Earth Sciences was therefore bound by community engagement requirements as stipulated in the White Paper 3 on Transformation of Higher Education of 1997. Paragraph 1.3 of the White Paper 3 (Department of Education, 1997) required the TUT research team to conceptualise, plan and execute this project with an end goal to transform and achieve a better life for the Makwane community, in keeping with the RDP vision of people-driven (ANC, 1994:5), basic needs-based (ANC, 1994:7) development.

Executed as a community-based research project, the TUT inquiry was automatically subject to the requirements of community-based participatory research. Among others, the hallmarks of CBPR are that: a) the study takes place in the locality of the community it concerns; b) it involves vulnerable people living on the fringes of society and; c) it takes place in a collaboration and partnership relationship for the duration of the study. CBPR also follows a flexible, iterative process and, finally, e) the research is intended to generate social action (Collins *et al*., 2018:884; Jamshidi *et al*., 2014:4; Kwan & Walsh, 2018:369).

At the centre of community-based participatory research is a collaborative partnership relationship or shared power and decision-making between the researcher and the researched (Collins *et al*., 2018:884; Mikesell *et al.*, 2013:7). Power-sharing starts with co-determining the research objectives taking into consideration, all partners' needs, preferences and goals (Mikesell *et al*., 2013:7). In addition to attaining the mutually anticipated outcomes, collaborative partnership in research yields "mutually beneficial exchange of knowledge and resources" (Carnegie Foundation, cited in Campus Compact, 2016; Fourie, 2007:43). It carries the potential to emancipate those among whom it is carried out (Mikesell *et al*., 2013:9). Relationship-building to those ends implies a much earlier start to the process of stakeholder engagement (IFC, 2007:4-6; Involve, 2005:23; WBCSD, *s.a.*:5). The social action orientation and co-ownership of data and research findings also anticipate a longer-term presence in the community that spells continuity of relationships way beyond completion of the initial investigation (Mikesell *et al*., 2013: 11).

Even though the messages shared between the TUT researchers and the community denoted the intent of philanthropy (to the extent that the water treatment devices were freely supplied) and sustainable transformation (through sustainably restoring health and wellbeing), the way in which engagement was carried out was not conducive to building a long-term relationship with the

Makwane community. It appears that because of a defective approach from the beginning, the engagement process became flawed all the way to the end as will be demonstrated below.

3.7.2 TUT's engagement practices (methods, content and levels)

Meeting the stakeholders face-to-face was an excellent approach by the TUT researchers. Face-to-face conversations allow for and would have opened ground for community questions, essentially two-way interaction between the TUT and the community members (AccountAbility *et al.*, 2005:101). That said, literature shows that communication can be two-way without unlocking genuine participation (Singhal, 2004:142). Much of the engagement that took place at the beginning ought to have been extended to workshops and detailed explanations of issues (G3 Business Solutions, 2010:2), followed by needs assessment exercises to inform the research questions and objectives in an all-inclusive fashion (Mikesell *et al.*, 2013:7, 9), thus lending credibility to the process (G3 Business Solutions, 2010:3). In the TUT case, engagement was left too late and too close to research execution. Engagement was therefore limited to information-sharing, gearing community members up to participate and cooperate in the research; in other words, to enable fulfilment of the TUT research purposes, as opposed to serving mutual purposes of the TUT and the people of Makwane.

As evident in the data codes, the TUT-community interactions (what transpired) depict much more activity flowing from the researchers to the community, than vice versa. Verbs in the codes border predominantly on *informing* (about purpose); *telling* (water test results), *teaching, showing*, *demonstrating* (how to treat water); *training* some (on manufacturing devices); *monitoring* (during field visits) *checking* (the participants' handling of water devices) and *collecting* samples (see **Appendix 2**). There is very limited activity in the interactions depicting actions from the community to the researchers. In other words, TUT's 'listening' to community members was limited to the participants' accounts of experience of the water treatment devices. There is no evidence that the TUT ever sought to find out the community's priority needs, or whether the participants could have chosen to do things differently.

Community members never plucked up the courage to express their desires, either. They are simple village people who might have felt inadequate next to the highly educated people from a university. Thus they were perpetually absorbing information and only feeding to the TUT researchers what was asked of them. In this sense, the researcher sees parallels in the characteristics displayed by the Makwane research participants and characteristics of oppressed people in the political sphere, as described in Freire (1970:63):

> "Self-depreciation is another character of the oppressed, which derives from their internalisation of the opinion the oppressors hold of them…They call themselves ignorant and say the "professor" is the one who has knowledge and the one to whom they should listen. The criteria of knowledge imposed upon them are the conventional ones."

Freire (1970:63) goes on to state that oppressed people [in this sense we could say people with a low self-esteem] forget that like everyone else, they have acquired knowledge through their day-to-day interactions with the world and with other human beings, and that they therefore also have a story to tell and knowledge to share. Taking into consideration what Collins *et al*. (2018:884) state on the same topic, the Makwane community could have had something to share by way of their own unique knowledge or other strengths. Knowledge is knowledge, even if it was neither obtained through university education or research nor recorded anywhere except in memory (Bawa, 2014:156-160). Clearly, the people of Makwane needed more stimulus by way of empowerment from the TUT researchers before they could gain the confidence to engage as an equal partner and bring far more to the table than they were invited to share.

Regarding transparency and disclosure, effective engagement requires full disclosure of the organisation's engagement purpose and goals. By presenting themselves as a solution to the contaminated water problem, the TUT researchers oversimplified and under-represented the objectives of their investigation, and thus did not make a full disclosure of the nature of their inquiry. According to the International Finance Corporation (2007:28), transparency in stakeholder engagement stimulates trust and prevents formation of wrong perceptions about an organisation. By positioning themselves as they did, the TUT researchers presented themselves as some kind of saviours to whom the community could look for a bigger solution to their water problem than just purifying it. It should not surprise anyone, therefore, that the researchers' self-positioning created expectations in the Makwane community – expectations they could have managed through effective engagement, but in the absence of which some participants started voting with their feet (by refusing to cooperate) when those expectations were not being met.

Interestingly, the two community leaders interviewed were the most informed about the nature of the TUT's project. Their responses to question one clearly showed that they understood that this was a research project, even though the community members understood otherwise. This therefore implies that the researchers disclosed far more to them than they did to the community. Perhaps this resulted from the fact that the researchers spent far longer with the leaders, considering that the two were among the ten people taken for training at the TUT on manufacturing the devices. Their five-day stay in Pretoria might have given them exposure to information that no one else could ever enjoy. A question arises therefore about whether the TUT researchers expected the leaders to share their understanding of everything with the community members. Without the TUT's participation, the researcher may never get an answer to this question. Suffice it to say, nonetheless, that organisations that set out to engage stakeholders do so to achieve a pre-defined purpose and outcome. Stakeholder engagement is a function by which organisations facilitate governance, strategy and operations (AccountAbility, 2015:15). Organisations cannot afford to take a chance on stakeholder engagement. Any entity that outsources such a critical function does so at its own peril.

The extent to which the TUT voice predominated all conversations in their relationship with the Makwane community portrays the community participants as passive spectators. The community participants seem to have been more aware of their responsibility to comply with researcher needs than their right to something as basic as a **voice** to express their own needs, to shape the research agenda (Mikesell *et al.,* 2013:7) or to demand summative feedback (Jamshidi *et al.*, 2014:4). Summative feedback to the researched is the very least that researchers can provide as a matter of courtesy. This necessitates serious reflection on the part of the TUT and other universities on their ethical practices within research projects, and, even more importantly, on their general conduct in community-based participatory research.

3.7.3 Lifestyle or behavioural change in community participants

We have heard of how community members **(Focus Group 1** at New Stands and **Group 2** at Ditakaneng**)** say they stopped treating the water when the river dried up and also when their devices broke down (**Group 3** at Lepurung). In fact, apart from the fact that the TUT was attempting to solve what became an obvious problem at Makwane, the researchers were also introducing brand-new technology to the community. In this sense, the project was an attempt by the TUT researchers to become change agents to the Makwane community. In any situation where innovation is being introduced, some will readily embrace the new change and adopt it; some will struggle to decide and might do so after some persuasion over time, while others downright reject the innovation (Nisbet & Collins, 1978:12-18). Much has been documented on this subject by such scholars as Lewin (1947); Rogers (1962); Rogers and Shoemaker (1971); Watson (1969) and countless others (all cited *in* Nisbet & Collins, 1978). Even though their studies are set in the education sector, the basic principles are applicable in other disciplines and undoubtedly in social development.

Briefly, resistance to change can be ascribed to a myriad of factors, including disagreement over innovation objectives; a flawed approach; inadequate skills in change management, poor planning, characteristics of those among whom change is being effected; as well as the attributes of the change agents themselves (Nisbet & Collins, 1978:14). At Makwane, the combination of a flawed approach, inadequate skills in change management as well as characteristics of those among whom change was being attempted seem to have been the problem. The pockets of resistance experienced could have been prevented through extensive stakeholder engagement and inclusion in the project, of social development and corporate communication professionals. The apparent low self-esteem in the community participants could also have been addressed through a deliberate intervention in empowerment. The lesson to anyone using community-based research as a catalyst for social change is that a lot more goes into the social action than mere provision of a new product.

3.7.4 Researcher's observations of the community participants

One observes in the community respondents, mixed traits that can be described as follows:

3.7.4.1 Reluctance to share their views

This was picked up in all groups, but to a larger extent in **Focus Group 1**. Group 2's participants were initially uptight. Early responses in the conversation came from a teacher in their midst, something that suggests an inferiority complex and submission to "the educated" individual among them to advocate for them. After the researcher nipped this in the bud, telling them that they all ought to have views, the teacher retreated a little and the members opened up – some even showing signs of enjoying the discussion. In the end the group relaxed so much that they tended to surge forward with responses, often talking at once. In **Group 3**, the researcher spotted up to three women who left the meeting before uttering a word. No amount of prodding could get them to open their mouths.

3.7.4.2 Expressing disapproval through silent actions

The researcher interprets as resistance or silent protest, the acts that the community leaders described as engagement challenges (see sub-section 3.6.2.4 on engagement challenges). Protest action is a common strategy in stakeholders expressing discontent to organisations, especially in instances where passivity (meaning where there is no active communication, no relationship) is playing out (AccountAbility *et al.*, 2005:97). In the absence of a forum to express their disappointment with the researchers, the community members might have seen this as their only recourse when their expectations for clean water provision failed to materialise. These feelings (of their time being wasted) might have still lingered in some members of the community at the time of data collection for this study. During the recruitment drive on the afternoon of Tuesday, 2 October, the researcher secured the consent of ten women to participate in the first focus group session at New Stands, which was set for the next day. Only four of those women showed up at the agreed meeting place the following day. The meeting, set for 10:00, only started at 10:50 after the researcher persuaded two others to abandon a social activity for just half an hour to bolster the group to six participants. Although respondents at both New Stands and Ditakaneng were repeatedly saying water had dried up in the river, one of the recruits was reported to have risen early to go do her laundry at the river that morning. These subtle contradictions raise flags about the extent to which the respondents were fully honest in their answers.

3.7.4.3 Community members eager for new information

While some of the villagers (especially at New Stands) seemed upset when turned down to participate in the research because they did not qualify in terms of the sampling requirements, others, even though they qualified, turned down the researcher for one reason or another (a few at Lepurung reported themselves sick). Yet, when the researcher got to the meeting place believing she had secured seven individuals, a group of 12 women had formed. Even more strangely, some left without having said a word and no amount of prodding and directing some questions to individuals could get them to talk. At New Stands at least two women who had said they had participated fully in the TUT project right up to the end, pulled a surprise during the discussion when they said they stopped

partway through because their devices had been taken away. Finally, the researcher also observed (at both New Stands and Lepurung) that at the end of each session, people seemed puzzled that that was all there was to the meeting. They seemed to expect to hear more. Some might have thought there might be a reward for attending, or some might have expected a new announcement on water, which possibly explained why some had turned her down only to show up at the meeting anyway.

3.8 Study Limitations

The absence of the TUT researchers from this study in itself imposes the first limitation. Although previous discussions with Prof. Maggie Momba and her students (in the context of the Universities South Africa – SABC radio project of 2017/8) did provide some background on the TUT study, and even though Prof. Momba had claimed an interest to participate in this enquiry, she later declined to do so. Even though available literature on the Makwane studies (such as Budeli, 2016; Momba *et al*., 2013; and Moropeng *et al*., 2018) helped somewhat, it was too limited on stakeholder engagement to answer all of the researcher's questions. The absence of the TUT team from this study also made it impossible to check claims made by other stakeholders or to verify or correct the researcher's understanding of the information in the public domain.

The absence of the Ellias Motsoaledi Municipality respondents presented a second limitation to the study, especially when taking into consideration the importance of a local municipality in any local development intervention.

Conducting all three focus groups in one day presented the third limitation. This definitely went against the researcher's own preference expressed in Chapter 1, backed by qualitative research theory. Braun and Clarke (2006:86) state that data analysis starts during data collection as the researcher begins to examine the data for emerging patterns of meaning. Suitable reflection on data occurs when there is a sufficient time lapse between interviews, allowing the researcher to study the data, learn from them and apply those learnings in subsequent interviews (Hancock,1998:15). On the one hand, conducting all three focus group sessions in one day robbed the researcher of this opportunity. On the other hand, staying longer than two nights in the study location presented weather risks and had cost implications for which the researcher did not have solutions.

There were other consequences to the point raised above. The researcher lost opportunities to add new questions, refine some and to follow-up on some of those asked in the first set of interviews. What is more, not all questions were asked of all the respondents and all focus groups. This was discovered too late, after the researcher had left Makwane. Although some follow-ups were possible with the individual respondents, they were not with focus group participants. Besides, network problems at Makwane made telephonic connectivity very difficult.

The fourth limitation relates to information received from the former community liaison officer of Mapochs Mine. She herself admitted that she was a junior player in the stakeholder engagement game. The most strategic work took place at the level of her principals and she did not know everything. As a consequence of the liquidated mine and its smelter operation in Witbank, the dispersion of previous staff and the absence of contact details of the former principals, the CLO claims about the mine and the TUT researchers could also not be verified.

Fifthly, even though the researcher is a Sesotho first-language speaker, and Sesotho and Sepedi are mutually intelligible languages, there were instances where a question had to be asked more than once for clarity. Likewise, the researcher often had to check the accuracy of her own understanding of the participants' responses when the latter used "deep Sepedi" that she could not fully grasp. It is possible that the language barrier affected the researcher's ability to identify new points and to latch onto them for even richer data and meanings. Using an interpreter had crossed the researcher's mind. However, a cost-benefit analysis made her reluctant to follow this through. For that reason, the researcher led all discussions by herself, without using an interpreter.

Finally, the three-year time lapse between the completion of the TUT study (in September 2015) and the date of data collection in this respect means that a lot of the details (dates, frequency of engagement, and people's names) were vague in the respondents' memory. The fact that the TUT researchers were at Makwane for two months in 2014 before coming back in March 2015 compounds the problem, especially in the already semi-literate and rural community that typically does not document events. Even though the poor recollection of dates and frequency of engagement did not have much material weight, the timing of this study became its own limitation, nonetheless.

3.9 CONCLUSION TO THIS CHAPTER

This chapter concludes by listing the gaps identified in stakeholder engagement that lead the discussion to logical conclusions in Chapter 4.

3.9.1 Gap 1: Failure to engage for long-term relationship building

The TUT researchers did not engage in long-term relationship building and maintenance for collaboration and partnership. Engagement was deployed too close to the data collection. Evidently engagement was done to achieve a short-term goal of securing approval from the stakeholders to conduct the study, and for community members to participate in the study to reach the TUT's research objectives. The biggest defect was not taking into consideration community needs, expectations and aspirations. Even though the Master's student administered a survey in 2014 (see Section 3.2 of this chapter), it focused on understanding the water context at Makwane. That study therefore served to justify the deployment of the water treatment devices at Makwane and therefore, the survey was serving a decision already made. The survey was neither a cold, open-ended needs assessment, nor was it seeking to identify community shortcomings and potential barriers to equal participation and decision-making. The TUT study therefore appears to have been self-serving in the

sense that it was supporting TUT's pre-determined decision to deploy and test the water filters. The community benefits that these devices bore were only incidental and short-lived.

It is important to point out that even though the TUT team promised to allocate a water treatment device to each and every household at Makwane as stated in the study objectives (Moropeng *et al.,* 2018:5), this did not materialise. One community leader said some of the devices brought to the village were found damaged and could not be utilised. In defence of the TUT team, though, it is worth mentioning that one of the leaders admitted that some of the households that were allocated the water filters refused to use them, and this is also reported on in Moropeng *et al*. (2018:5). Some devices, after being found to be defective, were taken away for checking. However, the individuals from whom these were taken never received any replacements. It is to these individuals that the TUT researchers owed an explanation. In this context, it is proper to state that an entity safeguarding its stakeholder relationships, integrity and reputation follows through on its promises. It also explains away factors impeding it from fulfilling promises made, and from meeting expectations.

By failing to build a relationship early with the Makwane community, the TUT researchers deprived themselves of the opportunity to identify factors that could inhibit community members from influencing the research agenda. Consequently, we see:

3.9.2 Gap 2: No capacity building in community stakeholders

The TUT researchers failed to build capacity among the community members to participate as equal partners, understanding the issues at hand and thus unlocking the community "voice" at the planning table.

3.9.3 Gap 3: Non-disclosure of material information

By withholding important information from community members on the nature of their mission at Makwane, the TUT researchers did themselves a disfavour. Instead of presenting this project as the research project that it was with budget limitations, the TUT team said they were at Makwane to introduce water treatment devices and to help the community purify their water; to improve well-being and to train the community members in the manufacturing of these devices as an income generator to the community. Because they did not explain that there were (funding-related) conditions to the latter materialising, they positioned themselves in a manner that created service provision expectations in the community which, when the TUT did not fulfil, brewed resentment on the part of some community members, which led to the latter undermining the research project (refer to sub-section 3.6.2.4 for more detail).

3.9.4 Gap 4: Discriminatory information-sharing

The fact that the TUT disclosed far more to the community leaders does suggest that there was no hidden agenda. However, not disclosing to the same degree to community members means that the participants did not equally share the volume of information and the depth of understanding that

became the privilege of their leaders. If the researchers were counting on the leaders to share information with their fellow villagers, they were imposing a responsibility unfairly to individuals who had their own day-to-day challenges of providing for their families, and who could not have known enough about the project to answer all community questions.

3.9.5 Gap 5: Community exclusion from project conceptualisation, planning and decision-making

Even though the research objectives were fulfilled, especially from the TUT's point of view (community members dispute that all households got a water filter) the change and difference that this made in the Makwane community proved to be short-lived and unsustainable. The gap here was the community exclusion from project conceptualisation, planning and all decision-making. The defective engagement approach condemned the project to unsustainable outcomes, this, notwithstanding that the TUT acknowledges the involvement of communities in development decision-making as an important requirement for sustainability of change (Budeli, 2016:32).

3.9.6 Gap 6: No closing feedback to the community

It is regrettable that the researchers from TUT did not gather the community as they had done at the beginning to share closing feedback. Even though they had never promised to share the summative feedback **(Leader 2**, **Q12)**, it was a matter of common courtesy to a) alert the community to the fact that the researchers' observations had come to an end; b) to share their overall findings and impressions and c) to state the way forward. Not only was it disrespectful and irresponsible to varnish without warning. This was a silent indication that now that the TUT objective had been fulfilled, the community members did not matter anymore. It has been three years since the team left Makwane. No contact was made to the community until in April 2018 when Prof. Momba called one of the community leaders to endorse the researcher who was then looking for information on the TUT research project for profiling on SABC radio. That was when Prof. Momba mentioned to the Leader that they had submitted a report to the Department of Science and Technology asking for additional funding to take the social action component forward. She said she would be in touch in the second half of the year (around August 2018) to update the leader. By the time of fieldwork in October 2018, the leader had not heard again from Prof. Momba.

Behaviour like this does not do much for the TUT's reputation. It can also erode the community's appetite to collaborate in future research as they assess value-add against time and effort invested.

3.9.7 Gap 7: No evidence of knowledge exchange for mutual benefit

There is no doubt that the Makwane community learned a great deal about untreated stream water and how detrimental it is to their health. However, in the absence of capacity building for a collaborative and partnership relationship and meaningful two-way sharing, there was little opportunity for any form of knowledge to flow from the community to the TUT researchers, in keeping with the true nature of community-based research. Without the participation of the TUT research

team, we may never know whether any new knowledge flowed in their direction from the community participants.

3.9.8 Gap 8: No community empowerment

The fact that the Makwane community remains waiting for the TUT researchers to improve their water situation shows a people remaining in the state that they were in before the TUT's intervention in so far as self-awareness is concerned. It also implies that the TUT team presented themselves as a team of outside "experts" to the marginalised Makwane community. In a typical social transformation context that the Makwane community presents, the TUT researchers ought to have employed a community empowerment approach and presented themselves as change "facilitators" or "collaborators" (Zimmerman, 2012:44). The TUT researchers ought to have invested sufficient resources in understanding the people, familiarising themselves fully with the local context; the Makwane culture, their aspirations and their daily struggles. To an extent, this was realised in Budeli's 2014 study.

However, the researchers should have used the understanding from Budeli's survey to adopt a partnership approach of collaborating towards mutually-defined outcomes (Zimmerman, 2012:44). This would probably have required more planning time. However, the additional resources invested would probably have led to more longer-term and sustainable outcomes. Genuine community empowerment would have resulted in the Makwane community participants beginning to take initiative; taking ownership and control including co-deciding how research benefits and results would be shared (Macaulay *et al.*, cited in Mikesell *et al*., 2013:9). True empowerment would have seen the Makwane community leading themselves towards life-changing social action, as they would no longer see themselves as victims but active individuals taking charge of their lives (Davids, 2005: 21).

3.9.9 Gap 9: Unsustainable social transformation

Regrettably, no social transformation has occurred at Makwane. It should not surprise anyone, therefore, that boiling untreated water or adding bleach to it as alternative forms of purifying it, did not take root when TUT's water treatment devices were rendered useless. The people of Makwane are poor. If R2 for 25 litres of water is already unaffordable to many, the means to boil water or to purchase 750ml of bleach must be doubly beyond the reach of many of the community members. When affordability inhibits adopting an innovation, and once one realises that their previous state of deprivation (that is, drinking contaminated water) did not kill them, it becomes practical to revert to that state when they have no means to choose otherwise.

Finally, conclusions to this study and recommendations are offered in the concluding Chapter 4.

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

In the preceding chapter, the researcher used the evidence of collected data to determine the TUT's practices of stakeholder engagement within the community-based enquiry at Makwane. The evidence was used to identify engagement gaps and their consequences on the research process itself; on knowledge-sharing; on community empowerment and social transformation within the Makwane community. Based on the engagement gaps identified in Chapter 3, the researcher has arrived at seven conclusions in this study that she reports on below.

4.2 Conclusions

4.2.1 The TUT-Makwane community relationship not a partnership

Contrary to the researcher's initial belief, the 2015 study in which the TUT evaluated and implemented two home-based water treatment devices at Makwane was **not** a partnership. How community participants describe their experience of the TUT's engagement is not indicative of a community-based research partnership (CBRP) – typified by collaboration and joint decision-making from the project planning phase (Kwan & Walsh, 2018:369; Mikesell *et al*., 2013:8). The TUT-Makwane community relationship was also asymptomatic of other attributes of a CBRP, such as reciprocity; mutuality; transparency, empowerment and sustainability through continuous engagement until and beyond the project completion (Kwan & Walsh, 2018:369; Mikesell *et al*., 2013:8). Reciprocity is defined as the exchange of similar privileges between two entities for mutual benefit (Cambridge Dictionary, 2018), whereas mutuality is the pursuit of common interests, operations and objectives between two entities without one party seeking opportunistic advantage over the other (Papageorgiou, 2018). The Makwane community participants therefore played no part in the planning of this project and, by implication, also had no say in how it would proceed and conclude. Instead, they were left hanging and continue to wonder till this day, what, if anything, will happen next.

4.2.2 Stakeholder engagement was self-serving

Even though the researchers from the TUT's Department of Water, Soil and Environment did engage stakeholders within the context of this project, evidence presented in Chapter 3 points out that the engagement took place too close to the start of their fieldwork to build a meaningful relationship. Events suggest that engagement was carried out to secure the Elias Motsoaledi Municipality's permission to enter the Makwane village and to obtain agreement of the Makwane community to participate in the research. Having acquired the social license to conduct their study, engagement during the project implementation was limited to information-sharing and consultation that mainly served to advance the research objectives. Failure of the researchers to a) identify the community's

priority needs and to build them into the project; b) to empower the community to influence the research agenda; c) to announce when their fieldwork had come to an end; and d) to provide summative feedback on their findings and way forward -- suggest that the engagement was not intended to build lasting relationships with the Makwane community. To the extent that the study ended up benefiting the TUT's research objectives more than those of the participating community, the TUT study seems to have been self-serving.

4.2.3 Benefits did accrue, albeit unsustainably

That the participating households in the Makwane community benefitted from the TUT project is unquestionable. From the engagement activity carried out in support of this project, people gained new information and knowledge that they will carry forever. They also began to enjoy the benefit of drinking clean water, and, as a result of using the prescribed water treatment devices as directed, the incidence of diarrhoea was reduced by 96% (Moropeng *et al*., 2018:1). That was commendable social change. However, this benefit proved to be short-lived. The well-being ascribed to this project lasted only as long as the pollution removal function of the devices was assured, that is, about a year (Moropeng, 2018). Proponents of people-centred development (Coetzee, 2001:123-126; Treurnicht, 2000:67-69; Korten, 1990:76) do state that genuine change in people's quality of life is realised when the change is consistent with people's aspirations, and when it is sustainable.

4.2.4 TUT deployed pre-dominantly transactional engagement behaviour

When assessed against Bowen *et al.*'s analysis of engagement behaviour (see description in Section 2.5.1.2.3), the engagement behaviour of the TUT researchers bordered in the transactional zone. However, to the extent that the researchers allowed two-way communication, their behaviour also dabbled in the transitional zone which though somewhat interactive, saw the TUT researchers retaining full control of the process. The TUT researchers also had the full monopoly of decision-making over what to study, the emerging data, the end-date to data collection and whether to share findings with the community, or not. As a consequence, the Makwane community members were passive spectators in the TUT research project. The TUT researchers left the community in the state in which they found them: predominantly poor, semi-literate, powerless and with low self-esteem. Instead of taking charge of their destiny, the community today remain dependant and expectant of the TUT "saviours" to bring about change to their situation.

4.2.5 The decision to prioritise water treatment was outsider-imposed

Looking closely at the contaminated water that the Makwane community has been ingesting from time immemorial, the TUT researchers did not disregard local needs because the need to purify drinking water for the community was and remains real. However, how the study came about shows that it was a response to a nation-wide problem of rural South Africa (Momba *et al*., 2013:i-iii) and that the Makwane community only happened to typify communities suffering water quality problems,

and therefore provided an ideal setting for the evaluation of the TUT-invented water treatment systems (Momba *et al*., 2013:viii). Without a formal needs assessment in the Makwane community it is difficult to guess where the need to purify water would have featured in the community's hierarchy of felt needs.

From that perspective, this need was outsider-imposed and could even be seen as illegitimate from the community's point of view. However, had the engagement been carried out in accordance with accepted practices in CBRP, this need could have been addressed alongside others, thus giving the TUT study some legitimacy in the eyes of the community.

4.2.6 TUT's engagement behaviour could be attributed to resources constraints

Perhaps the TUT researchers were driven by resource constraints to conduct community engagement in the way that they did. Public universities, as non-commercial entities, are operating under heavy resource constraints (HESA, 2014a; HESA, 2014b; USAf, 2015:5; USAf 2017), and the TUT is no exception. TUT does admit in their report on their initial study to determine social acceptability of home-based water treatment devices at Makwane in 2012, that data collection was confined to one of four villages and limited to one week due to budget and time constraints (Momba *et al*., 2013:132). It is quite possible that budget constraints stood in the way of other engagement preferences, even though this could not be verified with the TUT team. However, resources constraints are no excuse for poor stakeholder engagement, as pointed out below.

4.2.7 Stakeholder engagement is not negotiable

Even in a resource-constrained situation, stakeholder engagement is non-negotiable. The actions or operations of every organisation affect other people, entities or the natural environment. It is therefore fair to expect each organisation to make time to listen to those whom its actions are likely to affect before the organisation reaches decisions (AccountAbility *et al*., 2005:2). Although it is not practical for organisations to engage all stakeholders at all times (IFC, 2007:16), organisations must balance stakeholder interests, needs and expectations in the best interest of the organisation (AccountAbility, 2015:12; Durham *et al.,* 2014:12-13; Cook, 2015:4; IDSA, 2016:71), even when resources are limited. This is where seeking additional funding comes in. The extent to which universities' research activity takes place in communities indicates an inter-dependency between universities and community stakeholders, that is not about to go away. Considering that universities' need to conduct research is permanent, institutions of higher learning cannot afford to not cultivate and treasure good relations with the groups among whom they conduct research – otherwise they are diminishing their chances, and those of coming generations of scholars, of repeat partnerships with those groups. The TUT cannot afford to damage its relationship with the Makwane people, if the latter are to continue to consent to future research partnerships with either the same institution or others in the system, in future.

Contrary to what some people may believe, stakeholder engagement is a skill that some master naturally while others need to acquire the competency in through training. Indisputably, good water science took place at Makwane. However, science does not prevail in isolation of social relationships and with disregard to principles of sustainable development. Recognising their shortcomings on the social transformation side of things, the water scientists from the TUT would have done well to rope in additional expertise from sustainable development practitioners, sociologists or other humanities departments with a good grasp of stakeholder relations (AccountAbility, 2005:82) management. This is where a multi-disciplinary approach recommended in subsection 4.3.3 comes in. Having presented the study's conclusions thus far, the next section now recommends some actions.

4.3 Recommendations

4.3.1 A needs assessment at Makwane could shed further light

Taking into consideration what community members said they wished that TUT could have done differently, the researcher recommends that another study be undertaken at Makwane to assess the needs of the community to illuminate priority needs of the community further, and to inform future interventions at Makwane more decisively.

4.3.2 Public-private partnerships required for outcomes-based CBPR

Universities are not providers of bulk services such as water and sanitation or electricity. While it is ludicrous to expect universities to meet community needs outside their research scope, the institutions, as socially responsible organisations, must become activists striving for meaningful change in their local communities or those in whom they conduct research – even more so when a research project is labelled a community engagement intervention. Through carefully thought-through public private partnerships, universities can achieve far more than they otherwise could by pooling resources with other entities to resolve social challenges far beyond their expert capacity and beyond their research goals.

Public-private partnerships must also be considered to bolster universities' expertise in advocacy and social mobilisation. The Makwane community is in dire need of water. The community is also in desperate need of empowerment to take charge of their own destiny. They need some form of political mobilisation to fight for water, a basic human right acknowledged in South Africa's Constitution. Section 24 (a) in the Bill of Rights bestows upon every citizen, including the people of Makwane, the right to a harm-free natural environment (SA, 1996:9). Section 27, 1(b) confers on them the right to sufficient water (SA, 1996:11). It is difficult to comprehend how the Makwane community could be so deprived of water when they are located only 30 km from De Hoop Dam that was constructed to "supply water to towns, industries and communities in the Sekhukhune district," (Wikipaedia, 2017) of which the Elias Motsoaledi Local Municipality is a part.

A university in a situation like TUT's at Makwane would do well to rope into its partnership mix, a community-based civic group, or even a socially-inclined legal service of the likes of Richard Spoor, or relevant equivalents. In other words, partners should be identified after sufficient understanding is acquired of priority needs of a community (through engagement) and in accordance with what social action is anticipated beyond a planned CBPR project. The choice of partners must therefore match the required skills set, which, in the Makwane case, must include proficiency in the local language.

The available data seems to show that the TUT's partnership with Mapochs Iron and Steel Mine did not result from strategic considerations. It seems to have been incidental to the situation, given that the mine was operating in the vicinity and was therefore a natural and inevitable choice for local politicians seeking to resolve the contaminated water problem at Makwane (Malekane, 2018).

4.3.3 A trans-disciplinary approach within institutions is the solution

No individual possesses all skills and expertise required in any project. Whereas public-private partnerships seek to pool resources with entities external to the university structure, a transdisciplinary approach would strive to assemble the expertise available within the university, but external to the core research team for lasting outcomes in the target community. For example, given that TUT researchers in the Department of Water, Soil and Environment are natural scientists skilled in microbiology and related environmental sciences, a transdisciplinary approach would seek to collaborate with counterparts in humanities-based disciplines; thus opening themselves up to inputs from sociologists, development professionals and relational (corporate communication) managers.

Even though a transdisciplinary approach carries its own complexities regarding agreeing on critical processes and related time-frames and costs (Durham *et al*., 2014:10), there may well be more benefits than disadvantages to adopting this approach to CBPR as partners combine different approaches to outcomes-based planning, execution, monitoring and evaluation and ultimately, reporting.

4.3.4 An Engagement Protocol for CBPR is worth exploring

Researchers' conduct in community-based research cannot be left to chance. Ethics committees are already in place in all research-based institutions. While such committees already police and enforce ethical conduct in all research projects – some studies have established that there are certain ethical practices specific to CBPR that may not be observed in the general protocols for ethical research (Jamshidi *et al*., 2014; Kwan & Walsh, 2018; Mikesell, *et al*., 2013). A qualitative study would do well to investigate the presence of such protocols in research-intensive institutions and, in their absence, gauge South Africa's universities' appetite for institutionalised or joint protocol for CBPR.

That TUT has no such protocol in place could be an indication of a similar situation at other institutions. To establish the extent of need, a sector-wide inquiry is recommended. Such an inquiry

could first investigate the extent to which ethical research requirements – as prescribed by ethical review committees, already cover conduct responding to CBPR-specific challenges. Secondly, the inquiry could identify gaps in such requirements and thirdly, use a literature review to plug those gaps, as numerous global studies have attempted to do (Jamshidi *et al*., 2014; Kwan & Walsh, 2018; Mikesell, *et al*., 2013).

4.4 Final Conclusion

The researcher hopes that this study has presented a solid case for placing communities at the centre of planning of community-based research projects. Stakeholder engagement is the best tool for giving communities a voice to co-determine the research agenda concerning them. Recognising that no professional possesses all skills necessary to deploy successful engagement for a sustainable development project, a trans-disciplinary approach within institutions of higher learning is the way to go, if research teams are to access all the expertise necessary to achieve outcomes-based stakeholder engagement for successful community-based research projects. In order to counter the challenge of resources constraints, universities would do well to seek public-private partnerships involving government departments, business, non-governmental organisations and sister institutions of higher learning. Public-private partnerships also enable development agents to address social problems holistically, which means tackling all aspects of disadvantage in a target community (for example, poverty, illiteracy and ill-health at Makwane) to achieve meaningful social transformation in the chosen locality (Swanepoel, 2000: 72). Holistic development is something that a single institution would struggle to achieve on its own.

Recognising that socially responsible and ethical conduct in community-based research cannot be left to chance, it is trusted that this paper has made a compelling case for instituting protocols to govern the conduct of researchers within CBRPs and partnerships at South Africa's public universities. Community-based research must seek to leave lasting favourable change in the "researched" communities, even if this means investing more time, more people and a bigger budget than would be the case if research were carried out only to contribute to new disciplinary knowledge. Researchers must also develop a conscience to unlock in marginalised communities, an awareness of their own capabilities and ability to "do" things for themselves. Davids (2009:21) states that this self-awareness "…leads to action because they no longer see themselves as victims, but as active individuals with the ability to change their own circumstances."

In conclusion, if executed within the people-centred development paradigm, community-based research as a model of community engagement has potential to enhance the reputation and legitimacy of South Africa's public universities. It is also capable of improving people's lives while ensuring that communities remain willing research partners to the present and future generations of scholars.

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Appendix 1: Semi-structured questions

A REVIEW OF STAKEHOLDER ENGAGEMENT IN THE TSHWANE UNIVERSITY OF TECHNOLOGY'S EVALUATION OF HOME-BASED WATER TREATMENT DEVICES AT MAKWANE; A COMMUNITY PERSPECTIVE

PART ONE: INTERVIEW GUIDE FOR MUNICIPAL OFFICIALS

- What was the objective of the TUT research project?
- How many people from the TUT research team contacted you on this matter? What methods did they use to reach you from first contact until they had achieved their goal?
- Do you remember how often they made contact with you?
- What did they tell you in these dialogues?
- Do you remember what you told them during these dialogues?
- Did you experience any challenges at any stage of the process of your dialogue(s) with the TUT research team?
- What did you learn from your conversations with the TUT research team?
- Is there anything else you wish to share about your engagement experience with the TUT research team?
- In your recollection, was this the first time the Municipality was being approached by a university for purposes of a research project?

PART TWO: INTERVIEW GUIDE FOR COMMUNITY LEADERS

- How did you first learn of TUT's intention to carry out research in your village?
- What were the objectives and goal(s) they were looking to achieve by talking to you as a community leader?
- What did the research team tell you during that first meeting? And in meetings that followed?
- Do you remember how often they talked to you thereafter?
- Who typically contacted you / held conversations with you?
- What method(s) did they use to reach you - from first contact until they had achieved that/ those goal(s)?
- Did you ever experience any problems at any stage of your conversations with the TUT researchers? If yes, what kind of problems were these?
- Do you remember expressing your expectations from this research at any meeting with the TUT researchers?

- Were your expectations met?
- As a leader of this community, what difference in your life did the encounter with the TUT researchers bring about in you?
- Is there any significant change that the encounter with the TUT research team generated for this community? If yes, what could that be?
- Do you think the community contributed anything to the TUT research team (e.g. did the community teach the team anything?)
- In hindsight, is there anything you believe TUT could have done better?
- Is there anything you could have done better as a community leader?

<u>PART THREE</u>: FOCUS GROUP GUIDE FOR COMMUNITY MEMBERS

- How did you first hear/ learn of TUT's intention to carry out research in your village? What were the objectives and goal(s) they were looking to achieve by talking to you as a community leader?
- Do you remember what you were told during that first encounter?
- How often did the TUT research team talk to you as community members?
- Who typically contacted / held conversations with you?
- What method(s) did they use to reach you --from first contact until they had achieved that/ those goal(s)?
- What did you discuss for the duration of the project?
- Do you remember you, as members of the community, telling the TUT research team what your expectations were – from this research project? Were these expectations met?
- Did you ever experience any difficulties, or problems, at any stage of the process of TUT researchers talking with you as a community?
- As a community, did the encounter with TUT researchers bring about any change in your lives at all? If yes, what was that?
- What do you think **you**, as members of this community, contributed to the TUT research team? Is there anything you might have taught them?
- Is there anything you feel the TUT research team could have done better?
- Would you like to share anything else, within the context of your interactions with the TUT research team?

Appendix 2: MG codes, categories and themes for Question 1

QUESTION 1: THEMATIC ANALYSIS

Question 1: What objectives and goals were the TUT team looking to achieve through their presence here at Makwane?

COMMUNITY LEADERS

Data extract	Codes	Categories/themes
1. They said that the water that we drink has bacteria and is not fit for drinking (L1_Q1) (*Told us our water has bacteria*)	1. Contaminated water 2. Unfit for drinking	Contaminated water unfit for drinking
2. They wanted to introduce appropriate technology to address this problem (L1_Q1) (*To introduce a suitable technological solution)* 3. At that time they brought about 120 buckets and distributed them in the village. But I also know that some of those were damaged and in the long run could not be utilised (L1_Q1)	3. Introduced technological solution 4. 120 treatment devices distributed 5. Some damaged 6. Some never utilised	To offer a technological solution
4. Because they had brought these buckets, they added that they were here to check whether people were happy to use them (L1_Q1). (*To test acceptability of the buckets*)	7. Brought these buckets 8. Are people happy?	Determine social acceptance of technology
5. They told us they were here to research on the water to make it safe to drink (L2_Q2) (*To research the water and render it safe*) 6. They said theirs was to conduct research, at the end of which they would carry on. (L2_Q1) (*To conduct research*) 7. To research on water. That was their initial story (L2_Q1)	9. Research on water 10. Make water safe 11. Conduct research	To conduct research on water • Find a more suitable technological solution • Determine social acceptance of technology
8. To find ways to use the water problem to create employment solutions for our community (L2_Q1). (*To create employment*) [**How and Why 10 community members were selected for training**:] 9. I remember we were all gathered at the school when the selection was done. A lot of people were gathered at the school. Prof Momba invited those with an interest to come forward – per section. People volunteered. Then we [the attendees] were invited to nominate people from the list of	12. Utilise water problem 13. To create employment How trainees were selected 14. People gathered at the school 15. Prof Momba invited volunteers 16. People volunteered 17. Attendees invited to nominate 18. Final trainees number achieved 19. Teach about boiling water	Potential income generation • Train community in manufacturing the devices • Equip community to supply the devices to others • Create employment To train us to manufacture the devices • Identify people for training • People volunteered

names of the volunteers. That's how we arrived at the final number. [L2_Q1] (*We gathered at school to select trainees*) 10. They were saying, if these devices could generate self-employment for anyone, we should be the first group to be trained to manufacture them for ourselves, and to supply others with a similar need. [L2_Q1] (*We should be first group to be trained in manufacturing*) 11. They wanted to demonstrate that even if one did not get a treatment device, there were other ways of purifying drinking water, for example, by boiling it and cooling it off before drinking it. [L1_Q1] (*To demonstrate that even without the devices we can purify water by boiling it)* 12. They also taught us to construct the devices, equipping us with the skill to manufacture them for the market in future. They also guided us on how to care for the devices through cleaning them, etc. [L1_Q1] (*We were taught to manufacture the devices for the market)*	20. Teach of other methods of purifying it 21. Taught to maintain devices Taught us to construct devices for market Skilled to manufacture	• We also nominated from the volunteers • Final trainee number achieved • Training achieved for the first 10
13. They told us they were seeking to see what findings they would get from treating our drinking water using these two containers (L2_Q1) (*To test water filtered in their two devices*)	22. Testing water treatment devices	
14. To investigate what was best for the community, on the basis of which they would approach funders and municipalities to say 'please assist this particular community. They have no clean water. They share drinking water with animals; or they drink contaminated water.' (L2_Q1) (*To find us funding to solve our problems post-research*) 15. They did tell us that they were **not** delivering clean water to us, and that they were here to investigate the state of our water. [L2_Q1] (*They stated they were not delivering clean water*.) (*They were here to investigate the water*).	23. Investigate best solution for community 24. To approach funders 25. "Please assist this community 26. They share water with animals 27. They drink contaminated water 28. 29. To investigate the state of our water	Multi-pronged community intervention • Technological solution for treating water • To teach people how to filter/ purify water • Facilitate health and well-being • Seek funding to • Facilitate income generation
FORMER WARD COUNCILLOR FOR WARD 30 –ELIAS MOTSOALEDI MUNICIPALITY		

16. They stated at the initial meeting that they wanted to address the water problem at Makwane by introducing a purifying system. (L3_Q1)… So that people could treat their own drinking water (L3_Q1) (*To address the water problem*). (*To introduce a purifying system.*) 17. They just explained how the devices functioned. The community welcomed the idea and expressed a desire for a lot of them to be trained in the use of the home based water treatment systems. One of the reasons that they agreed is that they wished for every household to be equipped to treat their own water. Those were some of the things that were agreed upon. [L3_Q1] *They explained how the devices functioned* *The community accepted the idea* *Community expressed a desire to be trained in the use of devices* 18. All that I can remember is that eventually TUT identified more than 10 people for training on that particular system, in Pretoria… [L3_Q1] (*TUT identified people for training*) 19. Actually this is as far as I know. I just have an idea that TUT brought a water purifying project and took community members out for training in Pretoria. Just what agreement was made after the training, I cannot tell you. Also as to what commitments had been made before the training, I'm not sure. [L3_Q1] (*I do not know what commitments were made before or after the training*)	30. Address water problem 31. Introduce a purifying system 32. Teach people to treat water 33. Agreement to teach all 34. 10 people trained in manufacturing	TUT addresses the water problem by: • Introducing purifiers • Training people to use the technology • Equipping every household to treat own water • Training 10 individuals in manufacturing the devices in Pretoria
COMMUNITY LIAISON OFFICER: MAPOCH IRON AND STEEL MINE		
20. They (TUT) were introduced by our mine as a part of assisting the community in our social and labour plan. We recognised Makwane as our labour-sending community. We drew most of the employees of our mine from that area. So the question was, what could we do for them in the form of kick-backs? That is how Highveld Steel, our iron smelter	35. TUT brought by Mapochs Mine 36. Highveld sent for TUT professors 37. Makwane our community 38. Bringing water purifying solution 39. Kill whatever insects 40. Educate community to purify water	

company in Witbank, sent for those professors in Pretoria to assist the community. (MM_Q1) (*TUT were introduced by our mine to assist community*) *We recognised Makwane as our labour-sending community* *What could we give them for kick-backs?* *Highveld Steel, our iron smelter company, sent for TUT* 21. TUT team came and told us they had a way of purifying that water and render it drinkable by the community (MM_Q1) (*TUT told us they had a solution for purifying the water*) 22. Their aim was to kill whatever insects.. to purify the water before people could drink. That water presented with some worrying pedes inside. It was dirty in the true sense of it. So they were purifying the water for the community to drink healthy water. (MM_Q1) (*To kill whatever insects*) 23. In the long term they wanted to educate these community members to purify their own water themselves. (MM_Q1) (*To educate community to purify their own water*)		
ENGAGEMENT FACILITATOR: UMSIZI SUSTAINABLE SOLUTIONS		
24. Maggie said to me 'yes, we want to come and clean water, the health side of water with the Makwana (EF_Q1) (*To come and clean water*)	41. Clean water for health	
25. They said people must drink clean water (EF_Q1)	42. People must drink clean water	
COMMUNITY MEMBERS		
26. They said they wanted to treat our drinking water so we would drink it in a clean state. (FG1_Q1) (*To treat our drinking water*) 27. They even took some of the stream water with them for purposes of testing whether it was fit for drinking. (FG1_Q1) (*They took stream water for testing for fitness for drinking*)	43. Treat and clean water 44. Test water for safety	
28. After about a week of their initial visit they returned with the verdict that the water that we were drinking was not fit for human consumption and that to make the	45. Water unfit for human consumption 46. Enlightened us of need to treat treatment	

water drinkable, we needed to treat it. That's when they mentioned the treatment devices and offered to help us purify our water. They went on to teach us to filter the stream water using the devices they provided. (FG1_Q1) (*They informed us that our water was not fit for human consumption*.) *Need to treat water* *Introduced the treatment devices* *Offered to help us purify our water* *Taught us to filter stream water with the devices*	47. Introduced treatment devices 48. Offered to help us purify our water	
29. I do not really remember (FG2_Q1) 30. They gathered us to tell us they were here to teach us about water; to teach us how to purify our water so that we drink clean water. Then they offloaded the water treatment devices and allocated them to us, telling us that they wanted to end the incidence of "tenge" among us. (FG2_Q1) (*To teach us about water*). *To teach us to purify our water* *To end the incidence of "tenge"* 31. They showed us how these containers functioned. (FG2_Q1) *Showed us how these containers functioned*	49. Do not remember 50. Teach us about water 51. Teach us to purify our water 52. End stomach problems 53. Taught us how the containers work	
32. They told us they had been here before and tested water from our river and found it highly contaminated. That is how they had come up with the idea of these home based water treatment devices. (FG2_Q1) *They had been here before to test our river water.* *They found the water highly contaminated* *That led to the idea of the homebased water treatment devices* 33. They wanted the clean water to achieve wellbeing in us. (FG2_Q1) (*To clean our water to achieve wellbeing in us*) 34. They actually did mention training us on manufacturing the devices at the school…to equip us to treat our water ourselves [FG2:Q1] (*To train us to manufacture the devices*)	54. Highly contaminated water 55. Home based water treatment devices 56. Clean water and wellbeing 57. Train us on manufacturing the devices 58. Enable us to treat water	

To equip us to treat our water ourselves		
35. They said they wanted to help us purify our drinking water (FG3_Q1) ..Because they had discovered that we were drinking contaminated water. (FG3_Q1) (*To help us purify our water*) *To rid our water of contaminants* 36. They explained that once we took to drinking clean water, all water-borne ailments that might have afflicted us in the past would go away. (FG3_Q1) *To instil in us a habit of drinking clean water* *To rid us of all water-borne ailments of the past*	59. Help us purify our drinking water 60. Rid water of contaminants 61. Instil a habit of drinking clean water 62. Eliminate water-borne ailments	Contaminated water

NB: In the write-up remember to refer to comments from the former Ward Councillor, MM CLO and Engagement Facilitator to corroborate responses of community members.

SELECTED THEMES / CATEGORIES AND SUB-CATEGORIES

QUESTION 1: What objectives and goals were the TUT team looking to achieve through their presence here at Makwane?		
THEME ONE	**SUB-CATEGORIES**	**SUPPORTING QUOTES**
Highly contaminated water, unfit for human consumption	• Contaminated water; • Unfit for drinking; • Cause of water-borne ailments	"*They said that the water that we drink has bacteria and is not fit for drinking* [L1_Q1] "*After about a week of their initial visit they returned with the verdict that the water that we were drinking was not fit for human consumption and that to make the water drinkable, we needed to treat it. That's when they mentioned the treatment devices and offered to help us purify our water*." [FG1_Q1]
THEME TWO	**SUB-CATEGORIES**	**SUPPORTING QUOTES**
More research required to answer two key questions	• Determine a suitable technological solution for the Makwane community; • Determine social acceptance of the technology	"*To research on water. That was their initial story*." [L2_Q1] "*They told us they were seeking to see what findings they would get from treating our drinking water using these two containers*." [L2_Q1] "*They even took some of the stream water with them for purposes of testing whether it was fit for drinking*." (FG1_Q1) "*I know that they brought 120 buckets [water treatment devices] and distributed them in the village. But I also know that some of those were damaged and in the long run could not be utilised.*" [L1_Q1] "*Because they had brought these buckets, they added that they were here to check whether people were happy to use them*." (L1_Q1).
THEME THREE	**SUB-CATEGORIES**	**SUPPORTING QUOTES**
To address the water problem through a multi-pronged community intervention at Makwane	• Introduce a technological solution for treating water • Teach people how to filter/ purify own water; • Restore our health and well-being; • Teach community how to manufacture the devices for the market; and • Facilitate income generation.	"*They said they wanted to help us purify our drinking water* (FG3_Q1) *..Because they had discovered that we were drinking contaminated water*." (FG3_Q1) "*They gathered us to tell us they were here to teach us about water…how to purify our water so that we drink clean water. Then they offloaded the water treatment devices and allocated them to us, telling us that they wanted to end the incidence of "tenge"* [gastrointestinal problems] *among us*." (FG2_Q1) "*They showed us how these containers functioned*." (FG2_Q1) "*They explained that once we took to drinking clean water, all water-borne*

		ailments that might have afflicted us in the past would go away." [FG3_Q1] "*To find ways to use the water problem to create employment solutions for our community."* (L2_Q1). "*They were saying, if these devices could generate self-employment for anyone, we should be the first group to be trained to manufacture them for ourselves, and to supply others with a similar need*." [L2_Q1]

Appendix 3: NC codes, categories and themes for Q1

QUESTION 1: SECONDARY THEMATIC ANALYSIS

Question 1: What objectives and goals were the TUT team looking to achieve through their presence here at Makwane?			
COMMUNITY LEADERS			
Data extract	**Themes**	**Categories**	**Codes**
37. They said that the water that we drink has bacteria and is not fit for drinking (L1_Q1) (*Told us our water has bacteria*)	Contaminated water unfit for drinking	Contaminated water Non-potable water	1. Contaminated 2. Non-potable
38. They wanted to introduce appropriate technology to address this problem (L1_Q1) (*Introduce a suitable technological solution)* 39. At that time they brought about 120 buckets and distributed them in the village. But I also know that some of those were damaged and in the long run could not be utilised (L1_Q1)	Technology Buckets Damaged unusable	Technology Buckets Damaged unusable	3. Technology 3a. Buckets 3b. Damaged 3c. Unusable
40. Because they had brought these buckets, they added that they were here to check whether people were happy to use them (L1_Q1). (*Test acceptability of the buckets*)	Check social acceptance of buckets	Social acceptance	4a. Check 4. Social Acceptance 3a. Buckets
41. They told us they were here to research on the water to make it safe to drink (L2_Q2) (*To research the water and render it safe*) 42. They said theirs was to conduct research, at the end of which they would carry on. (L2_Q1) (*To conduct research*) 43. To research on water. That was their initial story (L2_Q1)	conduct water research x3 make water safe research would continue	Water research Safe to drink research would continue	5. Research/Investigate 6. Safe to drink 5a. Research would continue
44. To find ways to use the water problem to create employment solutions for our community (L2_Q1). (*To create employment*)	Attempt employment creation	Employment creation	7.Employment
[**How and Why 10 community members were selected for training**:]	**How selected:** Volunteered		

45. I remember we were all gathered at the school when the selection was done. A lot of people were gathered at the school. Prof Momba invited those with an interest to come forward – per section. People volunteered. Then we [the attendees] were invited to nominate people from the list of names of the volunteers. That's how we arrived at the final number. [L2_Q1]	Nominated from volunteers		
46. They were saying, if these devices could generate self-employment for anyone, we should be the first group to be trained to manufacture them for ourselves, and to supply others with a similar need. [L2_Q1] 47. They wanted to demonstrate that even if one did not get a treatment device, there were other ways of purifying drinking water, for example, by boiling it and cooling it off before drinking it. They also taught us to construct the devices, equipping us with the skill to manufacture them for the market in future. They also guided us on how to care for the devices through cleaning them, etc. [L1_Q1]	Devices as creators of self-employment First group Manufacture devices x2 Supply devices x2 Demonstrate methods of water purification Maintenance of devices	Devices self-employment First group Manufacture Distribution Supply Demonstration Maintenance Purification	8. Devices 7a. Self-employment 7b. First group 8. Manufacture 9. Distribution 10. Supply 11. Demonstration 12. Maintenance 13. Purification
48. They told us they were seeking to see what findings they would get from treating our drinking water using these two containers (L2_Q1) (*To test water filtered in their two devices*)	Seeking findings on water treatment Test water through devices	Research Water treatment Devices Test	5. Research/Investigate 14a. Water treatment 8. Devices 14. Test (v)
49. To investigate what was best for the community, on the basis of which they would approach funders and municipalities to say 'please assist this particular community. They have no clean water.	Investigate what is best for community Approach funders on behalf of community Assist community No clean water	Investigate x2 what is best for community Funding Help community Contaminated water	5. Research/Investigate 16a. What is best for community 16. Help/Assist 17. Community 1. Contaminated 18. Clean (adj)

They share drinking water with animals; or they drink contaminated water.' (L2_Q1) (*To find us funding to solve our problems post-research*) 50. They did tell us that they were **not** delivering clean water to us, and that they were here to investigate the state of our water. [L2_Q1]	Contaminated water Water shared with animals Not providing clean water Investigate state of water	Absence of clean water	
FORMER WARD COUNCILLOR FOR WARD 30 –ELIAS MOTSOALEDI MUNICIPALITY			
51. They stated at the initial meeting that they wanted to address the water problem at Makwane by introducing a purifying system. (L3_Q1)… So that people could treat their own drinking water (L3_Q1) 52. They just explained how the devices functioned. The community welcomed the idea and expressed a desire for a lot of them to be trained in the use of the home-based water treatment systems. One of the reasons that they agreed is that they wished for every household to be equipped to treat their own water. Those were some of the things that were agreed upon. [L3_Q1] 53. All that I can remember is that eventually TUT identified more than 10 people for training on that particular system, in Pretoria… [L3_Q1] 54. Actually this is as far as I know. I just have an idea that TUT brought a water purifying project and took community members out for training in Pretoria. Just what agreement was made after the training, I cannot tell you. Also as to what commitments had been made before the training, I'm not sure. [L3_Q1]	They wanted to Address water problem Introduce purifying system Community to treat own water Explained how devices work Acceptance by community Community wants training on devices Community wants every household equipped to treat water People identified for training Water purifying project Community members trained Uncertain about agreement after training Uncertain about commitments before training	They wanted to Address water problem Introduce purification system Treat own water Explained devices Acceptance Training x3 Desire Every household equipped Agreement/s x3 People identified Water purification project Uncertainty	19a. They Wanted To 19. Problem 20. Introduce 13. Purification 21. Self-Empowerment 22. Explain 4. Acceptance 23. Training 24. They Desire 25. Every Household 26. Equipped 27. **Agreement** 28. Identified Trainees 13. Purification 29. Project 30. Uncertainty
COMMUNITY LIAISON OFFICER: MAPOCH IRON AND STEEL MINE			

55. They (TUT) were introduced by our mine as a part of assisting the community in our social and labour plan. We recognised Makwane as our labour-sending community. We drew most of the employees of our mine from that area. So the question was, what could we do for them in the form of kick-backs? That is how Highveld Steel, our iron smelter company in Witbank, sent for those professors in Pretoria to assist the community. (MM_Q1) 56. TUT team came and told us they had a way of purifying that water and render it drinkable by the community (MM_Q1) 57. Their aim was to kill whatever insects. to purify the water before people could drink. That water presented with some worrying pedes inside. It was dirty in the true sense of it. So they were purifying the water for the community to drink healthy water. (MM_Q1) 58. In the long term they wanted to educate these community members to purify their own water themselves. (MM_Q1)	Assisting community Social and labour plan Employees from mine area Kick-backs for employees Company requested university professors to assist community University team introduced purification method Drinkable water Aim to kill insects Aim to purify water Worrying pests in water Water purification for community to drink healthy water Educate community Purify own water	Assist community x2 Employees Kick-backs Mine company Company enlists help University team/professors Purification method Drinkable water Kill insects Purify water Worry Pests Water purification For community Healthy water Educate Community Purify Own water	16. Help/Assist 31. Employees 31a. Kick-Backs 32. Mine/Company 33. Enlist Help 34. University 35. Professors 13.Purification/Treatment 36. Method 37. Potable/Drinkable 38. Kill Insects/Pests 13. Purification 39. Worry 13. Purification 17. Community 40. Healthy 41. Educate 17. Community 13. Purificy/Treat 21. Self-Empowerment
ENGAGEMENT FACILITATOR: UMSIZI SUSTAINABLE SOLUTIONS			
59. Maggie said to me 'yes, we want to come and clean water, the health side of water with the Makwana (EF_Q1)	Clean the water	Clean water	42.purify/clean (v)
60. They said people must drink clean water (EF_Q1)	People must drink clean water	They said Drink clean water	43.they said 18.clean (adj)
COMMUNITY MEMBERS			
61. They said they wanted to treat our drinking water so we would drink it in a clean state. (FG1_Q1)	They said they wanted Treat water Drink clean water	They said they wanted Treat water	43. They Said 44. They Wanted 13. Purify/Treat 18. Clean (adj)

62. They even took some of the stream water with them for purposes of testing whether it was fit for drinking. (FG1_Q1)	Took stream water with them Test water Identify if fit for drinking	Drink clean water Sampled stream water Tested stream water Water potable or not	45. Sample (v) 14. Test (v) 37. Potable/Drinkable
63. After about a week of their initial visit they returned with the verdict that the water that we were drinking was not fit for human consumption and that to make the water drinkable, we needed to treat it. That's when they mentioned the treatment devices and offered to help us purify our water. They went on to teach us to filter the stream water using the devices they provided. (FG1_Q1)	Return visit Finding: water not potable Water needed to be treated Mentioned treatment devices Offered to help purify water Taught to filter stream water Taught to use devices	Return water not potable Water to be treated Mentioned treatment devices Offered to help Offered to purify water Taught to filter water Taught to use devices	55. Return 2. Non-Potable 13. Purification 8. Devices 46. Offered 16. Help/Assist 13. Purify/Treat 47. Teach 50. Filter (v) 51. Use 8. Devices
64. I do not really remember (FG2_Q1) 65. They gathered us to tell us they were here to teach us about water; to teach us how to purify our water so that we drink clean water. Then they offloaded the water treatment devices and allocated them to us, telling us that they wanted to end the incidence of "tenge" among us. (FG2_Q1) 66. They showed us how these containers functioned. (FG2_Q1) 67. There was one filter with layers of sand into which we were advised to pour water. When that water came out at the bottom it was clean and much cooler than it was initially. (FG2_Q1)	Don't remember They gathered us They told us They would teach us Teach to purify water Drink clean water Offloaded devices Intention to end incidence of *tenge* Showed how containers function Filter with sand Water poured into filter Water emerged clean Water emerged cooler	Forgot Gathered Told Taught Purify water Drink clean water Devices *Tenge* Demonstrate Functioning of devices Filter Clean water Cool water	47. Forgot 48. Gathered 49. Told 47. Teach 13. Purify/Treat 18. Clean (adj) 8. Devices 48. Tenge/ Water-Borne Ailments 49. Demonstrate 52. Functioning (v) 18. Clean (adj) 53. Cool 54. Filter (v)
68. They told us they had been here before and tested water from our river and found it highly contaminated. That is how they had come up with the idea of these home-based water treatment devices. (FG2_Q1)	Were here before Tested water from river Water found to be contaminated Came up with idea of devices\ They wanted to	Follow-up visit Tested water Contaminated water Came up with idea Devices They wanted to Clean water	55. Return 14. test (v) 1. Contaminated 56. idea 8. Devices 44. they wanted 18. clean (adj) 57. well-being 23. training

69. They wanted the clean water to achieve wellbeing in us. (FG2_Q1) 70. They actually did mention training us on manufacturing the devices at the school…to equip us to treat our water ourselves [FG2:Q1]	Objective: Clean water Objective: our well-being Training on manufacturing devices Equip us Treat water ourselves	Well-being Training Manufacturing Equip Own treatment of water	8. Manufacture 58. Equip 59. Own treatment
71. They said they wanted to help us purify our drinking water (FG3_Q1). Because they had discovered that we were drinking contaminated water. (FG3_Q1) 72. They explained that once we took to drinking clean water, all water-borne ailments that might have afflicted us in the past would go away. (FG3_Q1)	Help us Purify water They discovered Drinking contaminated water Explained Clean water would end water-borne ailments	Help Purify They discovered contaminated water explained clean water water-borne ailments	16. Help/Assist 42. Purify/Clean (v) 60. They Discovered 1. Contaminated Explained 18. Clean (adj) 48. Tenge/Water-Borne Ailments

Original codes
1. Contaminated 2. Non-potable
3. Solution
4. Acceptance
5. Research/Investigate 6. Safety
7. Employment
8. Devices 7. Employment 8. Manufacture 9. Distribution 10. Supply 11. Demonstration 12. Maintenance 13. Purification
5. Research/Investigate 8. Devices 14. Test (v)
5. Research/Investigate 16. Help/Assist 17. Community 1. Contaminated 18. Clean (adj)
19. Problem 20. Introduce 13. Purification 21. Self-Empowerment 22. Explain 4. Acceptance 23. Training 24. They Desire 25. Every Household 26. Equipped 27. Agreement 28. Identified 13. Purification 29. Project 30. Uncertainty
16. Help/Assist 31. Employees 32. Mine/Company 33. Enlist Help 34. University 35. Professors 13. Purification/Treatment 36. Method 37. Potable/Drinkable 38. Kill Insects/Pests 13. Purification 39. Worry 13. Purification 17. Community

40. Healthy 41. Educate 17. Community 13. Purificy/Treat 21. Self-Empowerment
42. Purify/Clean (v)
43. They Said 18. Clean (adj)
43. They Said 44. They Wanted 13. Purify/Treat 18. Clean (adj) 45. Sample (v) 14. Test (v) 37. Potable/drinkable
55. Return 2. Non-Potable 13. Purification 8. Devices 46. Offered 16. Help/Assist 13. Purify/Treat 47. Teach 50. Filter (v) 51. Use 8. Devices
47. Forgot 48. Gathered 49. Told 47. Teach 13. Purify/Treat 18. Clean (adj) 8. Devices 48. Tenge/Water-Borne Ailments 49. Demonstrate 52. Functioning (v) 18. Clean (adj) 53. Cool 54. Filter (v)
55. Return 14. Test (v) 1. Contaminated 56. Idea 8. Devices 44. They Wanted 18. Clean (adj) 57. Well-Being 23. Training 8. Manufacture 58. Equip 59. Own Treatment
16. Help/Assist 42. Purify/Clean (v)

60. They Discovered
1. Contaminated
Explained
18. Clean (adj)
48. Tenge/Water-Borne Ailments

Appendix 4: Consolidated set of themes identified

Consolidated set of themes identified, and categories

Research questions and the themes they generated				
TUT's engagement objectives and goals, and their achievement (Q1, Q7 & Q8)	**TUT's engagement practices (content, players, methods, frequency, levels and challenges); (Q2, Q3, Q4, Q5, Q12)**	**Community expectations; met or unmet? (this includes what TUT could have done better) (Q6, Q12)**	**Significant community gains (Q8)**	**Other changes (explicit or implied)** (e.g. lifestyle or behaviour change in community; knowledge exchange) **(Q9, Q10 & Q11)**
Objectives to a) purify our water and render it drinkable; b) test the state of our water; c) evaluate the water treatment devices and d) teach us to treat our own water were accomplished. *However, they failed on the intent to get us manufacturing the water treatment systems for the market*	*The three-member team met us face to face, first to inform us of their intention and to secure our agreement to work with them. They visited fortnightly to monitor our maintenance of the water treatment systems and to collect water samples. However, when their year-long project came to an end they failed to alert us and to share what they had found in their investigation. We realised when they stopped coming that the project had ended.*	*Overall, we did not really expect much. However, their offer to train us in the manufacturing of the water systems to generate income raised our expectation.* *Having tasted clean water we expected and requested them to apply this technology to much bigger reservoirs for the benefit of the whole community. The 20 litres per household per day was too little to meet needs of an average family.* *They **could have** allocated a treatment device per house-hold for universal benefit. They **could have** dug us a borehole; installed standpipes throughout the village -- most*	*TUT opened our eyes about the contaminated water we had been drinking for so long. We learned that the high levels of contamination in the water we were drinking were the cause of stomach and skin ailments in our community; We learnt of the importance of treating the streams water before drinking it, and also learned of alternatives means of treating the water, such as boiling it or adding bleach to it.* *As a result we drank clean, tasty water and gained better health.* *However, all of that was short-lived. Now we have regressed in every way*	*The devices are either damaged or are past their lifespan and the river has dried up. We therefore no more treat our water.* *Even if we wanted to boil the water, there is really nothing to boil, in the absence of water. We now resort to buying water from those who have dug up boreholes within their homesteads. Those who cannot afford R2 per 20litre container go up the mountain to draw water from the spring in the woods.* *In terms of knowledge, we have no clue about whether the TUT researchers learnt anything from us.*

		certainly at the Lepurung borehole		
Categories in support of the themes above				
• Contaminated water; • Unfit for drinking; • Cause of water-borne ailments • Determine a suitable technological solution for the Makwane community; • Determine social acceptance of the technology • Introduce a technological solution for treating water • Teach people how to filter/ purify own water; • Restore our health and well-being; • Teach community how to manufacture the devices for the market; and • Facilitate income generation	• Administering questionnaires; • Making observations; • Taking water samples of raw and filtered water • Communicated lab results; • Monitoring usage of treatment devices; • Checking household experiences; • Prompting on benefits; • Receiving respondents' feedback and commenting • Prof Momba with two students • Three members including Prof Momba • Shoki came with a man • Weekly, fortnightly, monthly visits, face-to-face in households, for up to a year • Mobile phone follow-ups through our leaders • Information-sharing, consultation • Impatience • Diminishing cooperation • Loss of interest • Irritation at TUT researchers • Disappointment at TUT	• 20 litres of water is insufficient in a family of four to ten • Out of the litres we filtered per day we only drank washed dishes and did little else. • The yield was too little for bathing or laundry • There is no water in our sub-section of the village… **We need clean water** • Now we share water with cattle and dogs **Dig us a borehole**; • test the groundwater for bacteria; • compare the water with that from streams **Erect a standpipe in the village** **Present our plight to our municipality** • We've lost faith in them • Our pleas have fallen on deaf ears for years • They might respond better to TUT • They dug a borehole for	• We purified our own water • Drank clean water • Episodes of diarrhoea were significantly reduced • Symptoms of ill health waned • Enjoyed the taste of clean water • Wellbeing was restored • We were satisfied and felt fulfilled; but that was short-lived **Treating our own water was not without challenges** • The BSF (sand filter) took three days to yield a reasonable amount of water for drinking. • It takes too long to cool boiled water for drinking **It was all well and good until the river dried up and there was no water to filter** • We are back to ingesting	Evidently community members no more treat their water • They cite damaged devices • No answer when asked whether they boil water (Group One). They are also reluctant to discuss bleaching • Others (Groups Two and Three) admit that they no more treat water except one lady in Group Three who still does, but admits that the purifying power of her device must be significantly diminished **There is no water to treat now** • There is nothing to purify • There is also nothing to boil. Only thick mud remains in the river. • Those who can now

	• Snubbing of the researchers	Newstand but not for us • They're discriminatory (We actually never voiced this wish-list; these were out thoughts)	untreated water • The stomach ailments from the past are now coming back.	buy water from homesteads with boreholes • Others are forced to ascend the mountain for spring water deep in the woods • Evidently community members do not boil even that water because when asked, they had forgotten about those alternative purifying methods

Appendix 5 (a): Research consent form – English

Academic Research Information and Consent Form

Title of the study:

AN ASSESSMENT OF STAKEHOLDER ENGAGEMENT BETWEEN THE TSHWANE UNIVERSITY OF TECHNOLOGY (TUT) AND STAKEHOLDERS IN RELATION TO TUT'S EVALUATION OF HOME WATER TREATMENT DEVICES AT MAKWANE

Research conducted by:

Ms 'Mateboho Green (North-West University)

Dear Respondent

You are invited to participate in an academic research study conducted by Ms 'Mateboho Green, a student with the North-West University

The purpose of the study is to:

- Determine the practices of stakeholder engagement within the community-based TUT enquiry at Makwane;
- Identify engagement gaps, if any, and make the necessary recommendations to the TUT research team.

Please note the following:

- This study involves your participation in an in-depth interview.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- The results of the study may be made available to all stakeholders in this research project (e.g. TUT research team, Elias Motsoaledi Municipality officials and the Makwane community) and may be published in an academic journal and/or presented at an academic conference.

Please sign the form below, to indicate that:

- You have read and understood the information provided on page 1.
- You agree to participate in the study on a voluntary basis.
- You may be quoted.

Consent form

Dear Participant

I thank you for agreeing to participate in this study. By handing back this form, signed, you are indicating that you understand and agree to the terms described in the previous page. You are requested to sign the form in duplicate, so that you can keep the one copy as the researcher keeps the other.

Participant name (print):_____

Participant Signature:_____ Date:_____

Researcher's Signature:_____ Date:_____

Appendix 5(b): Research consent form -- Sepedi

Academic Research Information and Consent Form

Title of the study:
AN ASSESSMENT OF STAKEHOLDER ENGAGEMENT BETWEEN THE TSHWANE UNIVERSITY OF TECHNOLOGY (TUT) AND STAKEHOLDERS IN RELATION TO TUT'S EVALUATION OF HOME WATER TREATMENT DEVICES AT MAKWANE

Nyakišišo e sepedišwa ke:

Ms 'Mateboho Green (North-West University)

Thobela motšeakarolo

O laletšwa go tla go tšea karolo mo nyakišišo ya tša thuto ka Ms 'Mateboho Green, moithuti wa unibesithi ya North-West

Kgwekgwe ya thuto thuto ye ke go:

- Hwetša ditirišo tša tlemano le dipotšišo tša setšhaba go la Makwane;
- Nyaka tlemano ya dikgoba, ge eba e gona, le go dira dikeletšo tšeo di nyakegago o sehlopha sa nyakišišo ya TUT.

Ka kgopelo ela hloko tšeo di latelago:

- Thuto ye e akaretša poledišano ya gago ka botlalo.
- Go kgatha tema ya gago mot hutong ye go bohlokwa kudu go rena. O ka kgetha le go se tšeye karolo ebile o ka emiša go kgatha tema ka nako ye ngwe le ye ngwe ntle le ditlamorago tšeo di sa lokago.
- Dipoelo tša thuto ye di tlaba gona mo gohle ka projeko ya nyakišišo (mohl.sehlopha sa nyakišišo sa TUT, mmasepala wa Elias Motsoaledi le setšhaba sa Makwane) ebile e ka phatlalatšwa ka gare ga ditšenale tša thuto/goba tša alwa kopanong ya tša thuto.

Ka kgopelo saena foromo ya ka fase, o laetše gore:

- O badile le go kwešiša tshedimošo yeo e abetšwego letlakaleng la 1.
- O dumetše go tšea karolo ka boitaopo mo thutong ya nyakišišo ye.
- Polelo ya gago e ka tsopolwa

Consent form

Motšeakarolo

Kea go leboga ge o dumetše go tšea karolo mot hutong ye. Ka go bušetša foromo ye morago, o laetša gore o kwešiša le go dumela melawana yeo e hlalositšwego lelakaleng la go feta. O kgopelwa go saena foromo yeo e tšwelelago ga bedi, gore o kgone go itshwarela khopi ya gago ka ge monyakišiši a itshwarela ye nngwe.

Leina la motšeakarolo (porinthi):_____

Mosaeno wa motšeakarolo:_____
Letšatši:_____

Mosaeno wa monyakišiši:_____
Letšatši :_____

APPENDIX 6: CERTIFICATE OF LANGUAGE EDITING

cumlaude
languagepractitioners

Director: CME Terblanche - BA (Pol Sc), BA Hons (Eng), MA (Eng), TEFL

22 Strydom Street
Baillie Park, 2531

Tel 082 821 3083
cumlaudelanguage@gmail.com

DECLARATION OF LANGUAGE EDITING

I, Christina Maria Etrecia Terblanche, hereby declare that I edited the research study titled:

A REVIEW OF STAKEHOLDER ENGAGEMENT IN THE TSHWANE UNIVERSITY OF TECHNOLOGY'S EVALUATION OF HOME-BASED WATER TREATMENT DEVICES AT MAKWANE: A COMMUNITY PERSPECTIVE

for **MLH Green** for the purpose of submission as a postgraduate study for examination.

Changes were indicated in track changes and implementation was left to the author.

Regards,

CME Terblanche

Cum Laude Language Practitioners (CC)

South African Translators Institute accr nr: 1001066

Full member of the Professional Editors Guild