COVID-19 ACTION ON WATER AND SANITATION

A SHORT CASE STUDY ON COMMUNITY SERVICE DELIVERY MONITORING IN 6 INFORMAL SETTLEMENTS IN KWAZULU-NATAL

prepared by

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BACKGROUND

On 1 April 2020, just days after the imposition of the hard lockdown, BESG was one of 12 NGOs and social movements that were invited to engage with the Minister of Human Settlements, Water and Sanitation, Lindiwe Sisulu, on strategies to mitigate the impact of the Covid-19 virus in informal settlements where we work. This led to the creation of a broad engagement platform, the Covid-19 Informal Settlements Task Team, that collaborated on – and often contested – interventions by government.

One of the emergency interventions was in response to the need for citizens to practice personal hygiene, specifically hand washing and/or sanitising, and reducing social contact. This is near impossible in informal settlements where up to 100 households may share a toilet, and a single standpipe or water station serves 400 households.

Government responded. On 21 April President Ramaphosa announced the R500bn Covid-19 emergency relief package, which included, *"Additional funding of R20-billion…to municipalities for the provision of emergency water supply, increased sanitisation of public transport and facilities, and providing food and shelter for the homeless."*

While the statistics of the emergency roll-out[1] that passed through the Task Team were impressive at first glance, they did not stand scrutiny. Over 50 water tanks had been "allocated, delivered and (were) in use" in each of 3 districts within KwaZula-Natal that we were monitoring. This in the space of 4 weeks, during hard lockdown conditions, when not even the emergency call centre numbers for most municipalities were operable and only skeleton staff were given essential worker travel permits.

After hard lockdown, residents of some 14 informal urban and rural settlements where we worked reported no visible improvement in the delivery of basic water and sanitation services. We formed a collaboration with 6 of those communities to jointly undertake a mapping and service delivery monitoring exercise to determine if there was any visible improvement over the ensuing 6 month period, and facilitate submissions by the communities to their respective Water Services Authorities at District and Metro level to motivate for a realistic and sustainable level of services.

The only service delivery monitoring project the Task Team could identify to track progress with the roll-out of emergency water and sanitation was the Asivikhelane project, developed by the International Budget Partnership. As that project was operating in at least one of our own target areas, we were able to do an assessment of its effectiveness. Our findings were disappointing. The depth of engagement with communities was near-zero (it relied on randomly recruited volunteers for information with no broader, sustainable community engagement). The outcomes were shallow and unquantified ("e.g., "Need decent toilets"). Trends were reported across an entire municipality broadly as "positive" or "regressing."

[1] Department of Water and Sanitation: Covid-19 interventions – report to the Parliamentary Portfolio Committee, 21 April 2020

It was these findings that gave birth to this project – a demonstration project "from the ground up" that built in critical features of community engagement and endorsement, and specific measurable indicators of municipal performance against a baseline.

It also demonstrates the power of community agency, with technical support from an intermediary such as BESG, to co-create solutions to development and service delivery challenges, and for citizens to hold government to account in fulfilling its mandates. One of the big failings in the implementation of the National Upgrading of Informal Settlements Programme over the past 10 years has been the lack of community engagement. As it was envisaged in key Policy Principles for Informal Settlement Upgrading, set out in Chapter 3 of the 2009 National Housing Code (p13):

"Engagement between community members and their local authorities is of the utmost importance to ensure locally appropriate solutions."

A demonstration, or pilot, project has inherent limitations. Its objectives were very modest, given that is was a rapid response born of the Coronavirus pandemic – for communities to develop the capacity and tools to monitor the delivery of critical public services.

In considering the potential for replication, the 6 communities with whom we partnered each had distinct challenges. There was an equal balance of urban and rural settlements; some with similar challenges over physical access; others with failed tanker delivery and dysfunctional services. One can combine and compare at will.

However, there is no "one size fits all" in implementing community-driven development – only in the analysis thereof does one look for c*ommonalities*. The *conditionalities* affecting each community form the basis for understanding what is possible, both technically and socially: Settlement size and density, topography, access to mains water, community dynamics, and, not least, whether the settlement is transient or suitable for permanent upgrading.

The one commonality that led to the selection of the sites is that they have been all without adequate lifeline services for many years before the pandemic struck. Did it spur the authorities into action?

BESG gratefully acknowledges the financial support of the Heinrich Böll Foundation in making this pilot project possible.

METHODOLOGY

The project commenced effectively on 28 June on signing of the project agreement. Fieldwork commenced on 22 July after a remote assessment was done of Covid-19 compliance in the respective communities, and the results were used to inform our first engagement.

1. Project initiation

This comprised three sub-activities:

- Covid awareness training, distribution of PPEs
- Introduction to the purpose of the project; focus group meeting to establish community perceptions on the level and adequacy of existing services
- Recruitment of community volunteers for fieldwork – verification and service delivery monitoring

It had been intended to stagger the project launch in the 6 target areas over a 3-month period, with those areas requiring longitudinal research (frequency of service delivery over a planned 3 to 4-month period) taking priority over other areas that were subject only to spatial mapping of the distance between service delivery points (e.g., access to a water station or standpipe within 200 metres of every dwelling). However, due to projections of Covid-19 prevalence in KwaZulu-Natal, it was decided to accelerate the initial fieldwork in all areas in the first 2 months of implementation.

2. Geospatial mapping and research support in developing indicators

5 of the 6 target areas (all excluding Hlaleleni) involved spatial mapping of existing water and sanitation services. This required sourcing aerial photographs with cadastral boundaries of each settlement. This was delayed by up to 4 weeks due to the offices of our normal supplier, the Department of Transport, being closed to the public. We were able to source some photographs via eThekwini Local Municipality and Department of Cooperative Governance and Traditional Affairs' GIS offices. Google maps was used for location finding.

Desktop and applied research was also undertaken to establish standards against which to measure the adequacy of existing water and sanitation provision. The adequacy of water services was measured against the Water Services Act regulations *(GN 22355 of 8 June 2001)*, viz.:

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

It was acknowledged at the outset that challenges of population size, density, road access, and topography, and the prevalence of informal connections would make it difficult to meet these norms and standards. They were used in an interpretative manner:

- Volume per household (assuming 3.8p per h/h. although the average for informal settlements, based on Stats SA 2018 household survey, is 2.8p) is a good yardstick against which to measure "adequacy" in degrees. The personal hygiene measures introduced to mitigate Covid-19 – washing of hands as an alternative to sanitising – gave impetus to see a drastic improvement in access to water. This was supported by a R20bn injection of funds for the roll-out of emergency services to informal settlements as part of the national emergency relief package. In this regard reference was made to a Progress Report date 21 April from the National

Implementing Agency for the roll-out, Rand Water, delivered by the Department of Water and Sanitation. Reference was made to this in the project submissions to the 6 respective Water Service Authorities.

- A flow rate of > 10 litres per minute is a modest target when mains water supply is available. It was applied selectively.
- The maximum walking distance of 200 metres to access water was considered an absolute norm. There were no instances where it was not achievable, with minimal intervention.

It was extremely difficult to develop a yardstick for measuring the adequacy of sanitation. No statutory norms have been established in the 10 years since Informal Settlement Upgrading was given priority status. Arising from a dialogue with the National Department of Human Settlements, there is an argument, for the same reasons stated previously, that it is impossible to establish such norms, rather, upgrading has to be undertaken incrementally by, for example, re-blocking and relocating some residents in order to create more access points for interim (in many cases semi-permanent) basic services.

We therefore considered two primary indicators for sanitation, lying at opposite ends of a spectrum:

- The Department of Human Settlements' Emergency Assistance Programme provides for 1 toilet per 5 households – totally unrealistic in denser settlements without invasive interventions such as re-blocking. That was noted as a medium-term strategy where proposed short-term measures could not achieve the desired level of improvement in service.
- The ratio of households per toilet on the ground proved to be a more telling indicator as the project revealed it to be a serious human rights issue.

It should be noted that sanitation in rural areas is generally assumed and accepted to be the responsibility of the household. It was only measured in the 3 urban informal settlements of Bhambayi, Foreman Road, and Shiyabazali.

3. Fieldwork verification

The volunteers who were selected and trained under Activity 1 were the eyes and ears of the project on the ground – was the claimed roll-out of emergency services evident in terms of improved service delivery? They monitored activity within designated sections of each settlement and reported back to Facilitator Brian Dlamini on a weekly basis. This was captured in weekly reports and then summarised at the date of project inception, the date of fieldwork verification, and at the date of project closure (see Fieldwork summary accompanying this report).

The focus of the volunteers' work varied according to the challenges in each area:

- For areas with static services – Communal Ablution Blocks and Water Stations – the functionality of those services and response time for the municipality to attend to repairs.

- For areas receiving tanked water – the capacity of the water storage tanks and frequency of deliveries, measured against the period between deliveries when the community was without water.
- The potential to extend emergency services into areas that had none, or had restricted vehicle access. Desktop plotting of additional service points (e.g., water within 200m) could be physically achieved on the ground, given the density of settlement, topography, and areas obscured on aerial photography by dense vegetation.

4. Focus group meetings

The results of the fieldwork were relayed back to the community leadership and volunteers for input and endorsement.

5. Community submissions to the respective Water Service Authorities

Formal submissions were then prepared and delivered electronically to each Water Service Authority. These form the output of the project and are attached as annexures.

ADDRESSING CHALLENGES

While there were many challenges related to lockdown conditions – offices being closed, officials being in isolation, sourcing venues to meet that allowed for compliance – the most prevalent challenge remains one of mindset: Over 26 years of the new dispensation, service delivery has been contaminated by a patronising culture of "we know what is best" that sees citizens as passive beneficiaries, and that has been further corrupted by patronage politics.

A simple act of sourcing aerial photographs met with variable responses from total co-operation to outright hostility. When community leaders in one area approached their Councillor for information on why and where VIPs were being installed, the response was, "It is an ANC project (and nothing to do with you)." There is widespread non-compliance with the Code of Conduct for Councillors[2] that obliges Councillors to hold quarterly community meetings as a conduit between citizens and their local municipality. Notwithstanding current restrictions on gatherings, it is a long-standing complaint by most communities that they are neither informed nor consulted about municipal affairs.

There are inevitably many technical challenges in undertaking such work. BESG has a long tradition of integrating technical and social processes. This is key to solutions being feasible *and* socially acceptable.

[2] Municipal Systems Act 32 of 2000, Schedule 1.

FINDINGS AND LESSONS FOR REPLICATION

Without detracting from the findings and recommendations captured in the community submissions, some important lessons emerged from the project:

Norms and standards for interim basic services

There are no established Norms and Standards for the Upgrading of Informal Settlements Programme, which is 10 years old. While historically local municipalities have provided water as a constitutional right, the provision of basic interim water services to informal settlements generally do not meet the norms and standards set out in the Water Services Act regulations *(GN 22355 of 8 June 2001*):

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

It was acknowledged at the outset that challenges of population size, density, road access, topography, and the prevalence of informal connections in some areas would make it difficult to meet these norms and standards. They were used in an interpretative manner:

- *Volume per household (assuming 3.8p per h/h. although the average for informal settlements, based on Stats SA 2018 household survey, is 2.8p) is a good yardstick against which to measure "adequacy" in degrees. The personal hygiene measures introduced to mitigate Covid-19 – washing of hands as an alternative to sanitising – gave impetus to see a drastic improvement in access to water. This was supported by a R20bn injection of funds for the roll-out of emergency services to informal settlements as part of the national emergency relief package. In this regard reference was made to a Progress Report dated 21 April from the National Implementing Agency for the roll-out, Rand Water, delivered by the Department of Water and Sanitation. Reference was made to this in the project submissions to the 6 respective Water Service Authorities.*
- *A flow rate of > 10 litres per minute is a modest target when mains water supply is available. It was applied selectively.*
- *The maximum walking distance of 200 metres to access water was considered an absolute norm. There were no instances where it was not achievable, with minimal intervention.*

It was extremely difficult to develop a yardstick for measuring the adequacy of sanitation. Arising from a dialogue with the National Department of Human Settlements, there is an argument, for the same reasons stated previously, that it is impossible to establish such norms, rather, upgrading has to be undertaken incrementally by, for example, re-blocking and relocating some residents in order to create more access points for interim (in many cases semi-permanent) basic services.

We therefore considered two primary indicators for sanitation, lying at opposite ends of a spectrum:

- The Department of Human Settlements' Emergency Assistance Programme provides for 1 toilet per 5 households – totally unrealistic in denser settlements without invasive interventions such as re-blocking. That was noted as a medium-term strategy where proposed short-term measures could not achieve the desired level of improvement in service.
- The ratio of households per toilet on the ground proved to be a more telling indicator as the project revealed it to be a serious human rights issue.

Sanitation in rural areas is generally assumed and accepted to be the responsibility of the household. It was only measured in the 3 urban informal settlements of Bhambayi, Foreman Road, and Shiyabazali.

Short- and medium-term interventions

The limitation of time meant that we looked at visible, non-invasive ways of providing or extending services to sections that were not accessible at the start of the project.

For dense informal settlements there needs to be a further process of "re-blocking" – relocating (internally if land is available, or externally) selective households in order to create thoroughfares and corridors that can allow for services to be extended deeper into the settlements – and even allow space for emergency service vehicles.

This re-blocking process can be deeply divisive if not managed through a process of community engagement – and households being willing to uproot for the benefit of the greater community. It impacts on social assets, networks, and access to amenities and resources – bearing in mind that many informal settlements exist on marginal land precisely because it gives access to potential employment opportunities, shops, schools, and social and health services.

All informal settlements have been assessed through a categorisation process according to their potential to be upgraded into permanent settlements. Whether a settlement is deemed technically and financially feasible for *in situ* upgrading, or the community has to be relocated in part or whole, the availability of land and housing subsidy means that most are in for the long haul. This alone creates an imperative for local municipalities to develop incremental models for upgrading, as envisaged in the national policy.

Cameron Brisbane
Executive Director
Built Environment Support Group

14 January 2021

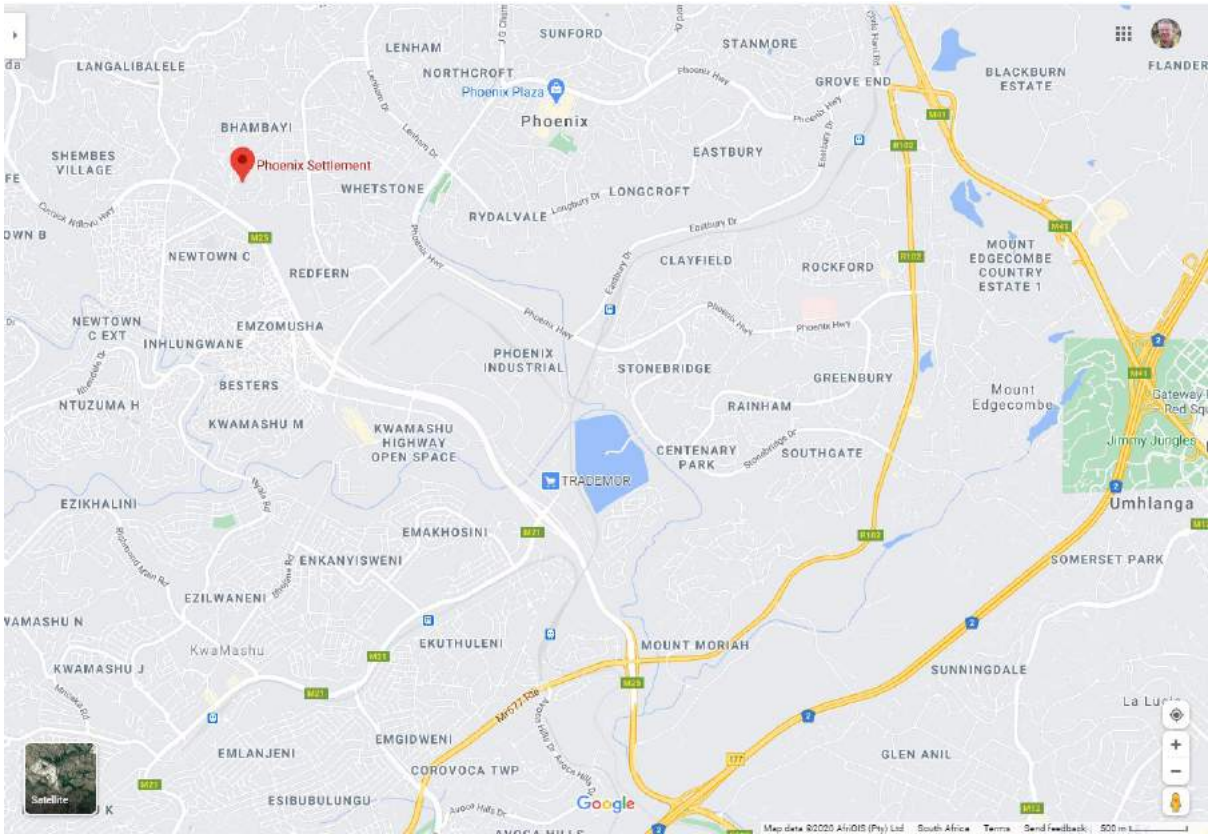
Annexures: Community submissions to improve access to sanitation and/or water

BHAMBAYI INFORMAL SETTLEMENT – SOUTHERN PORTION
SUBMISSION TO ETHEKWINI MUNICIPALITY
ON STATE OF INTERIM BASIC SERVICES (WATER & SANITATION)
December 2020

INTRODUCTION

This submission is made by the Glory Of The Last Days Community Organisation (GOLDCO), based in the southern section of Bhambayi informal settlement, iNanda, located in Wards 52 and 57 of eThekwini Metro. The community has had long-standing challenges with access to adequate water and sanitation, in spite of the introduction of Communal Ablution Blocks (CABs), and these were acutely worsened during the Covid-19 hard lockdown as they are in frequent need of repair.

Figure 1: Location map



BACKGROUND

Among the first emergency measures implemented by government in response to the Coronavirus pandemic were to emphasise the importance of social distancing and personal hygiene, including washing hands frequently. These measures that are extremely difficult to put into practice in dense settlements where the ratio of population to working services is already strained. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation.

GOLDCO partnered with the Built Environment Support Group (BESG) to monitor and report on the state of shared water and sanitation services, as part of the emergency response spearheaded by the National Department of Human Settlements, Water & Sanitation from the start of the hard lockdown. This was under extremely trying conditions when freedom of movement was severely restricted. In June BESG secured funding from the Heinrich Böll Stiftung to undertake a 6-month spatial mapping and service delivery monitoring project -- the Covid-19 Action for Water and Sanitation monitoring project -- in 6 informal settlements, including Bhambayi Southern section.

The project had two objectives, informed by a baseline study and focus group meeting:

- To monitor the functionality of the Communal Ablution Blocks (CABs) and other service delivery points that had been installed by eThekwini Municipality. This was undertaken weekly over a period of 12 weeks by a network of trained volunteers.
- To assess the adequacy of water and sanitation and whether access could be improved in the short term by non-invasive means.

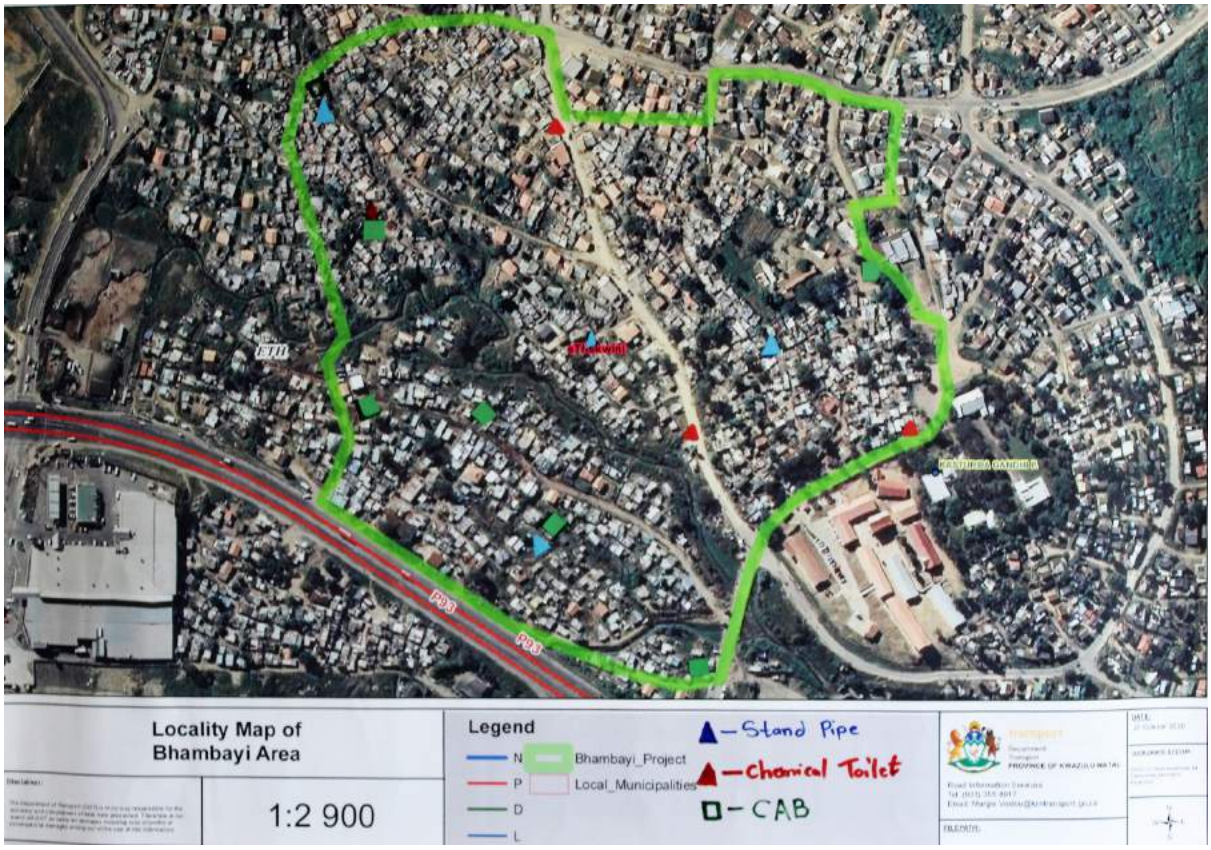
The leadership of GOLDCO has attended an advanced housing literacy course for activists, run by BESG at UKZN; as well as on-site training workshops for the broader membership. Members have repeatedly expressed frustration at the poor communication of developments – both short and long term – affecting the community. In terms of the Informal Settlement Upgrading model, Bhambayi is a "Category B1" settlement, suitable for incremental upgrading. At the time of undertaking the project, a taxi route was under construction, selective households were being relocated to a nearby development, and pit latrines were being installed shortly after a supply of chemical toilets, while the majority of Communal Ablution Blocks were dysfunctional.

In addressing these concerns, the Executive Director of BESG has engaged in a parallel process to facilitate an active engagement between the municipality and affected community, as envisaged in the Upgrading of Informal Settlements Programme.[3] Quoting one of the key Policy Principles for Informal Settlement Upgrading, set out in Chapter 3 of the 2009 National Housing Code (p13):

"Engagement between community members and their local authorities is of the utmost importance to ensure locally appropriate solutions."

[3] National Housing Code 2009 -- Part 3, further elaborated in the National Upgrading Support Programme (NUSP) Toolkit – 2014

Figure 2: Bhambayi southern section



Aerial photo supplied – not to scale, for illustration only

FINDINGS

While historically local municipalities have provided water as a constitutional right, the provision of basic interim water services to informal settlements generally do not meet the norms and standards set out in the Water Services Act regulations *(GN 22355 of 8 June 2001)*, viz.:

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

How to define "adequacy" of interim basic services became a contested issue at the National Covid-19 Human Settlements/ Informal Settlement Task Team, because there are no separate Norms and Standards for the Upgrading of Informal Settlements Programme, which is 10 years old. Granted constraints such as density, topography, and access make it very difficult to establish Norms and Standards, these regulations are a useful yardstick to measure "adequacy."

The area, which covers approximately 2,800 households, is supplied by:

- 7 Communal Ablutions Blocks, 5 of which were confirmed to be closed and/or largely dysfunctional at the time of a technical field survey in October 2020. This is due to a combination of broken taps, flush toilets, and showers, and sewer blockages.
- 4 communal standpipes. 1 standpipe in the centre of the north-south axis had very low pressure, most likely due to the plethora of informal water connections that existed before the communal services were installed. Additionally, construction of the Juba Blose Road has led to water interruptions of up to 2 days in the central section of the settlement.
- 4 chemical toilets. They are emptied regularly after some initial teething problems, but 2 of them were found to have broken door handles, no toilet seat, and were unclean. In December, a contractor began installing a series of VIPs.[4]

The distribution of facilities is reasonable, with access to most households being within 200 metres. The challenge is the routine level of disrepair which creates conditions where residents are forced to walk further to the next nearest CAB (which may also be closed) or relieve themselves in the bush.

A detailed breakdown of the state and location of each facility at the date of the is attached.

RECOMMENDATIONS

Low water pressure:
This was identified by a resident from the central west area. A detailed ground survey was beyond the scope of the study. It can be remedied by installing additional water storage tanks that can fill during periods of low demand.

Broken taps and toilets:
There is clearly a lack of ownership by the community, built on a poor relationship with the municipality, compounded by slow response time to attend to repairs. It is acknowledged that the continuous demand for maintenance and repairs places a burden on the municipality's operating budget, but this is a necessity and a question of prioritization – and risk reduction. BESG has 20 years' experience of working with communities on local solutions to infrastructure maintenance and consumer education[5].

GOLDCO was strident in its motivation for trained community-based plumbers to be given opportunity to be employed in preference to outside contractors. This is consistent with the War on Leaks programme, socio-economic component of the Informal Settlement Upgrading Programme, and eThekwini Municipality's Radical Economic Transformation (RET) agenda.

[4] Ventilated Improved Pit latrines
[5] BESG pioneered the Community Based Maintenance Programme in 2000, with seed funding from the precursor to CoGTA, where communities and the municipality jointly managed the employment of local labour to undertake solid waste collection, grass cutting, basic maintenance and repairs, and consumer education. The project won an award at the World Bank Marketplace in 2001 and has been replicated in many municipal-community partnerships across the country and beyond.

It was noted that plastic taps are being fitted, presumably to deter theft. Aside from simple neglect and vandalism, the sheer volume of residents using the facilities available lend themselves to over-use and breakage, and plastic taps are not designed for heavy wear. It is another indication of the need for a community-driven solution that can assist in improving performance and at the same time reduce the maintenance burden to the city – a desirable win-win situation.

Blocked sewers:
The only solution is community buy-in via consumer education, which has never been provided in the area. The same applies to care and maintenance of chemical toilets and VIPs. Respect for shared, pooled, or communal facilities is a universal challenge that is best addressed by the users themselves.

THE MEDIUM TO LONG TERM

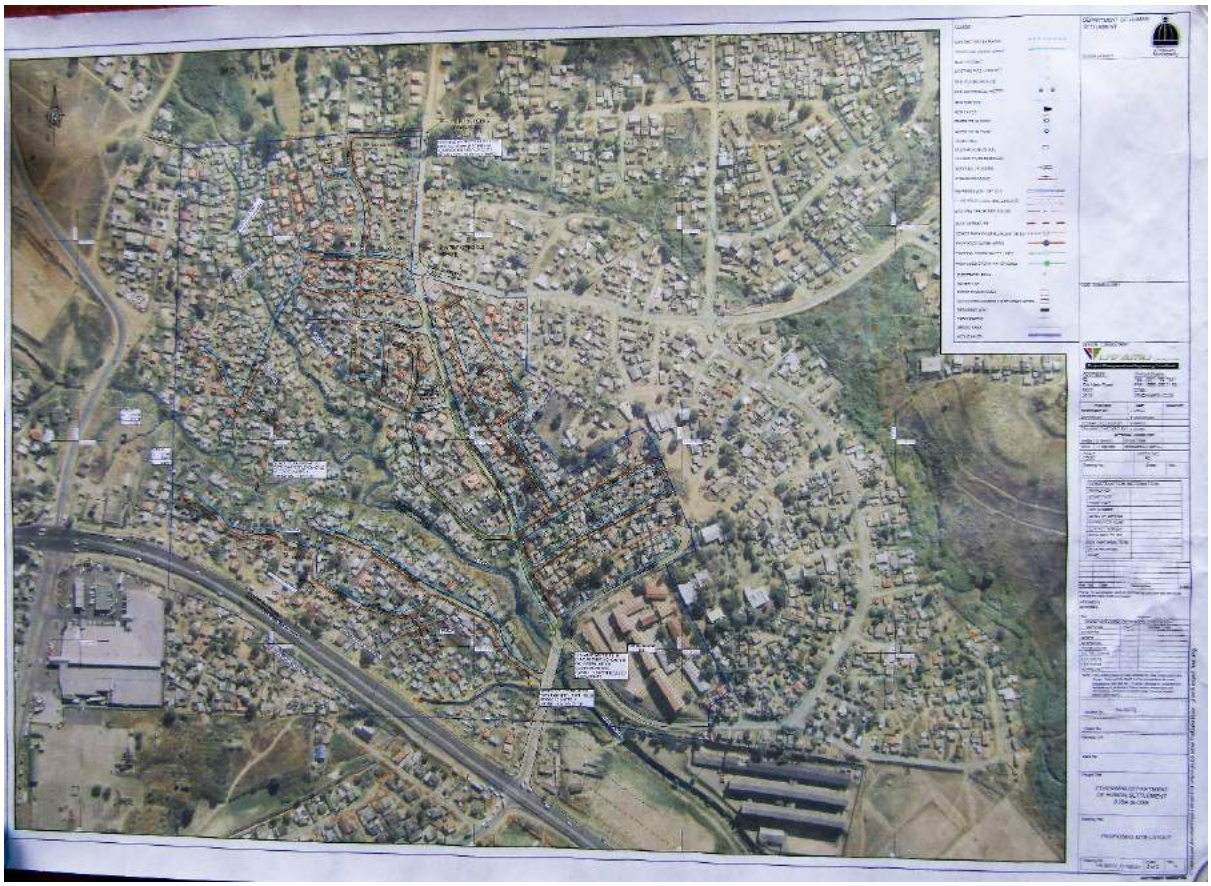
GOLDCO has demonstrated its ability to exercise agency through its own community development initiatives in the area. Most recently, it has formed a collaboration with BESG to submit a concept plan to National treasury, as part of a Community Development pilot project, to establish a hub that will consolidate many self-help and income generation activities already taking place in the broader community. GOLDCO has developed its own ideas for how the area can be developed but has fallen on deaf ears. GOLDCO has consistently expressed confusion about the pace and sequence of events initiated by eThekwini Metro that affects the community, viz.:

- The selective relocation of households to a new housing project;
- The construction of Juba Blose Road (which may well be related to the above);
- The installation of 4 chemical toilets, followed in as many months by a programme to install VIPs;
- Lack of information on plans for the permanent upgrading of the area, and how the various elements relate to each other.

As previously cited, community engagement is central to national policy for the sustainable in situ upgrading of informal settlements. In announcing a R400m upgrade programme for informal settlements in News24 on 21 October 2019, eThekwini Acting Communications Head Mandla Nsele was quoted:

"Ward councillors and communities from the settlements will be consulted prior to and during the construction of any services, as part of the incremental upgrading initiatives."

Figure 3: Juba Blose Road layout overlaid on settlement



GOLDCO is hereby requesting that the Human Settlements Department of eThekwini Municipality hosts a local Indaba in early 2021, where the community can be provided with a holistic picture of what is being implemented, what is planned, and over what timeframe. This is with a view to establishing a meaningful working relationship in which the community is actively engaged in development processes that affect us. We would appreciate representatives from the relevant departments – Human Settlements, Roads, Water and Sanitation – make inputs and be available to respond to questions. We believe this will set a solid foundation for our collective future.

BESG is willing to assist with facilitation using independent donor funding in the short term, at least until dedicated funds can be identified via the UISP Partnership Grant or PHP Pre-Project Facilitation Grant, with the support of eThekwini Municipality.

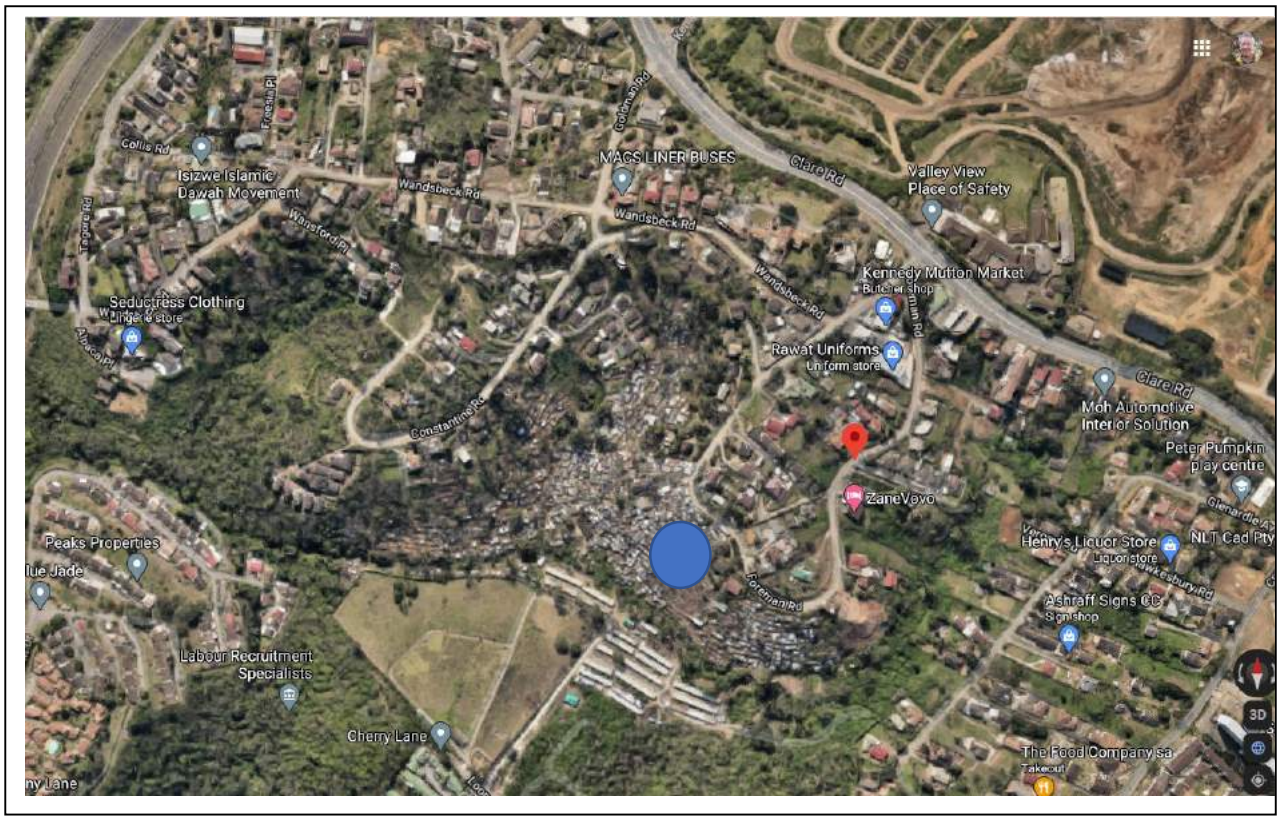
FOREMAN ROAD INFORMAL SETTLEMENT
SUBMISSION TO ETHEKWINI MUNICIPALITY
ON STATE OF INTERIM BASIC SERVICES (WATER & SANITATION)

December 2020

INTRODUCTION

This submission is made by the community of Foreman Road informal settlement, located within eThekwini Metro Ward 25 -- Clare Hills, Durban. Since its establishment, the community has had challenges with access to adequate water and sanitation. The situation was worsened by the Covid-19 pandemic due to the community's reliance on Communal Ablution Blocks (CABs) which are in frequent need of repair.

Figure 1: Site location



BACKGROUND

Foreman Road is one of 6 informal settlements within KwaZulu-Natal that are part of the "Covid-19 Action for Water and Sanitation Monitoring Project" which emerged from the emergency response spearheaded by the National Department of Human Settlements, Water & Sanitation. The project was undertaken in partnership with the Built Environment Support Group (BESG) and funded over a period of 6 months, from July to December 2020, by the Heinrich Böll Stiftung.

Among the first emergency measures implemented by government in response to the Covid-19 pandemic were to emphasise the importance of social distancing and personal hygiene, including washing hands frequently. These measures that are extremely difficult to put into practice in dense settlements such as Foreman Road, where the level of, and access to, basic interim services (water and sanitation) is severely constrained. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation.

The project had two objectives in Foreman Road, informed by a baseline study and focus group meeting with the leadership of the Mayibuye People's Movement:

- To monitor the functionality of the Communal Ablution Blocks (CABs) and other service delivery points that had been installed by eThekwini Municipality. This was undertaken weekly over a period of 12 weeks across the settlement by a network of trained volunteers.
- To assess the adequacy of water and sanitation and whether access could be improved in the short term by non-invasive means. This was undertaken by an Engineering Technician and Facilitator from BESG and then reported back to community representatives on 10 December.

Figure 2: Aerial photograph showing locations of interim services

FINDINGS

Functionality of water and sanitation services

The population of Foreman Road is estimated to be 2,900 households. The settlement is serviced mainly by 10 Communal Ablution Blocks (CABs). At the commencement of fieldwork in August, 5 of the CABs were closed for repairs. Faults were reported routinely to the municipality or on-site caretakers. As at November, 2 CABs were fully functional, 6 were partly functional, and 2 were permanently closed. Faults were mainly broken taps and/or showers, broken or vandalized toilets, and sewer blockages.

In addition to the CABs, there are 3 communal standpipes. Recently, 2 chemical toilets were stationed on the taxi route along the north eastern boundary of the settlement. They are not regularly emptied and were reported to have broken door handles and no toilet seat.

Two caretakers, who were on site when the field work was conducted, reported that they did not receive cleaning materials for the previous month, October.

A detailed breakdown of the state of each facility at July and November accompanies this submission.

Adequacy of water and sanitation services

How to define “adequacy” of interim basic services became a contested issue at the National Covid-19 Human Settlements/ Informal Settlement Task Team, because there are no established Norms and Standards for the Upgrading of Informal Settlements Programme, which is 10 years old. Adequacy of water supply was assessed against the Water Services Act regulations *(GN 22355 of 8 June 2001*):

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

Water pressure was found to be adequate throughout, with a 5-litre container filling in 15 seconds. The spatial distribution of CABs, with the 3 additional standpipes, meets the yardstick of a 200 metre access range. A report-back meeting with the community leadership and volunteers, held on 10 December, confirmed that there were no issues with water supply, provided the CAB taps are kept in serviceable condition.

Stormwater management had been identified as a challenge in the community leadership baseline study during lockdown. It is outside the scope of this report on water and sanitation, save to note that the density of the majority of the settlement and steep topography means that any attempt to control stormwater will be highly disruptive and completely impractical without a phased relocation plan for the

settlement. As a Category B2 settlement, it is ultimately intended for relocation and, of course, the challenge there is lack of suitable alternative land.

For sanitation, we referenced the 2009 National Housing Code – Emergency Assistance Programme – which provides for 1 toilet per 5 households. In total, more than 100 households are sharing each toilet. This accounts in part for the frequent need for repairs and maintenance which, when not performed, results in the CABs being closed. Community members reported frustration at having to relieve themselves in the bush.

Foreman Road is not unique if falling far short of the standard for emergency housing, and it is acknowledged that establishing Norms and Standards for informal settlements is a challenge due to multiple factors – size and density, topography, road access, capacity for super-blocking and re-blocking, and availability of alternative land to accommodate households that have to be relocated for the greater good. However, the gap between 5 and 100 households sharing one toilet demands a response.

RECOMMENDATIONS

As an interim measure, 4 additional chemical toilets can be placed along the taxi route, north-eastern boundary of the settlement. 2 additional CABs can be accommodated in the southern (lower) section of the settlement adjacent to the Transitional Resettlement Area. There is an access road next to the cemetery. The municipality must regularly provide protective clothing and cleaning material for caretakers' health and safety.

BESG will, with the community leadership's approval, seek further funding to continue a programme of community monitoring and reporting of faults with CABs and other services. These are lifeline services and must be maintained regularly. BESG will also undertake some consumer education, should it be successful in securing further grant funding in 2021, in order to incentivize the community to take more collective care of the facilities they have.

SHIYABAZALI INFORMAL SETTLEMENT
SUBMISSION TO UMGUNGUNDLOVU DISTRICT
WATER SERVICES AUTHORITY
ON THE STATE OF INTERIM BASIC SERVICES (WATER & SANITATION)

December 2020

INTRODUCTION

This submission is made on behalf of residents of Shiyabazali Informal Settlement, Howick Falls, located in uMngeni Local Municipality Ward 1. It concerns the adequacy of interim basic water and sanitation services to informal settlements, which was highlighted during the Emergency Response to the Covid-19 pandemic by the Department of Human Settlements, Water and Sanitation.

Figure 1: Location map

The population of Shiyabazali is estimated by aerial photography to be approximately 2500 households. The majority of the population is Basotho national, which has caused them to be regarded by authorities as transient. Nonetheless, the settlement has become part of the landscape of the Howick Falls Tourism site and has been noted in the plans for redevelopment of the Falls Precinct. The settlement lies in an industrial zone within walking distance of the Howick CBD. There is a golf course in the north-west boundary of the settlement.

THE PROJECT

Among the first emergency measures implemented by government in response to the Coronavirus pandemic were to emphasise the importance of washing hands frequently, social distancing, and personal hygiene. These measures are extremely difficult to put into practice in most informal settlements at the best of times, and almost impossible in lockdown conditions where services are insufficient for the population, communal in nature, and for most some distance away. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation. During the hard lockdown, Rand Water, the National Implementing Agent, delivered 50 new water tankers to assist uMgungundlovu District Water Services Authority.[6]

The Built Environment Support Group (BESG) was one of a small group of Non-Governmental Organisations invited by the National Department of Human Settlements, Water & Sanitation to assist the Department in its emergency response to the pandemic in the first 3 months of lockdown. This was under extremely trying conditions when freedom of movement was severely restricted.

In June BESG secured funding from the Heinrich Böll Stiftung to undertake a 6-month spatial mapping and service delivery monitoring project -- the "Covid-19 Action for Water and Sanitation" monitoring project -- in 6 informal settlements, including Shiyabazali. The project had two objectives, informed by a baseline study and focus group meeting with residents:

- To assess the adequacy of water and sanitation, and whether access could be improved in the short term by non-invasive means (spatial mapping).
- Monitoring of weekly supply by water tanker and over a period of 3 months across the settlement by a network of trained volunteers (social audit).

Benchmarking – defining "adequacy" of interim basic services

How to define "adequacy" of interim basic services became a contested issue at the National Covid-19 Human Settlements/ Informal Settlement Task Team, because there are no established Norms and Standards for the Upgrading of Informal Settlements Programme, which is 10 years old. Adequacy of water supply was assessed against the Water Services Act regulations *(GN 22355 of 8 June 2001*):

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

For sanitation, we referenced the 2009 National Housing Code – Emergency Assistance Programme – which provides for 1 toilet per 5 households. It is acknowledged that establishing Norms and Standards for informal settlements is a challenge due to multiple factors – size and density, topography, and capacity to create access.

[6] Rand Water Progress Report to the Covid-19 National Joint Command Centre, 21 April 2020

FINDINGS

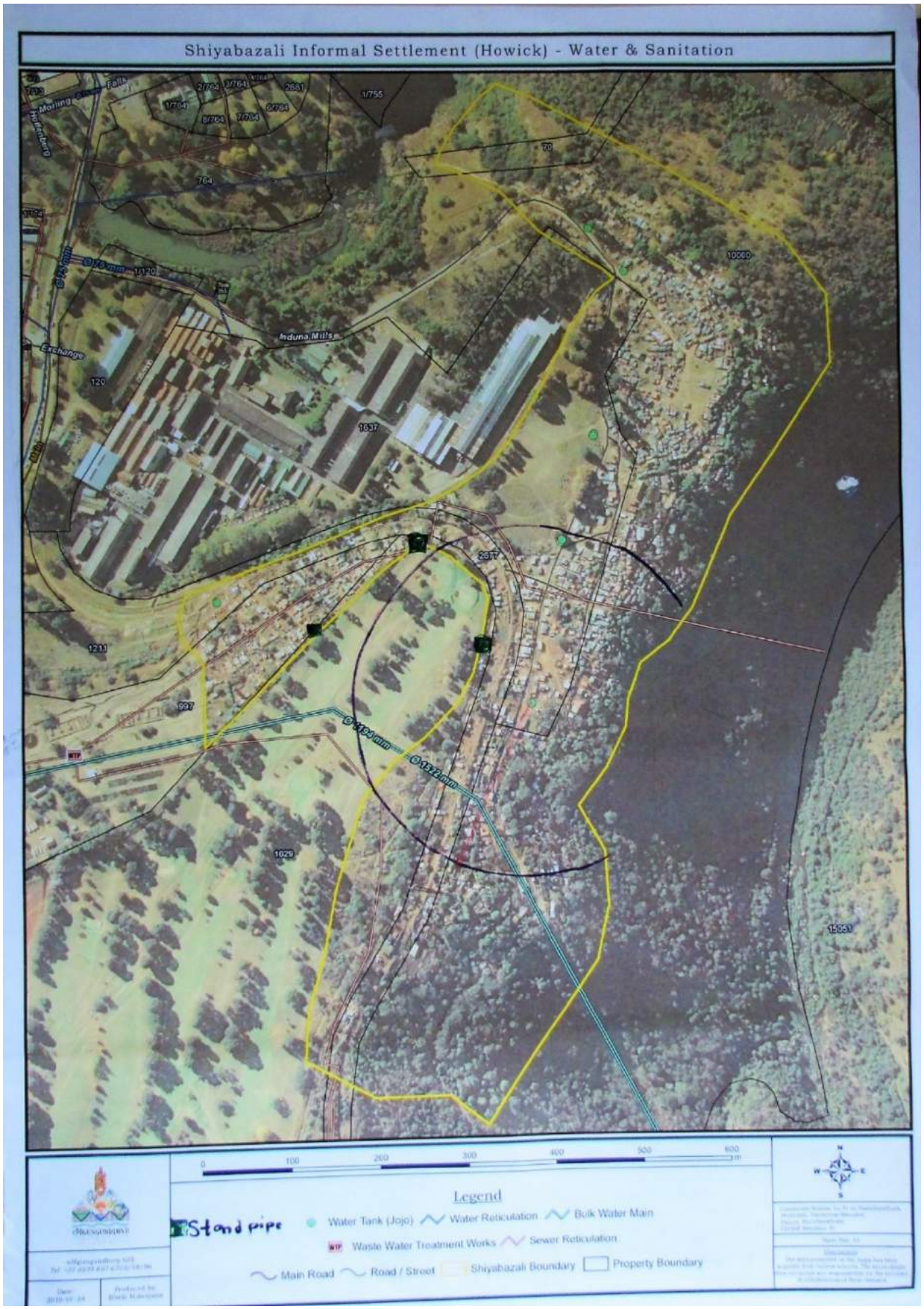
In terms of access to water, the settlement has 8 x 5000-litre static water storage tanks that are fed by water trucks from uMgungundlovu District Municipality twice a week. The tanks are stationed along the main access road:

- There are 2 single tanks located within 100 metres of each other in the northern section of the settlement.
- There are 2 pairs of tanks located within 150 metres of each other in the central section. 1 of these tanks was found to be vandalized, without a tap and burnt out.
- In the southern section of the settlement, there is a steel tank with 3 taps.
- Some 40-50 households in the southernmost section of the settlement are outside the 200m radius of the nearest water station, due to lack of road access. uMngeni Water has graded the road for access to maintain the water-main valve located in the far-south section of the settlement. This ultimately gives access to the mobile service. It is possible to widen the access road at that point in order to provide for another water station (see Figure 2 below and Recommendations).
- There are 3 communal standpipes located along the boundary of the Howick Golf Club. Volunteers shared that these stand pipes were connected by the golf club owners to try and assist the settlement with access to water. Water pressure is about 50% of norm on 2 standpipes – it took 1 minute, 5 seconds to fill a 5-litre container.

The main challenge with water supply is lack of regular supply, for the size of population and capacity of the tanks. Residents shared that whenever the water truck arrives to fill the tanks, they are emptied within 2 hours. This in turn creates long queues, with each household coming to collect water with more than 5 x 20-litre containers. Not to do so would mean frequent travelling to an empty tank. During weekends, residents use Howick Falls to do their laundry due to high water demand.

In terms of sanitation conditions, the community is solely reliant on self-built dilapidated pit latrines. The toilets are typically shared by between 5 and 10 households. Safety and hygiene are both major concerns. The community has never had any form of state assistance.

Figure 2: Location of interim basic services



RECOMMENDATIONS

In terms of water, there is simply not enough to meet basic needs. Supply from twice-weekly tanker deliveries is exhausted within hours. The District Water Services Authority should either increase the frequency of delivery and/or provide each site with at least 3 x 5000-litre tanks -- 10 additional storage tanks in total at existing water points.

The far south section of the settlement does not access to water, they need to be supplied with 3 x 5000-litre storage tanks. The service road graded by Umgeni Water will need to be widened and gravelled to cope with wet weather conditions. An intensive sanitation programme is needed for the area, given the unhygienic conditions faced by residents, and that the settlement lies directly above the Umgeni River and Howick CBD. This would involve de-commissioning the informal pit latrines dug by residents and replacing them with a combination of 50 VIPs and chemical toilets along the main access road. The chemical toilets can be stationed along the main access road for ease of access, while VIPs can reach deeper into the settlement with the aid of a honeysucker for emptying, at lower operational cost.

This would be a short term measure. In the medium to longer term, there are numerous points of entry into the settlement where limited “re-blocking” and internal relocation of selected households will enable access to those sections that are currently beyond the reach of a honeysucker.

HLALELENI EMRGING FARMERS' ASSOCIATION,
ENDUMENI LOCAL MUNICIPALITY

SUBMISSION TO UMZINTHAYI DISTRICT
WATER SERVICES AUTHORITY
ON THE STATE OF WATER SERVICES

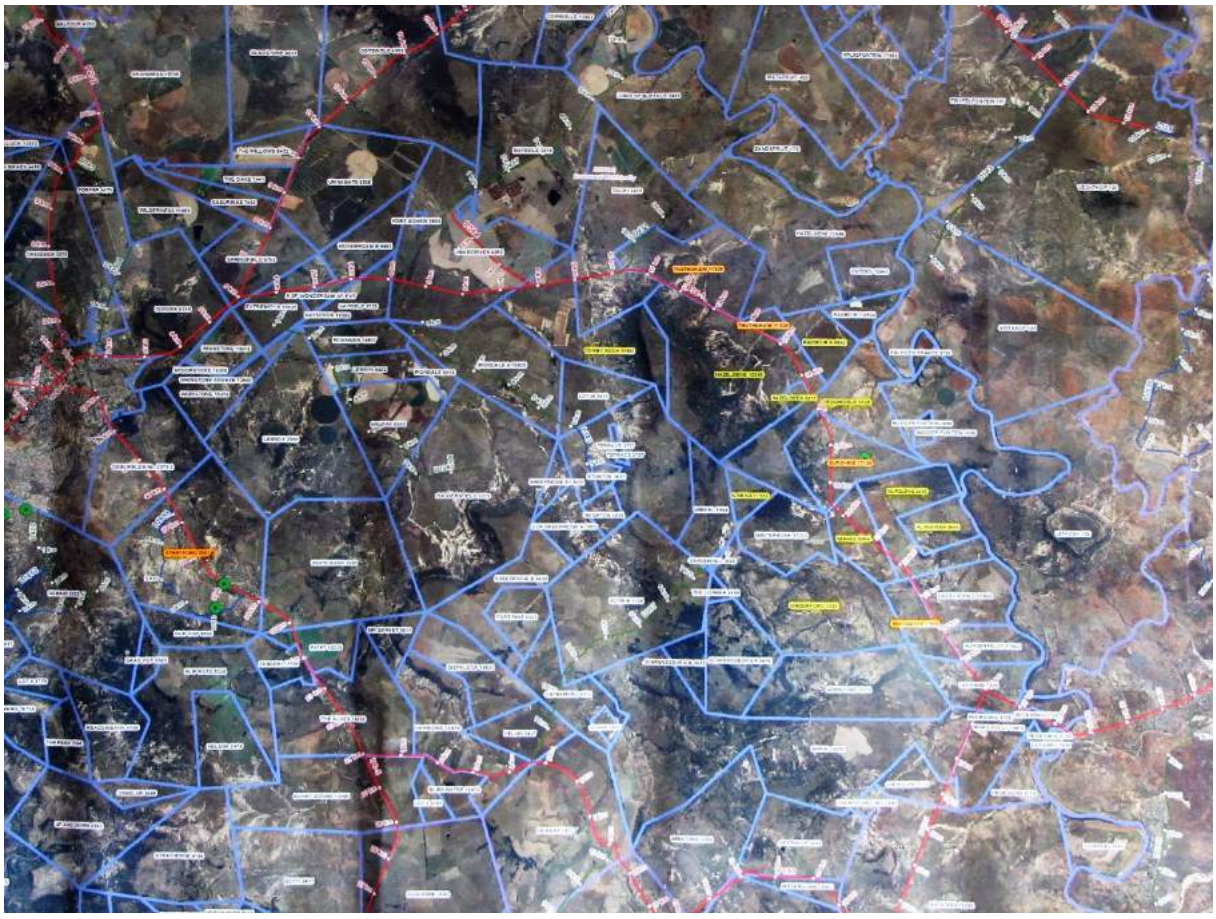
December 2020

INTRODUCTION

This submission is made on behalf the Hlaleleni Farmers' Association. The Association represents the new collective owners of 19 adjoining farms located across Wards 1, 5, 6 and 7 of eNdumeni Local Municipality, who are beneficiaries of the Department of Rural Development and Land Reform's Land Restitution Programme.

It concerns the adequacy of water services to informal settlements, which was highlighted during the Emergency Response to the Covid-19 pandemic by the Department of Human Settlements, Water and Sanitation.

Figure 1: Location *GPS: 28.309651, 30.091488,16*

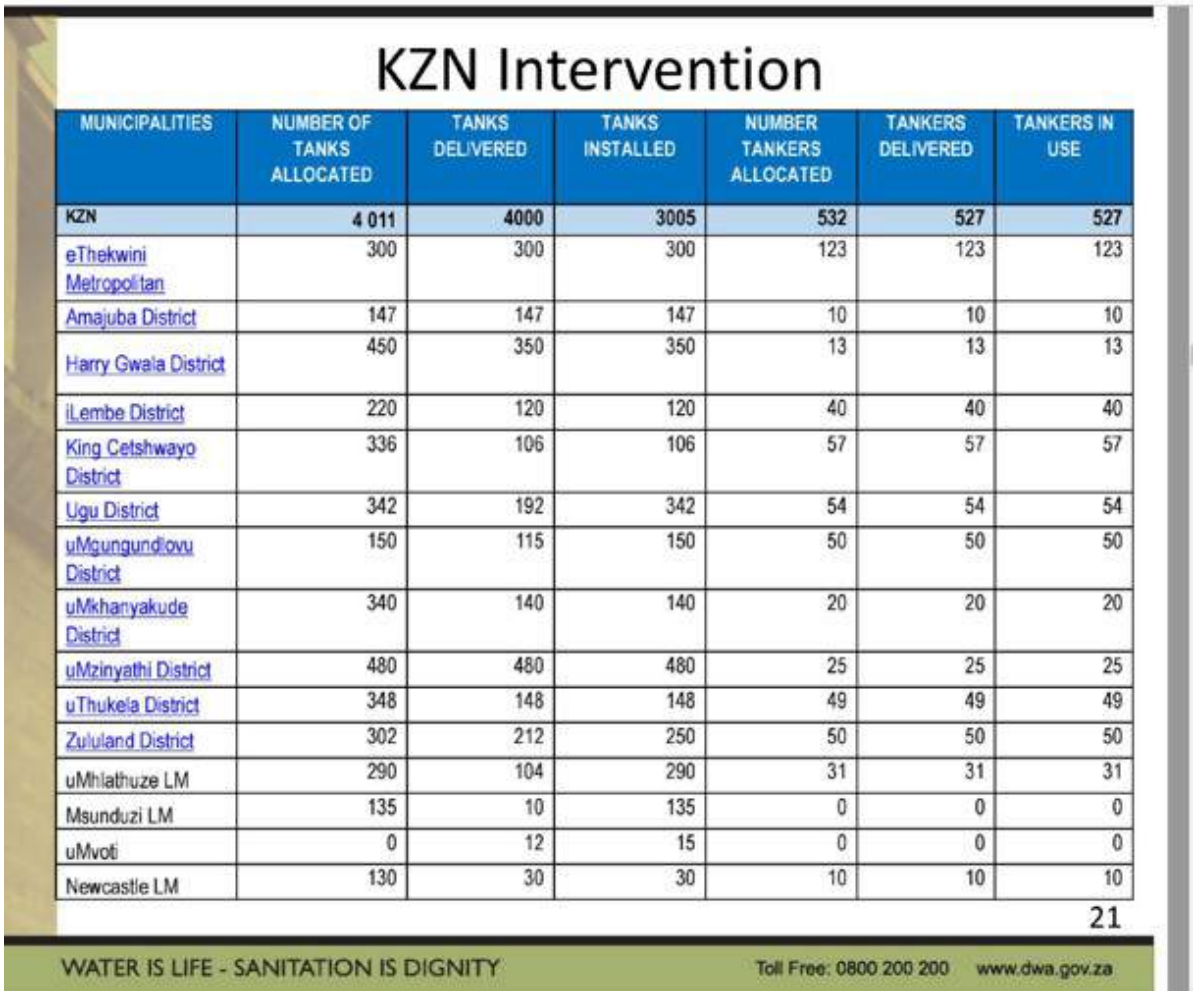


BACKGROUND

Among the first emergency measures implemented by government in response to the Coronavirus pandemic were to emphasise the importance of washing hands frequently, social distancing, and personal hygiene. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation. This submission focuses solely on water supply issues due to the rural nature of the community.

During the hard lockdown, Rand Water, the National Implementing Agent, delivered 25 new water tankers and 480 water storage tanks to assist uMzinyathi District Water Department in ensuring all communities had adequate supply.

Figure 2: Extract of DWS report to Portfolio Committee and Covid-19 Joint Command Centre, 21 April 2020



KZN Intervention

MUNICIPALITIES	NUMBER OF TANKS ALLOCATED	TANKS DELIVERED	TANKS INSTALLED	NUMBER TANKERS ALLOCATED	TANKERS DELIVERED	TANKERS IN USE
KZN	4 011	4000	3005	532	527	527
eThekwini Metropolitan	300	300	300	123	123	123
Amajuba District	147	147	147	10	10	10
Harry Gwala District	450	350	350	13	13	13
iLembe District	220	120	120	40	40	40
King Cetshwayo District	336	106	106	57	57	57
Ugu District	342	192	342	54	54	54
uMgungundlovu District	150	115	150	50	50	50
uMkhanyakude District	340	140	140	20	20	20
uMzinyathi District	480	480	480	25	25	25
uThukela District	348	148	148	49	49	49
Zululand District	302	212	250	50	50	50
uMhlathuze LM	290	104	290	31	31	31
Msunduzi LM	135	10	135	0	0	0
uMvoti	0	12	15	0	0	0
Newcastle LM	130	30	30	10	10	10

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The Built Environment Support Group (BESG) was working with the Halaleleni Farmers' Association to address their housing needs, when it was invited by the National Department of Human Settlements, Water & Sanitation to assist the Department in its emergency response to the pandemic. In June BESG secured funding from the Heinrich Böll Stiftung to undertake a 6-month service delivery monitoring project -- "Covid-19 Action for Water and Sanitation" -- in 6 settlements, including Hlaleleni. Mapping and weekly monitoring of water demand was undertaken by a network of trained community volunteers supported by BESG staff.

FINDINGS

The 19 farms comprise a total of 274 households. Each farm has been supplied with static water storage tanks that are filled by water tanker by uMzinyathi District Municipality (uMDM) every two months. The farms were given a contact number to use to request a water tanker once their tanks run dry. The contact number is from the District Office but households shared that it is not effective -- it often goes unanswered.

Most farms use dams, springs and boreholes as an alternative, but the water quality is variable and unsuitable for drinking purposes. Households shared that they cannot afford to boil water they draw from natural sources due to lack of firewood and they do not have electricity.

A detailed breakdown of the challenges faces by each farm follows:

Thuthukani CPA

- 20 households supplied with 6 static tanks and filled every 2 months. Continually runs dry after 3 weeks and they have to draw polluted water from the river. They have 3 windmills that are no longer functioning and 1 borehole that is dry.

Thembeni CPA

- 25 households with 5 static tanks and filled every 2 months. Continually runs out after 1 week, they depend on a muddy river, shared between them and livestock.

Ekuthuleni CPA

- 19 households supplied by 7 static tanks and filled once in 2 months. Continually runs out after a month.

Amabhelesalenge Trust

- 28 households supplied by 8 static tanks that are filled by the Ddistrict once a month. Continually runs out and they resort to get water from the dam, which is quite a distance for households in the north-east section of the farm (over 200m). There are 3 boreholes within the farm which they use while they wait for a water tanker. They were complaining that water from the borehole tastes rusty.

Ntokozweni CPA

- 15 households, each supplied by a static tank in the yard that is fed by uMDM once in 2 months. Continually runs dry, households go without water for 2 weeks. No alternative source, the well they depend on is dry during winter.

Bambanani CPA

- 10 households supplied with 3 static tanks along the access road that are filled by uMDM once in 2 months. Continually runs out, left without water for more than 3 weeks. They walk to a neighbouring to access water.

Shayamoya CPA

- 12 households supplied with 3 static tanks along access road and fed by the District once in 2 months. Continually runs out after a month.

Bazangoma CPA

- 21 households supplied with 5 static tanks along the access road that are filled once in 2 months. Continually runs out and they resort to get water from the dam, which is over 200 metres for households in the south.

Siyaphumula CPA

- 9 households supplied with 3 water tanks stationed along the access route. Water is supplied by the district once in 2 months, then they call number that was given to them by water tanker driver once water runs out usually after 3 weeks. Sometimes they get supplied with water twice in 2 months, but it is unusual.

Fankomo CPA

- 18 households supplied with 4 static tanks and filled once in 2 months. Continually runs out, spend more than 2 weeks without water. There is no alternative source.

Mazakhele CPA

- 14 households supplied with 5 static tanks and filled once in 2 months. Continually runs out, more than 2 weeks without water. Households walk more than 200 metres to the nearest farm to get water.

Vukuzenzele CPA

- 13 households supplied by 3 water tanks stationed along the access route. Water is supplied by the District once in 2 months. They call a number that was given to them by water tanker driver once water runs out, usually after 3 weeks. Sometimes they get supplied with water twice in 2 months, but it is unusual.

Senzokuhle CPA

- 23 households supplied with 4 water tanks fed by water tanker from the District once in 2 months. Continually runs dry after 3 weeks. They have 1 borehole that is continually dry.

Lethukuthula CPA

- 16 households supplied with 5 static tanks and filled by uMDM once in 2 months. Continually runs out, more than 2 weeks without water. No alternative source, the well they depended on is now dry.

Senzangakhona CPA

- 11 households supplied with 3 water tanks stationed along the access route. Water is supplied by the district once in 2 months, or else they call (or WhatsApp) a number that was given to them by water tanker driver once water runs out

usually after 3 weeks. Sometimes they get supplied with water twice in 2 months, but it is unusual.

Masakhane CPA

- 12 households, each supplied by a static tank that is fed by uMDM once in 2 months. Continually runs out, more than 2 weeks without water. No alternative source, the dam they depended on is now dry.

Mthethofanayo CPA

- 6 households supplied by 3 static tanks at collection points supplied and filled by uMDM generally once in 2 months. Generally runs out on the first month.

Zamokuhle CPA

- 10 households, each supplied by a static tank that is fed by uMDM once in 2 months. Continually runs out, more than 2 weeks without water. No alternative source, the dam they depended on is now dry.

Sunshine CPA

- 6 households supplied by 3 static tanks at collection points supplied and fed by uMDM generally once in 2 months. Continually runs out in the first month.

RECOMMENDATIONS

Water deliveries should be made at least every two weeks, and those farms identified above as running out after Week 1 should have a weekly delivery. The call centre should be operational so that residents can report shortages, and the response time should not be more than 48 hours. Delivery schedules should be adjusted to suit. Calls to service providers/ operators should not be a routine.

NKANINI SETTLEMENT

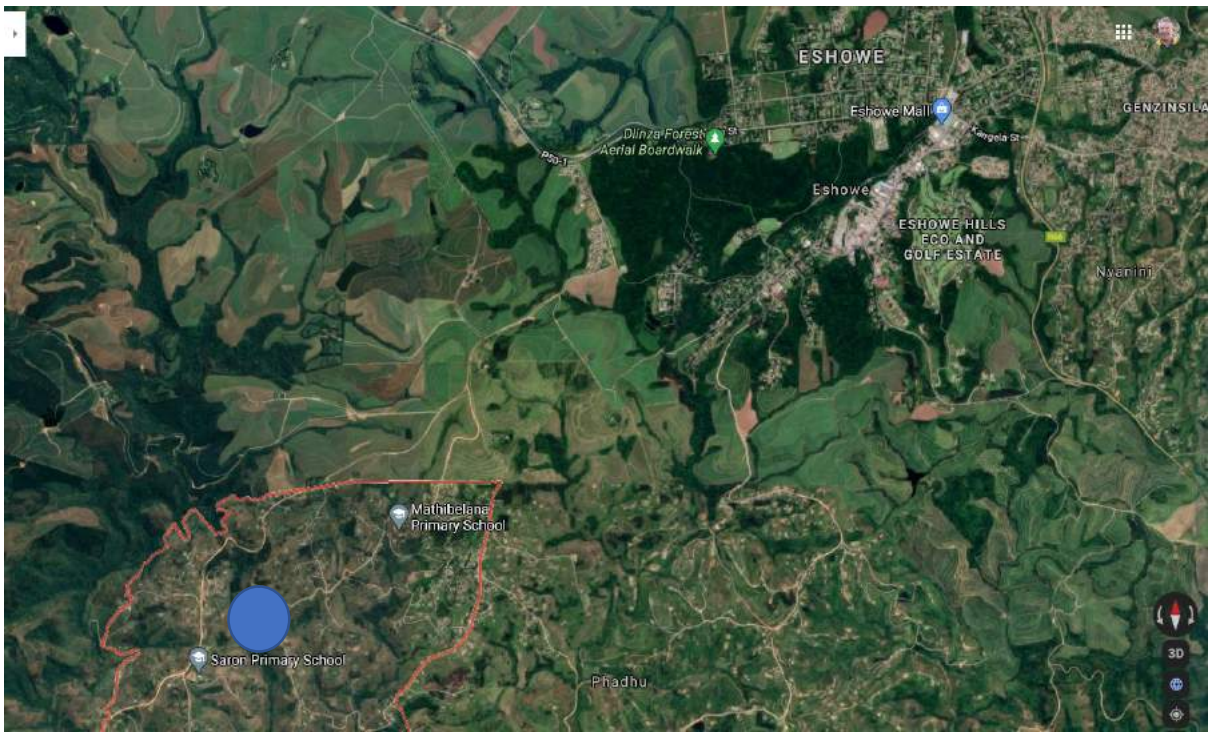
SUBMISSION TO KING CETSHWAYO DISTRICT WATER SERVICES AUTHORITY ON THE STATE OF INTERIM BASIC SERVICES (WATER & SANITATION)

December 2020

INTRODUCTION

This submission is made on behalf of residents of Nkanini Settlement, Shange Traditional Authority Area, Eshowe, located in uMlalazi Local Municipality Ward 7. It concerns the adequacy of interim basic water and sanitation services to informal settlements, which was highlighted during the Emergency Response to the Covid-19 pandemic by the Department of Human Settlements, Water and Sanitation.

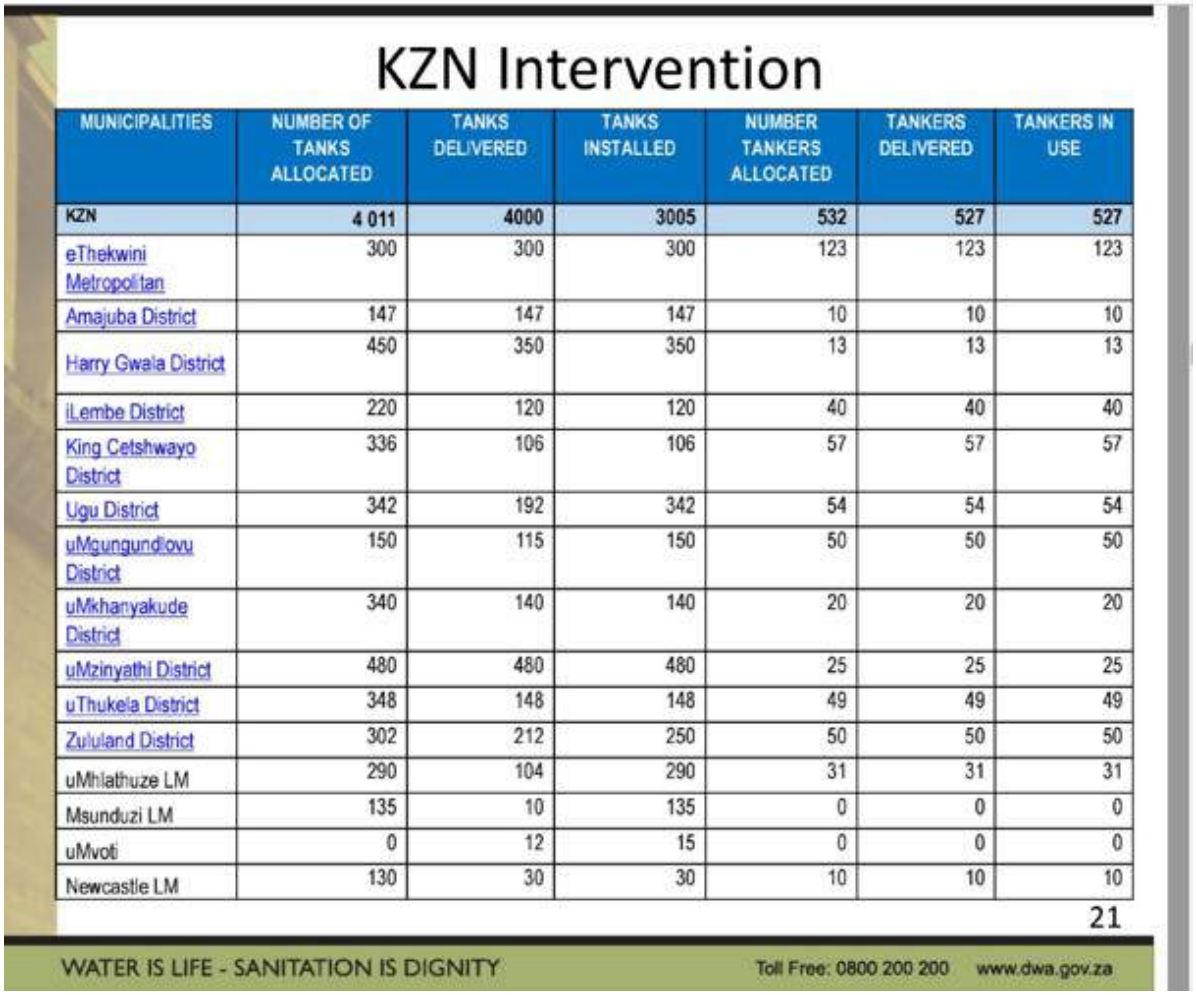
Figure 1: Location map



THE PROJECT

Among the first emergency measures implemented by government in response to the Coronavirus pandemic were to emphasise the importance of washing hands frequently, social distancing, and personal hygiene. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation. During the hard lockdown, Rand Water, the National Implementing Agent, delivered 57 new water tankers to assist King Cetshwayo District Water Services Authority, together with a planned delivery of 336 static water storage tanks:

Figure 2: Extract of DWS report to Portfolio Committee and Covid-19 Joint Command Centre, 21 April 2020



KZN Intervention

MUNICIPALITIES	NUMBER OF TANKS ALLOCATED	TANKS DELIVERED	TANKS INSTALLED	NUMBER TANKERS ALLOCATED	TANKERS DELIVERED	TANKERS IN USE
KZN	4 011	4000	3005	532	527	527
eThekwini Metropolitan	300	300	300	123	123	123
Amajuba District	147	147	147	10	10	10
Harry Gwala District	450	350	350	13	13	13
iLembe District	220	120	120	40	40	40
King Cetshwayo District	336	106	106	57	57	57
Ugu District	342	192	342	54	54	54
uMgungundlovu District	150	115	150	50	50	50
uMkhanyakude District	340	140	140	20	20	20
uMzinyathi District	480	480	480	25	25	25
uThukela District	348	148	148	49	49	49
Zululand District	302	212	250	50	50	50
uMhlathuze LM	290	104	290	31	31	31
Msunduzi LM	135	10	135	0	0	0
uMvoti	0	12	15	0	0	0
Newcastle LM	130	30	30	10	10	10

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The Built Environment Support Group (BESG) was one of a small group of Non-Governmental Organisations invited by the National Department of Human Settlements, Water & Sanitation to assist the Department in its emergency response to the pandemic. In June BESG secured funding from the Heinrich Böll Stiftung to undertake a 6-month spatial mapping and service delivery monitoring project -- "Covid-19 Action for Water and Sanitation" -- in 6 settlements, including Nkanini. Mapping of existing services, and monitoring the delivery of water to site, was undertaken by a technical team from BESG, supported by a network of trained community volunteers.

FINDINGS

The population of Nkanini is estimated by aerial photography to be approximately 1500 households. The settlement is rural, less than 30 minutes to Eshowe CBD. The main focus of the study was access to potable water.

Findings reveal that the community is served by 3 x 5000-litre storage tanks. They are filled twice a month by King Cetshwayo District Municipality as the Water Services Authority. The community was without water for the 2 months of July and August.

The storage tanks are supplemented by 4 mains-fed standpipes. However, 2 of them in the south west section were dry when BESG undertook its field survey in September, due to 'water-gravity effect' feeding the northern section first. From our interaction with the Pump and Network Operator employed by King Cetshwayo District Municipality, reservoirs are old and leaking. He further explained to us that reservoirs take longer to fill due to low pressure feeding them.

Residents resort to using a nearby river to collect water for drinking and domestic use, which exposes them to waterborne diseases. One volunteer shared that it is painful to see a water tanker passing her middle section every week to fill the other area whilst they don't have clean drinking water.

Adequacy of water supply was assessed against the Water Services Act regulations *(GN 22355 of 8 June 2001*):

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*
- *within 200 metres of a household*

RECOMMENDATIONS

The community requests that a further 10 x 5000 litre water storage tanks are placed along the D536 taxi route and L596 access road. These should be placed at intervals of no more than 200 metres.

MKHOLOMBE INFORMAL SETTLEMENT, RAY NKONYENI LOCAL MUNICIPALITY

SUBMISSION TO UGU DISTRICT WATER SERVICES AUTHORITY ON THE STATE OF INTERIM BASIC SERVICES (WATER & SANITATION)

December 2020

INTRODUCTION

This submission is made on behalf of residents of Mkholombe Settlement, Port Shepstone, within the Ray Nkonyeni Local Municipality. It concerns the adequacy of interim basic water and sanitation services to informal settlements, which was highlighted during the Emergency Response to the Covid-19 pandemic by the Department of Human Settlements, Water and Sanitation.

Figure 1: Location map

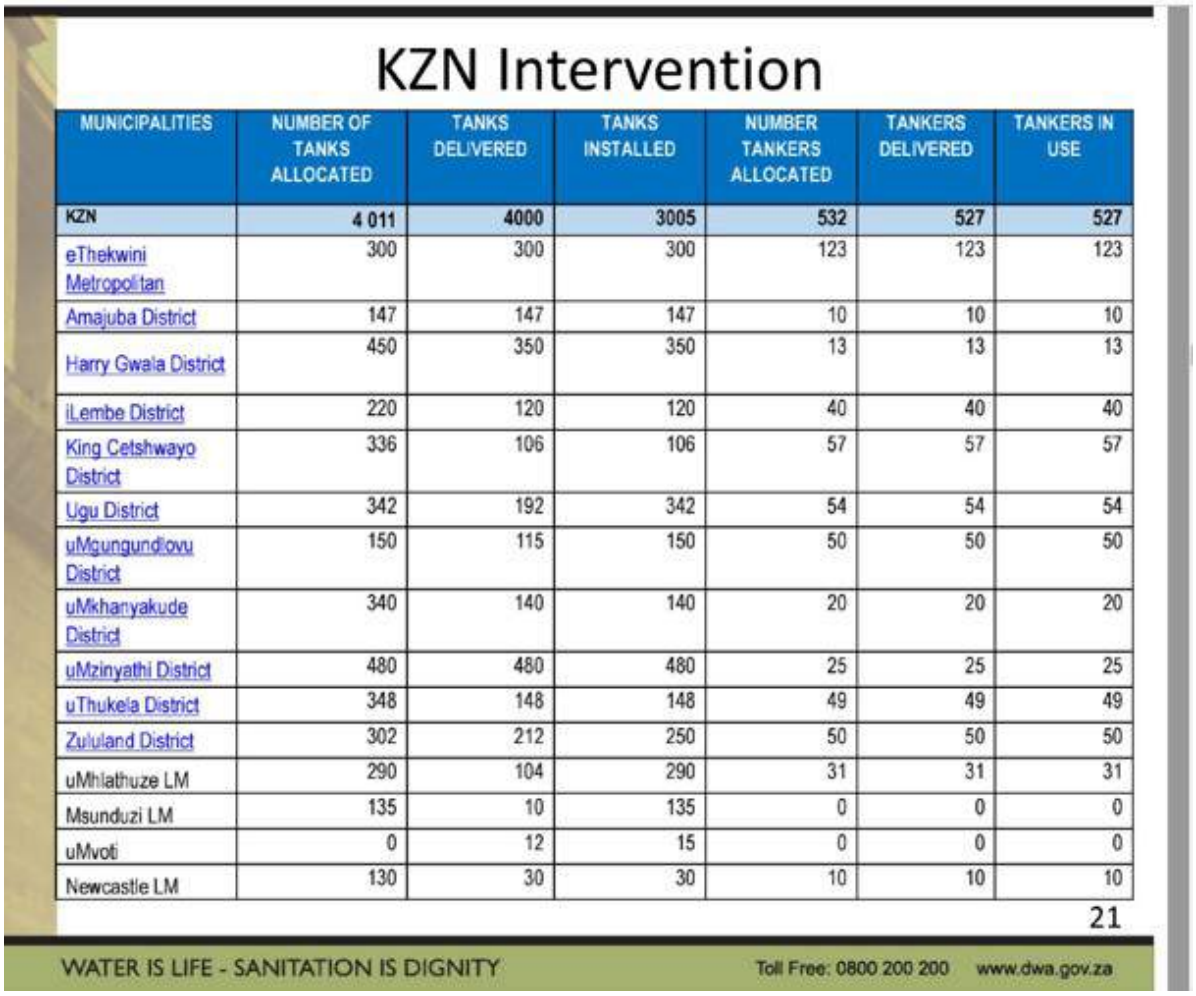
THE PROJECT

Among the first emergency measures implemented by government in response to the Coronavirus pandemic were to emphasise the importance of washing hands frequently, social distancing, and personal hygiene. Part of the R500bn Covid-19 emergency funding package was a commitment of R20bn to help local municipalities improve access to water and sanitation.

This submission focuses solely on water supply issues due to the rural nature of the community. During the hard lockdown, Rand Water, the National Implementing

Agent, delivered 54 new water tankers to assist Ugu District Water Department, together with a planned delivery of 342 static water storage tanks:

Figure 2: Extract of DWS report to Portfolio Committee and Covid-19 Joint Command Centre, 21 April 2020



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The Built Environment Support Group (BESG) was one of a small group of Non-Governmental Organisations invited by the National Department of Human Settlements, Water & Sanitation to assist the Department in its emergency response to the pandemic. In June BESG secured funding from the Heinrich Böll Stiftung to undertake a 6-month spatial mapping and service delivery monitoring project -- "Covid-19 Action for Water and Sanitation" -- in 6 settlements, including Mkholombe. Mapping of existing services, and monitoring the delivery of water to site, was undertaken by a technical team from BESG, supported by a network of trained community volunteers.

FINDINGS

The only benchmark for adequacy of water supply is the Water Services Act regulations *(GN 22355 of 8 June 2001*):

- *a minimum amount of 25 litres per person per day or 6 000 litres (6 kilolitres) per household per month (a household is defined as everyone living on one stand)*
- *at a minimum flow rate of not less than 10 litres per minute*

- *within 200 metres of a household*

The population of Mkholombe is estimated from aerial photography to number 2500 households. The entire settlement depends on 3 communal standpipes (marked in yellow in *Figure 3*). The first standpipe, as one enters the settlement, is vandalized and there is no tap -- residents use a pipe with a ball valve to control water flow. The water main at this collection point is exposed above surface and leaks. Water pressure is adequate.

The second and the third standpipes have plastic taps that are often damaged. Water pressure is adequate, however there are usually queues of residents with 20-litre containers, especially in the morning and evening peak hours. Many residents draw water for general purposes from the Bhoboyi River, over 200 metres below the settlement.

A field survey conducted in November revealed that there are leaks on the bulk water main where it crosses the Bhoboyi River.

RECOMMENDATIONS

The community is requesting that the District provides 10 x 5000 litre static water storage tanks -- to be placed in pairs in 5 identified locations (see red triangles on *Figure 3*), where there is ready road access and within 200 m walking distance -- serviced by water tanker at least 3 times a week. In the longer term, water pressure should be sufficient to provide limited water reticulation into the settlement and reduce dependency and expense on mobile service.

Figure 3: Location of current and proposed water services