

# THE ENVIRONMENTAL IMPLICATIONS OF INFORMAL SETTLEMENTS ON THE DENIZENS OF MSHOLOZI, SOUTH AFRICA

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## Abstract

The severity and extent of the challenges bedevilling the informal settlements are dissimilar because of the different geographical and contextual settings. Thus, using a common solution to the menace might not work in all contexts, without first, understudying the peculiar challenges of informal settlements within an area. Additionally, since the cause(s) of informal settlements varied considerably within a country and across countries, understanding the triggers relative to specific locations is necessary; to know what went wrong and how this could be remediated. Therefore, this study aims to, not only, evaluate the environmental challenges, but evaluate the triggers of the Msholozhi informal settlement in South Africa. Accordingly, data for the study was collected from the residents, municipal officials, Departments of Human Settlements and Public Works officials. Whilst the results of this study have some commonalities with previous works, including, (1) an insalubrious living environment (2) overstretch of existing poor facilities (3) water and air pollution, and (4) block drainages and erosions among others; the triggers are fundamental. Findings imply that both the government and the dwellers are complicit in the development and challenges being faced thereof, in Msholozhi. Thus, it is recommended that urgent and honest steps should be taken by concerned parties, toward remediating the menace. The steps should among others include (1) assemblage of stakeholders for a meeting to understand the genesis of the problem; (2) educating all parties on the consequences of their actions to the environment and the inhabitants; (3) promoting agreement among the stakeholders on their roles and responsibilities towards tackling the challenges; (4) taken the census of the residents to aid the government in decision making.

**Keywords:** Environment, Informal settlements, Msholozhi, Pollution, Remediation

# 1.0. Introduction

How human beings use the environment is directly proportional to what they receive from the environment. Most health-related challenges being faced by several humans are the results of improper human activities in the environment. A well-informed society where residents are aware of uses that detrimentally affect the environment avoids such improper practices. Similarly, there are areas/neighbourhoods where detrimental practices are not avoided because of a lack of such knowledge. Again, there are places where the residents are aware of the implications of negative human activities on the environment but helplessly indulge in such practices because of poverty or lack of economic will to avoid them.

Challenges that bedevilled the environment as a result of human practices could be minimal or major. By minimal challenges we mean those usages that include informal settlements that triggered household waste generation and indiscriminate disposal, overcrowding, and non-adherence to safety standards and building codes, among others. Major environmental challenges are those usages that include deforestation, mining and related activities, industrial wastes, and air and water pollution. While environmental challenges are not confined to a particular location, some have since been remediated in several countries. For instance, although the “minimal” environmental challenges have since been remediated in most developed countries; there are still issues of industrial waste and vehicular fumes.

The concern of this paper, however, is the “minimal” environmental challenges relative to the informal settlements, of which part of the consequences was aforementioned. Informal settlements are a creation of the poor implementation or absence of governmental policies on housing for the citizens. In the Republic of South Africa with its unsavoury history of apartheid, the proliferation of informal settlements has reached a worrisome level (Napier, 2017; Msimang, 2017). This is happening because of the dereliction or neglect of authorities to the provisions of section 26 (1) of the country's constitution, which provides, that every citizen has the right to access adequate housing.

Despite the constitutional provisions, several disadvantaged citizens are forced to settle in informal areas across the nine (9) provinces (Housing development Agency, 2016). According to Mutero & Makwara (2018), the poor handling attitude leading to delays by the Department of Human Settlements in allocating houses to the people within the low-income bracket aggravated the problem. The consequence of such neglect is the

proliferation of several informal settlements around South Africa. Additionally, the Socio-Economic Rights Institute of South Africa (SERI) (2018) stipulates that poor planning, lack of coordination, insufficient capacity, failure to monitor the correct implementation of government policies and lack of political will have plagued the implementation of the right to adequate housing.

Previous studies regarding this subject exist (Ali & Sulaiman, 2006; Tsenkova, 2010; Olajide, 2010; Tilaki, Mustafa, Marzbali, Abdullah & Ariffin, 2011; Onyekachi, 2014; Jones, 2017; Mutero & Makwara, 2018). Ziervogel, Waddell, Smit & Taylor (2016); Msimang (2017); Muanda, Goldin and Haldenwang (2020) and Nixon (2020) are the known studies on informal settlements in South Africa that relate to the environment. The focus of this study is unique in that location is different and additional participants, including governmental officials, were introduced that previous regional studies have not addressed. The main motivation is to see if the findings of previous regional (South African) studies could be replicated, so that generalised conclusions and appropriate policy statements would be made to ameliorate the problems of the informal settlement in South Africa.

Accordingly, the study is divided into six sections, including section one which introduces the study. Section 2 reviews the literature. Section 3 indicates the research methods that were used in the study. Section 4 shows the results and discussion of the study. Section 6 recommends and concludes the study.

## **2.0. Literature Review**

Several studies have been done about the environmental challenges that affect the people living within informal settlements. Thus, illegal housing development and ownership, overcrowding of people in houses, and indiscriminate waste generation and management are some of the challenges that are prevalent in informal settlements. Accordingly, Thomas (2001) was of the view that any harm by people to the environment which results in a change in the physical environment state and which society no longer finds useful is an environmental challenge. The author believes that most establishments of informal settlements have a very negative impact on the physical environment, and therefore no doubt that informal settlements are an environmental challenge.

### **2.1 The environmental challenges affecting people in informal settlements**

Sands and Peel (2012) believe the environment to be anything natural in terms of its

features and products. United Nations (2009) believes that the unplanned use of land, which contributes to deficient infrastructure and urban sprawl, is associated with the environmental challenges experienced in informal settlements. According to Nasar & Elsayed (2017), natural and manmade hazards threaten informal settlements since they can't stand disaster. Opiyo, Osano, Mbandi, Apondo & Muhoza (2020) indicated that the inhabitants of illegal settlements frequently erect their structures in low-lying areas closer to riverbanks and might experience flooding and other disasters.

Informal settlements appeared to be a lingering crisis in several countries. As observed by Todaro (2014) and Srivanas (2015), informal settlements are a solution to the growing housing needs of an increasing population in cities and villages. This is because the informal dwellers would have been homeless without shacks and indecent roofs over their heads. However, the negative environmental and other negative consequences that follow informal settlement impede its existence. South Africa's informal settlements face a large number of environmental challenges. These challenges range from flooding, air pollution, waste disposal and soil degradation.

### **2.1.1 Pollution**

#### **a. Air pollution**

Formal and informal settlements do suffer from both outdoor and indoor air pollution. However, informal settlements are, hit the most by air pollution. Nassar & Elsayed (2017) indicated that informal settlements have two different types of air pollution. These are stationary and mobile sources. A stationary source includes industrial facilities, thermal power stations, and commercial and residential activities. A mobile source includes passenger cars, buses, trucks and motorcycles.

According to West, Buker, Ashmore, Njoroge, Welden, Muhoza, Osano, Makau & Apondo (2019), informal settlement dwellers are exposed to a different mix of pollutants because most of the settlements are usually constructed closer to industrial plants, dumpsites and dirt tracks. Another factor is the intensive use of biomass fuel within the settlements. They further explained that informal settlements dwellers also experience a high level of air pollution due to the building materials they use to build their homes

#### **b. Water pollution**

Water is a fundamental substance that is required for survival by humans, animals, and plants. Napier (2017) reports that water pollution in informal settlements is caused by wastewater from domestic use activities, solid waste disposal, which is improper, and faecal contamination caused by the residents of the informal settlements. According to

Hennigan (1969), when any inflow into the water cycle affects the quality of water to the degree that a genuine use is affected, such is referred to as water pollution. Devi, Lowly and Weber (2017) in Suva, Fiji found that informal settlements impair the availability of clean water because of indiscriminate waste disposal.

### **2.1.2 Solid waste management**

According to the National Environmental Waste Act 59 of 2008, waste is defined as any unwanted material or substances that are no longer required and ready to be disposed of or discarded by the user or holder. Mbonambi (2016) reiterated that the lack of a proper waste management system is another basic issue faced by inhabitants of slums. According to Ferguson (1996) and Msimang (2017), in Montego Bay, Jamaica and Pietermaritzburg, South Africa found that the informal settlements experience a backlog in waste collection due to limited roads and infrastructure. The studies further stated that the waste collection vehicles cannot reach some households due to the bad road infrastructure, lack of cooperation among residents and shortage of finance.

Unfortunately, the backlogs in collecting the waste from settlements had in the past been responsible for the spread of diseases (Ali and Suleiman, 2006; Napier, 2017).

### **2.1.3 Natural hazards**

According to Delgado (2019), any natural process resulting in injury or death, damaging property, and negatively impacting health, social, economic and environment is believed to be a natural hazard. According to Parikh, Bisaga, Loggia, Georgiadou & Ojo-Aromokudu (2020), informal settlement dwellers are exposed to flooding risks during periodically heavy rains due to some of the houses that are built close to streams. Mbonambi (2016) concur with this statement and indicated that the improper layout plan and construction of informal settlements have overfilled many natural waterways and have resulted in recurrent floods during rainy seasons.

From the foregoing reviewed studies, the case for Msholozhi, Mbombela, South Africa begged for attention since there are no known studies relative to the environmental implication of informal settlement in the location. Moreover, the importance of context comes to bear in this analysis because of the first-hand information it provides on the study area.

## **3.0. Research Methods**

This study was conducted in the Msholozhi informal settlement, which is under the

jurisdiction of the City of Mbombela, Mpumalanga Province, South Africa. The houses in Msholzi are built on land that belongs to the Department of Public Works. Thus, the residents in the study area, officials of the city of Mbombela and the staff members of the Department of Public Works and the Department of Human Settlements, whose administrative duties extend to the study location, formed part of the research participants.

This research used a survey design to gather relevant information. According to the household survey that was conducted by the City of Mbombela in 2019, Msholzi informal settlement is home to about 7354 households. A formula advanced by Kothari (2004), was used to determine the sample size from the sample frame of 7354 households, the reason is that the sample frame of 7354 is too large for meaningful data collection. A sample size of 192 was arrived at, which was systematically administered to the household head of each house visited. However, out of the 192 administered questionnaires; only 136 were returned, representing a 70 per cent return rate. Thus, the 136 returned questionnaires were used for the study.

Two officials, one each from the Departments of Human Settlements and Public Works were purposively chosen for data collection. These were chosen because of their direct involvement with the people and knowledge of governmental policies and implementations in Msholzi, Another two officials from the city of Mbombela including, (1) the Ward Councillor and (2) the city of Mbombela Human Settlement officer, were also selected for data collection. Additional details about these officials are found in the analyses.

## **4.0. Analyses and Discussion**

As noted earlier, informal settlements have grievous consequences on the residents even though failure in governance might have triggered their development. The analyses revealed some of the environmental implications of informal settlements in Msholzi, Mbombela. Planning suggests that if an area or house is designed to accommodate a certain number of persons, any breach relative to an increase in the required number would not only lead to overstretching of facilities but an unhealthy living environment. This is the case of the Msholzi settlement, whereby, houses are built indiscriminately without recourse to the law. Accordingly, analysis in Table 1 reveals the physical characteristics of houses and adherence to building regulations in the study location.

**Table 1:** Physical characteristics and adherence to building regulations in Msholzi

Characteristics	Unsure	Respondents and Percentage (%)					MS	Rank
		Totally Disagree.....Totally Agree						
		1	2	3	4	5		
No building plans	32(23.5)	07(5.1)	18(13.2)	11(8.1)	14(10.3)	54(39.7)	3.86	1.0
Incorrect zoning	24(17.6)	11(12.5)	17(12.5)	20(14.7)	13(9.6)	51(37.5)	3.68	3.0
Scheme violations	36(26.5)	09(6.6)	14(10.3)	20(14.7)	12(8.8)	45(33.1)	3.70	2.0
Poor building material and house qualities	20(14.7)	27(19.9)	12(8.8)	25(18.4)	14(10.3)	39(27.9)	3.21	4.0

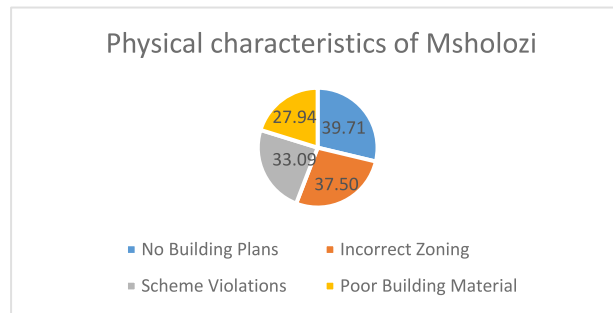


Figure 1 Physical characteristics of houses in Msholzi

The study location is characterised by several defective building rights and regulations as the analysis in Table 1 and Figure 1, respectively, suggests. The results show that houses in the study area were built without recourse to building plans as shown in the mean score of 3.86. Total violation of the land use scheme in the study area ranked second with a mean score rating of 3.70. Furthermore, improper zoning is another challenge prevalent in the informal settlement of Msholzi, ranking third in the order of severity as suggested by the respondents. This has a mean score rating of 3.68, which shows that people do not follow the zoning requirements provided for by the city of Mbombela. Fourthly, analysis shows that houses are built in Msholzi with sub-standard building materials. This has a mean score of 3.21, reflecting the economic strength and the land of proper tenurial rights of the people to build in the study area. It must be noted that the city of Mbombela housed all governmental agencies that are responsible for overseeing the day-to-day administration, development and management of people and the environment in Msholzi.

The insalubrious nature of the environment is caused by the act of outright violation or neglect of the building codes and standards. The infiltration of people into the area because of improper planning and documentation of the people to establish the genuineness of their occupancy is the major concern of the Department of Human Settlement in Mbombela. Thus, since the residents at Msholzi informal settlements illegally occupied the land, there was no

way the local authority would approve the building plans without proof of ownership of the land, which all the residents do not possess.

The analysis also reveals the different ownership statuses of residents in the study area as shown in Table 2.

**Table 2:** Ownership status of residents in Msholozhi

Status	Frequency	Percentage	Cumulative %
Owner Occupied	36	26,5	26.50
Renter/Tenant	25	18,4	44.90
Family House	71	52,2	97.10
Others	04	2,9	2.90
<b>Total</b>	<b>136</b>	<b>100</b>	<b>100</b>

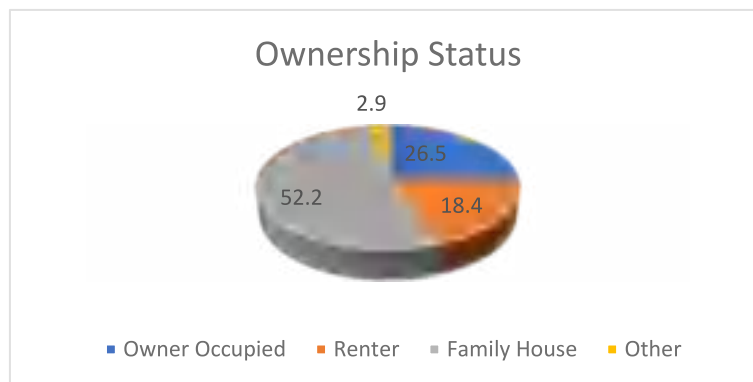


Figure 2 Ownership statuses of residents in Msholozhi

Table 2 and Figure 2 were used to depict the owner states that the respondents have in Msholozhi informal settlements. At least 52.2% of the respondents indicated that they are living in a family house. About 26.5% of the respondents indicated that they are owners of the properties, with 18.4% of the respondents indicating that they are tenants. About 2.9% of the respondents indicated others as their reason for living at Msholozhi. Others imply they are squatters in the study area.

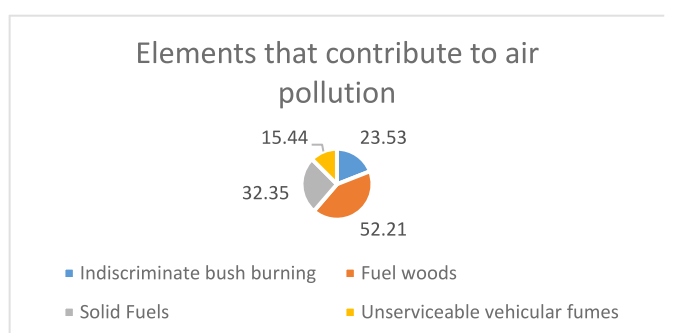
The analysis also reveals that pollution is another environmental consequence of the Msholozhi informal settlement relative to air pollution. Accordingly, Table 3 summarises the results of the causes of pollution in the study area. Table 3 and Figure 3 show an increase in air pollution triggered by fuel woods, unserviceable vehicles, indiscriminate bush burning and other solid fuels. These are consequences of population growth as more and more people



found solace in living in such areas where they pay a little amount or nothing for accommodation. In specific terms, the results show that respondents, with a mean scoring rate of 4.17, indicated that the fuel woods used by residents for cooking or house heating contributes to the environmental challenge of air pollution. Also, a mean scoring rate of 3.40 indicated that solid fuels also contribute to the environmental challenge of air pollution in Msholozhi. This is closely followed by indiscriminate bush burning within the area by the residents with a mean score of 2.95. Lastly, the analysis shows that respondents, with a mean scoring rate of 2.87, believed mobile sources including passenger cars contribute to the environmental challenge of air pollution at Msholozhi. This is because many of these cars are not in good shape; hence, the rate at which they emit toxic fumes is high.

**Table 3:** Problem of air pollution on the residents of Msholozhi

Causes of pollution	Unsure	Respondents and Percentage (%)					MS	Rank
		1	2	3	4	5		
Smoke from indiscriminate burning	27(19.9)	33(24.3)	42(11.0)	15(10.3)	14(10.3)	32(23.5)	2.95	3.0
Fuelwood	14(10.3)	07(5.1)	09(6.6)	11(8.1)	24(17.6)	71(52.2)	4.17	1.0
Solid fuels	20(14.7)	17(12.5)	20(14.7)	23(16.9)	12(8.8)	44(32.4)	3.40	2.0
Unserviceable vehicles	36(26.5)	20(14.7)	28(20.6)	18(13.2)	13(9.6)	21(15.4)	2.87	4.0



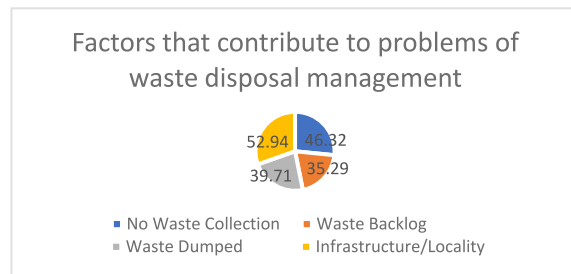
**Figure 3:** Elements that contribute to air pollution among the residents of Msholozhi

Kings (2019) indicated that South Africa records about 20 000 deaths caused by air pollution in a year, and the estimate was according to the World Health Organisation (WHO). He further elaborated that the causes of death are burning wood and coal used for cooking and heating in people's homes, heavy industry polluted air and vehicle exhaust fumes. Again, as a consequence of informal settlements, authorities do not carry out effective supervision to ensure that waste generation and disposal are properly done. Since the people knew they are illegal settlers they most probably indulge in acts detrimental to their health unknowingly or helplessly. The analysis in Table 4, Figure 4 and Plate 1 captures the extent to which residents handled their waste disposal.

The results show that the lack of infrastructure and a possible location for waste disposal management at Msholozhi, ranked prominent with a mean score of 3.96. On the subject of a possible designated location for waste disposal, the authorities noted that only minimal responses are made due to the illegality of the dwellers. Additionally, an analysis of respondents (residents') opinions suggests that there is no waste collection from the City of Mbombela. Approximately 39.7% of the respondents with a mean scoring rate of 3.45 are of the view that waste dumped in the back of the house contributes to the waste disposal management challenge at Msholozhi. A mean scoring rate of 3.35 indicated that the backlog in the collection of waste contributes to the waste disposal management challenges in the study area. The result is supported by the pictures in Plate 1, whereby residents dispose of their waste everywhere since they do not have a proper location for dumping their waste.

**Table 4:** Waste Collection and Management in Msholozhi

Waste Disposal	Unsure	Respondents and Percentage (%)					MS	Rank
		Totally Disagree.....Totally Agree						
		1	2	3	4	5		
No waste collection	07(5.1)	42(30.9)	09(6.6)	07(5.1)	08(5.9)	63(46.3)	3.31	4.0
Waste backlog	17(12.5)	25(18.4)	15(11.0)	20(14.7)	11(8.1)	48(35.3)	3.35	3.0
Waste dumped indiscriminately	13(9.6)	28(20.6)	13(9.6)	16(8.8)	16(11.8)	54(39.7)	3.45	2.0
No authorised waste disposal site	14(10.3)	14(10.3)	10(7.4)	15(11.0)	11(8.1)	72(52.9)	3.96	1.0



**Figure 4:** Waste disposal management challenges in Msholozhi.



**Plate 1:** Indiscriminate and unauthorised waste disposal management in Msholozhi

**Table 5:** Causes of overcrowding of residents in Msholozhi

Overcrowding	Unsure	Respondents and Percentage (%)					MS	Rank
		Totally Disagree	1	2	3	4		
Infiltration of non-South African citizens	09(6.6)	12(8.8)	01(0.7)	07(5.1)	16(11.8)	91(66.9)	4.36	1.0
Large households	34(25.0)	08(5.9)	29(5.9)	16(8.8)	12(8.8)	37(27.2)	3.40	3.0
High poverty level	16(11.8)	11(8.1)	02(1.5)	20(14.7)	10(7.4)	77(56.6)	4.17	2.0

Table 5 shows the elements that contribute to the overcrowding of residents at Msholozhi. The mean scoring rate of 4.36 indicated that residents from outside South Africa contribute to the rate of overcrowding at Msholozhi. This is so because the study area is situated within the corridor that easily connects Mbombela city, which in turn provides easy access to travellers through the Lebombo Border gate to Mozambique and Oshoek gate to Swaziland. Since several Msholozhi residents have been there since its establishment, this has resulted in Msholozhi being an arrival place for Non-South African citizens whose relatives have been there for a long time. The study, however, did not focus on the impact that South African residents might have on overcrowding. Meanwhile, the mean scoring rates of 4.17 and 3.40 statistics of residents, respectively, are of the view that overcrowding at Msholozhi is due to the high poverty level and large household size.



**Plate 2:** A typical decrepit residential environment in Msholozhi

On further enquiry, respondents were of the view that there are households in Msholozhi that are up to 10 persons living together in a room or two apartments. Plate 2 shows a typical decrepit residential setting in the study area which implies should several people be living in a house like this the consequence is overstretched facilities and health challenges.

Further analysis was made to unravel the roles played by Mbombela municipal officials (Departments of Public Works and Human Settlements) and the Ward Councillor on the prevailing situation in Msholozhi. The reason for seeking their views was because of the known fact that the residents in Msholozhi were occupying the land illegally. Thus, the need to establish whether the Department failed to ensure that the land is secured from illegal occupation and what strategies are in place to ensure that their immovable assets (land) are not vulnerable to illegal occupation and that their assets are utilised to their highest and best use. Additionally, since Section 26 (1) gives adequate housing rights to every citizen, what are the practical steps made, within accessible resources, to help citizens realise the right to housing progressively?

The responses from the city of Mbombela officials were coded 78 and 81 for the human settlement officer and the Ward Counsellor, respectively; while, the responses from the office of the Departments of Public Works and Human Settlements were coded 79 and 80, respectively. Responses from these participants were explained using quotations for ease of understanding. Accordingly, a participant (78) stressed that:

their role in human settlement is to identify illegal settlements and collect the data of the inhabitants. They also determine the land ownership of land affected by informal settlements and liaise with the relevant department or state entities to release land. They also liaise with the human settlements Department to facilitate the development of plans to upgrade the illegal settlements and make a budget available for upgrading.

From the above, the roles of the human settlement division within the city of Mbombela included stemming the growing problem of informal settlement and enforcing adherence to standards in Msholozhi. While the authorities may be excused for enforcing compliance to standards because illegality must not be encouraged, the same could not be extended to their inability to stop the development of informality in the first place at Msholozhi.

Further to this, the role of the participant (81) was also stated as thus:

... is to ensure that his ward is prioritised for projects to upgrade the informal settlements.

The above statement implies that the authorities have tacitly recognised Msholozhi's informal settlement. Though the legality of the inhabitants is not recognised in the law, services that

make life meaningful must be extended to the people as claimed by the participant (81).

Again, research participant (78) added that part of the human settlement division role was:

to support the inhabitants of Msholozhi through the provision of water supply in Jojo tanks, as well as constant meetings to finalise upgrading plans, and for the Public Works Department to release the land and transfer it to the City of Mbombela.

The results show that the city of Mbombela's human settlement division is making effort to assist the people in formalising their status. The challenge has been how long will this process take. Getting the land from the Department of Public Works would make it easy to assist deserving residents in the study area. Similarly, the participant (81) indicated that:

since he has been a Councillor, he has ensured that the project of electrification, boreholes and roads is implemented at Msholozhi.

However, despite the efforts, research participant (81) reported that very little has been achieved as the area is still bereft of essential infrastructure. Thus, the government is aware of the poor living condition of the people in Msholozhi but as noted by participant (81) actions to correct the imbalances are at a snail's speed.

Participant (78) chronicled the genesis of the Msholozhi informal settlement:

Msholozhi emerged in 2008, and this was a result of people wanting to live closer to job opportunities. However, at a later stage, some political influence also increased the expansion of the informal settlements.

Additionally, the participant (78) states they:

believes the policies are not proactive in preventing the occurrence of informal settlements and that some political office bearers use their authority to exacerbate the informal settlement. However, no proper corrective measures are taken against their actions.

From the views of research participants (78), the government is aware of the development of the Msholozhi settlement. Since nothing was done to redress its occurrence at the infantile stage, politicians utilised the gap to exacerbate the growth.

The views of research participant (79) sought to unravel the Department of Public Works' efforts to forestall the illegal occupation of the Msholozhi's land. Research participant (79) disagreed that the Department of Public Works failed to protect the land from illegal occupation and thus state that:

the Department worked jointly with the then Mbombela local Municipality officials to seek legal actions. The court order was sought, unfortunately, amid the implementation of the court order, the Premier's office went to illegal invaders and assured them that they will never be removed from the property. In essence, the matter became political as it was during the time of the national elections.

The results again corroborated the earlier position that several occupants of Msholozhi are illegal settlers. However, the challenge was that the illegality was tacitly supported by the government's inaction and political actors doing the same for popularity and political gain. Again, research participant (79) notes:

that the Department of Public Works planned to transfer the subject property (lands) to the City of Mbombela and has sought the Ministerial approval to do a gratis transfer of the property.

The statement of the research participant (79) suggests that the major challenges faced by informal settlement establishments will take a long time for the government to resolve. This is because land availability is a challenge, and the majority of people want to have land. Another challenge is the fact that there seems to be a misunderstanding between land administrators (officials) of the two Departments, the city of Mbombela and politicians.

Further to this, the views of the research participant (80) were sought. This is necessary because the Department has an obligation that is placed on it from the national sphere of government to ensure that section 26 of the Constitution of the Republic of South Africa is achieved. It must, however, be noted that the Department of Human Settlement is different from the division of Human Settlement in the city of Mbombela. While the latter draws its authority from the Mbombela municipality, the former derives its authority from the national government.

Relative to meeting the goals of the Department as enshrined in the constitution, research participant (80) states that

the Department is meeting its obligation as set out in the constitution, and the reasons for the emergence of Msholozhi informal settlements may be because the Province doesn't have sufficient funds in its budget to cater for all housing needs. Another reason is the issue of the unavailability of land for human settlements development from the government since most of the land is privately owned and expensive to procure, and there is no proper coordination between the key players in addressing the challenges of informal settlements.

The position of the research participant (80) corroborated earlier findings that lack of synergy among key players is the bane of resolving the conflict that the Msholozhi informal settlement has caused. Again, the research participant (80) notes that

the Department has interacted with the residents of Msholozhi, and this was done through the municipality. Additionally, the community/residents are aware of the government's planned development of the area, however, the delay is caused by a paucity of funds

The above data suggest that the Department of Human settlements do have upgrading plans for the Msholozhi informal settlements. However, financial constraints have delayed the planned upgrade. The findings in this study corroborated an earlier South African study by Mutero & Makwara (2018), which found government complicity in the genesis and growth of the informal settlement. Thus, if governmental neglect is the bane of citizens having a salubrious and liveable residential environment in South Africa, necessary steps must be taken to redress the anomaly.

## 6.0. Conclusion and Recommendations

This paper intended to identify the genesis of, and the environmental challenges affecting the people of Msholozhi informal settlements, Mbombela. It is worth stressing that the environmental challenges affecting informal settlements globally, though, common, context and way of life of the people relative to a particular geographical location warrant a study of this nature. The study revealed that certain elements contribute to the growing environmental consequences of the Msholozhi informal settlement. The proliferation of people in the study area, without proper documentation, is the major cause of environmental



challenges such as air pollution, overcrowding and inefficient waste management. In this study, air pollution is a consequence of unserviceable vehicular fumes, and fuel woods among others.

It must, however, be stressed that the environmental challenges of the Msholozhi informal settlement are not the only concern of this study. The causes of informal settlement that are perceived to be the leading pointers to the growing environmental challenges were understudied. The main motivation was that understanding and dealing with the leading causes of the informal settlement will provide a viable solution to the problem. Accordingly, the officer in charge of city of Mbombela's human settlement, the Ward Councillor and officials of the Departments of Human Settlements and Public Works that are familiar with the issue were interviewed. Findings reveal government and residents' complicity in the growth of the Msholozhi informal settlement. Unfortunately, this has lingered for too long leaving a bastardised environment with the residents negatively impacted.

To correct the problem of Msholozhi's informal settlement, therefore, immediate steps that are devoid of insincerity must be taken. The government must be a key player and must provide good leadership and enabling environment for all parties to wholistically discuss and proffer solutions to the problems. The recent political solutions to the Msholozhi, informal settlement could not be achieved because of complacencies and lack of willpower of the concerned officials. Accordingly, the following are some of the options, if taken, that might provide permanent solutions to the problem of the informal settlement in Msholozhi and the rest of South Africa. These include (1) calling for stakeholders meeting to understand the genesis of the problem; (2) educating all parties on the consequences of their actions to the environment and the inhabitants; (3) promoting agreement among the stakeholders on their roles and responsibilities towards tackling the challenges; (4) taken the census of the residents to aid the government in decision making. This will help to identify residents' tenurial status and eventual removal of non-citizens without legal documents from the republic of South Africa.

While the arrangement is being made to initiate and follow the aforementioned suggestions, immediate measures are needed to stem the menace. The City of Mbombela must create a dumping site that will be specifically designated for the residents of Msholozhi. This will, in turn, minimise the dumping of garbage by the residents indiscriminately within the settlement. There is a need for a related study in the future which must focus on unravelling the implication of the Msholozhi informal settlement on the health of the residents. As previously observed, undertaken a study must be with the motive of either breaking new ground or confirming/disproving findings of earlier studies.



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