# 11. List of projects

# **11.1 Introduction**

ZDM has the following implementation programmes in terms of water and sanitation provision:

## WATER

#### • Regional Water Supply Schemes

There were originally 10 back to back Regional Water Supply Schemes. Coronation is however currenlty under review to rather implement stand-alone schemes:

NAME	STATUS QUO
Coronation	Masterplan under review to implement stand-
	alone schemes instead of regional scheme
Khambi	Completed
Hlahlindlela	On hold due to water shortage
Mandhlakazi	In progress
Mkhuze	Completed
Nkonjeni	In progress
Simdlangentsha East	Upgrades to cater for increased water demands
Simdlangentsha Central	In progress
Simdlangentsha West	In progress
Usuthu	In progress

Each regional scheme footprint has a sustainable water source from where infrastructure is progressively being rolled out to all households within the supply area. The supply footprints have been identified in such a way that water can be provided to all households within the area in a sustainable manner and at the lowest possible cost (R/kI).

#### • Intermediate Stand-alone Schemes

Due to time and budget constraints with implementation of costly bulk infrastructure, ZDM has initiated an intervention to alleviate the severe water shortage in areas where a sustainable local source can be developed. These water sources will supply several settlements in the surrounding area, and will become part of the Regional Scheme infrastructure in future. Implementation will be done according to the ZDM Prioritisation Model for water services within each Regional Scheme.

#### • Rudimentary Water Supply

In areas where settlements cannot be served in the near future by the Regional Schemes or Intermediate Schemes, local water sources will be used to provide a survival level of water on a rudimentary level. Implementation is done according to the ZDM Prioritisation Model for water services.

#### RURAL SANITATION

Sanitation in the rural areas is being provided in the form of dry-pit VIP toilets. Implementation is done according to the ZDM Prioritisation Model for rural sanitation services.

A Rural Sanitation Replacement Programme has also been deemed neccessary in 2013 to replace the old Archloo-, Block- and Zink-type VIP's. This programme's implementation will be included in the next 5-year review of the WSDP.

#### • SPECIAL PROJECTS

Special projects are individual infrastructure requirements on a Local Municipal level which are addressed and budgetted for on a needs basis.

#### EMERGENCY INTERVENTION PROJECTS

Emergency Intervention Projects are projects which require immediate intervention, such as during disaster management. Two such projects have been implemented over the past few years in ZDM, namely:

#### Drought Relief

Emergency drought relief funding was provided to ZDM in 2016. An amount of R37 493 000 was made available in 2016 for drought relief interventions, and a planned 7 880 households were to benefit from this funding allocation. More details can be reviewed at the end of this section.

#### ♦ COVID-19

South Africa is currently in lock-down due to the COVID-19 epidemic. Emergency interventions were immendiately put in place in ZDM, with 2 task teams deployed to plan, manage and oversee emergency interventions. More details can be reviewed at the end of this section.

Rollout programmes for each of the above can be reviewed at the end of this section.

## **11.2 ZDM Prioritisation Models**

## **11.2.1 Introduction to Prioritisation Models in Service Delivery**

The first Water Supply and Sanitation Policy White Paper was published in 1994 and enacted as the Water Services Act, Act 108 of 1997 (dwa.gov.za, 1994). The Department of Water Affairs (DWA)

had the responsibility of providing these services. A few guidelines were provided on how to implement these services, and **the primary principle is that development should be demand-driven.** The Apartheid era has left a legacy of prejudice, and it is important that the new water supply policies ensure that their implementation does not become subjective to political influence. The Water for Growth and Development Framework, published by DWA, stipulates that proper planning and resources need to be used to supply water through various programmes, such as bulk water schemes, intermediate stand-alone schemes, and survival-level of water where water scarcity is prevalent (dwa.gov.za, 2011). The water policies, however, provide little guidance about how these services should be prioritised.

The Water and Sanitation White Paper was revised in 2002 and adopted by Parliament on 17 September 2003 as the Strategic Framework for Water Services (dwa.gov.za, 2003). Some major amendments were made to the roles of the DWA and local government. DWA's function changed from being a direct delivery function to being a sector leader, supporter and regulator. The responsibility of service delivery was handed over to the local government, and each district and local municipality have to implement their own policies to manage service delivery. This includes their approach to prioritise service delivery. The prioritisation of these service deliveries has created an immense challenge to local government. The most basic of these services is water and sanitation supply. Due to the vastness and remote characteristics of the rural areas, it is one of the most difficult aspects of service delivery that local government faces. Additional to the spatial characteristics of these areas, political influence often dictates the outcomes of service delivery planning instead of focusing on the actual water needs of rural communities.

Most District Municipalities, in the more rural areas, are the WSP's for their respective area of jurisdiction. This includes the Local Municipal areas within the District Municipal area. In the Water Services Act of 1997, it stipulates that an Integrated Development Plan (IDP) for each District Municipality should provide details on all Sector Plans required on a National level (Government Gazette, 1997). The purpose of Sector Plans is to provide details on certain aspects or roles that the District Municipalities have to adhere to, explaining their plan of action for each aspect. The Water Services Development Plan (WSDP) is the Sector Plan detailing the approach that the municipality follows for water services, and how they intend to provide water services to its users. This is part of the planning purposes of the Municipality; therefore, the responsibility for compiling the WSDP usually lies with the Planning Department.

The WSDP should, therefore, detail the approach that the municipality follows for water services delivery, and the process followed to prioritise and implement these services. It is this process that

should include the consultative process with all relevant stakeholders to take their views into consideration (dwa.gov.za, 2004).

This consultative process is, in many cases driven by political influence, and is prone to result in argumentative situations between ward councillors to motivate projects within their own wards.

The ward councillors fulfil the role of acting on behalf of the local people in their respective wards with their focus on a consultative and participatory process for service delivery needs. A ward councillor, therefore, has the responsibility of being a spokesperson for the ward, which entails the successful voicing of community needs to the entities providing service delivery. Due to this responsibility, it is important that the councillor ensures that community needs are being addressed. Councillors for these wards may affiliate to different political parties.

Ward councillors are, therefore, in a predicament because they compete with the other ward councillors for budget allocations. The Water Services Provider (WSA), in return, faces the following challenges:

- If ten communities from different wards do not have water services, how should the budget allocations be done and which settlement will get water services first?
- Whose viewpoint acts as the decisive when deciding where water services should be implemented?

The community with the lowest level of services in one ward may, for example, be in a better position compared to communities in other wards because it is close to a perennial river. The question remains what objective measurement can determine which community is worse-off? Figure 1 represents a typical workflow process to approve a WSDP review:



Figure 11.2.1: Typical WSDP Approval Process of a District Municipality

Figure 1 clearly demonstrates that an endless cycle of resubmissions may occur if the perspectives of the Executive Council (EXCO) and the councillors on water needs differ from what the WSDP Steering Committee view as priorities for water services implementation. Three factors play a dominant role in the above situation:

## • Individual perceptions of their own needs

People in one location may feel that they have an urgent need for water services since they have to walk down to the river to fetch water, but another community may not even have surface water within walking distance.

## Community expectations of ward councillors

Ward councillors are voted for mainly on the expectation from the ward communities about what the councillor can do for them. This includes service delivery on various levels. Councillors, therefore, need to ensure that service delivery is taking place in their respective wards else they will lose their position as ward councillor.

## Political pressure

Since multiple political parties are presented in a given municipality, it may become a tug-ofwar to see which political party can do the most for their wards. This mainly consists of provision for basic services in the rural areas. Prioritisation for service delivery may, therefore, become biased to maintain favour with the ward communities.

A Prioritisation Model for water and sanitation needs resolves the above conflict situations where projects are prioritised in an objective, unbiased approach based on their most urgent need for water and sanitation services.

## 11.2.2 Prioritisation Methods

Several prioritisation methods exist that can be used, depending on the scenario and what the desired outcomes should be. A few of these typical methods are discussed in this section.

The National Association of County and City Health Officials (NACCHO), Washington DC, has developed the Assessment Protocol for Excellence in Public Health (APEXPH) planning tool (NACCHO, 2012). This is a flexible planning tool for health officials to address health-related issues in communities. A critical component of the Part I and Part II APEXPH processes occurs at the point where the identified issues are prioritised. Prioritising issues allows the health department and community to direct resources, time, and energy to those issues that are deemed most critical and practical to address.

The APEX*PH* workbook briefly mentions some of the most popular prioritisation methods, which are further described in the NACCHO document (cdc.gov, 2012). A brief summary of these methods is described next:

## 1 Simplex Method

The Simplex Method obtains group perceptions by the use of questionnaires. The answers to the questionnaires are scored and ranked and the issues with the highest scores are given the highest priority.

## 2 Nominal Group Planning Method

Nominal Group Planning was developed for situations where individual judgments must be obtained and combined to arrive at decisions which cannot be determined by one person. This strategy is best for problem exploration, knowledge exploration, priority development, program development, and program evaluation.

## 3 Criteria Weighting Method

The criteria weighting method is a mathematical process whereby participants establish a relevant set of criteria and assign a priority ranking to issues based on how they measure against the criteria. The calculated values do not necessarily dictate the final policy decision, but offer a means by which choices can be ordered.

## 4 A "Quick and Colorful" Method

This technique uses a means whereby individual group members vote to prioritise each health problem. A ballot or open method can be used.

The document further provides a summary of the positive and negative aspects of each method in Table 11.2.1.

PRIORITIZATION TECHNIQUES	Strengths	Weaknesses	Optimal size of group
Simplex	Efficient and quick to use, once questionnaire is constructed. Can be used with any size group. Allows for weighting of problems.	Requires the development of a questionnaire. Relies heavily on how questions are asked.	Any size.
Nominal Group Planning	Motivates and gets all participants involved. Can be used to identify areas for further discussion and can be used as part of other techniques (e.g., to help develop a Simplex questionnaire.) Allows for many ideas in a short period of time Stimulates creative thinking and dialogue. Uses a democratic process.	Vocal and persuasive group members can affect others. A biased or strong-minded facilitator can affect the process. Can be difficult with larger groups (more than 20-25) May be overlap of ideas due to unclear wording or inadequate discussion.	10-15 (larger groups can be broken down into subgroups.) Not <6.
Criteria Weighting	Offers numerical criteria with which to prioritize. Mathematical process (this is a weakness for some.) Objective; may be best in situations where this is competition among the issues. Allows group to weight criteria differently.	Can become complicated. Requires predetermining criteria.	Any size.
Hanlon (described in the APEX <i>PH</i> Workbook, pp 23 24 and Appendix E)	PEARL component can be a useful feature. Offers relatively quantitative answers that are appealing for many. Baseline data for issues can be used for parts; this can be appealing due to the objectivity of the data.	The process offers the lowest priorities for those issues where solution requires additional resources or legal changes which may be problematic. Very complicated.	Any size.
A "Quick and Colorful" Approach	Simple. Well-suited to customizing. Blinded responses prevent individuals influencing others. Less time intensive.	Less sophisticated (may be a benefit for some groups). Doesn't offer the ability to eliminate options that may be difficult to address given current laws and resources. If open voting is used, participants may be influenced by others' votes.	Any size.

The document concludes with the following statement:

"By using formalized techniques, such as those described here, groups have a structured mechanism that can facilitate an orderly process. Such a process also offers a common starting point that groups can alter to suit their own specific needs. Whatever technique is used, it is important to keep in mind that the reason prioritization is undertaken is to include input from all interest groups. Therefore, it is vitally important to include the community when defining criteria."

# <u>The theoretical foundation of the expected outcomes and results of a prioritisation</u> <u>model is that the level of urgency or the need for water and sanitation supply to rural</u> <u>communities can be determined by establishing the existing form of water access.</u>

It should be possible to assign a "water and sanitation needs" value to the various aspects and characteristics of each settlement related to water and sanitation access. A total score can then be assigned to each settlement, which represents their urgency or need for water and sanitation services. The higher the score, the higher the priority of the project for implementation.

The most appropriate prioritisation technique for water and sanitation services in the South African rural context proves to be the Criteria Weighting method, and has been used successfully in various local government institutions to prioritise service delivery.

## 11.2.3 ZDM Prioritisation Models for Service Delivery

ZDM has initiated prioritisation models for water and sanitation implementation since 2002. The purpose of the prioritisation models are to prioritise settlements and project implementation in an un-biased, objective way. Current Prioritisation Models include:

- 1 Regional Scheme Rollouts
- 2 Intermediate Stand-Alone Schemes
- 3 Rudimentary Water Supply Rollouts
- 4 Rural Sanitation Rollouts
  - 4.1 New Infrastructure
  - 4.2 Phase 3 Replacement Programme (TBA)
- 5 Budget Allocation Model

The Prioritisation Models are based on a weighted criteria method, whereby criteria for each model is given a weight, which counts up to a total score of 100. The highest score implies the highest priority for implementation.

## **11.2.4 Water Implementation Model**

For water implementation on a rudimentary as well as regional level, the weighted criteria is based on specific characteristics of each settlement within ZDM. Where water needs to be provided to individual settlements, the settlements' individual prioritisation score is used to prioritise implementation.

Where larger areas are involved with several settlements grouped together, eg. within regional bulk reservoir zones, the average score of all settlements within each zone is calculated. This is then used as a zoning score to prioritise zones. The scoring criteria can be seen below:

FACTOR	CRITERION	VALUE	WGHT
Existing Primary Water Source	Urban & RWSS (with Bulk, Secondary Bulk, Retic)	0	30
	RWSS (with Bulk, Secondary Bulk)	0.25	
	RWSS (only Retic)	0.5	
	CWSS/Stand alone	0.5	
	Potable BH/Spring/H.Pump	0.75	
	Unprotected Surface Water (River/Dam etc)	1	
Project Cost / Capita	> R 40,000	0.2	15
Project Cost / HH	R30,000 - R40,000	0.4	
	R20,000 - R30,000	0.6	
	R10,000 - R20,000	0.8	
	< R10,000	1	
Walking Distance to Water	< 1 km	0	20
	1 – 3 km	0.7	
	> 3 km	1	
Within 4 km of a Dev. Corridor/RSC	Primary / Service Centre	1	5
	Secondary	0.75	
	Tertiary	0.5	
	None	0	
Existing Sanitation	Less than 5%	1	5
	25%	0.75	
	75%	0.25	
	More than 95%	0	
Existing Use / Level of Service	Nothing (> 3km walking)	1	15
	Survival (< 3km walking)	0.75	
	Rudimentary	0.5	
	<u>&gt;</u> RDP	0	
Linkages to other projects< (supplyable)	Yes	1	5
All settlements within 5km of existing Regional	No	0	
Scheme Layouts			
History of Water Borne Disease	Yes	1	5
	No	0	
		Total	100

#### Table 11.2.2: Scoring criteria for water implementation

## 11.2.5 Rural Sanitation Implementation Model

Rural sanitation implementation is based on the same principle as with water, however different criteria and weights are used to address specific rural sanitation needs. Two prioritisation models are used for sanitation implementation:

#### • Phase 1 & 2 (New projects)

These phases provide sanitation to settlements having not received any form of sanitation from previous sanitation projects.

#### • Phase 3 (Replacement Programme)

Phase 3 will be initiated towards 2017 to replace old VIP-type structures, especially the Archloo-type structures which have proofed to have a very short lifespan. Old VIP-types such as block- and zink-type where pits are full and the top structure cannot be moved to a new location will also be replaced.

The scoring criteria for both these two programmes can be seen below:

FACTOR	CRITERION	VALUE	WEIGHT
Water Implementation	Catch-up	1	40
	Current Water Implementation	0.5	
	(2008-2014)		
	Future Water Projects	0	
Distance to downstream	<50m	1	25
open groundwater	100m	0.6	
(Pollution potential)	250m	0.4	
	500m	0.2	
	>500m	0	
Settlement density	> 10	1	15
in relation to HH count.	5 - 9.99	0.6	
(Susceptability to diseases)	2 - 4.99	0.4	
	1 - 1.99	0.2	
	<1	0.1	
Settlement type	Urban Fringe	1	10
(Susceptability for diseases to surrounding urbanised	Peri-urban	0.5	
area)	Rural	0.1	
Rural Development Nodes	Yes	1	10
Development Corridors Service	No	0	
Centres			
		Total	100

#### Table 11.2.3: Phase 1 and 2 scoring criteria for rural sanitation implementation

Table 11.2.4: Phase 3 scoring criteria for rural sanitation implementation

FACTOR	CRITERION	VALUE	WEIGHT
	76-100%	1	35
Existing households not covered by previous	51-75%	0.67	
project	26-50%	0.33	
	0-25%	0.01	
	Archloo	1	25
Sanitation Top Structure Type	Zink	0.67	
	Block	0.33	
	Pre-cast	0.01	
	Need replacement	1	20
Condition	Need repairs	0.5	
	New	0.01	
	<2000	1	5
Year built	2001-2006	0.5	
	>2007	0.01	
	High	1	15
Cattlement density	Medium	0.6	
Settlement density	Low	0.3	
	Very low	0.01	
		Total	100

## 11.2.6 Budget Allocation Model

The annual funding allocations are split proportionally between the various implementation programmes for ZDM. Each implementation programme area is allocated a percentage in proportion to the overall budget requirement for eradicating the total backlog in that particular category of infrastructure projects.

Due to backlogs being eradicated continuously, these percentages are revised on an annual basis to ensure that the allocations reflect the revised backlogs for a particular programme and area.

# 11.3 Project Details

## 11.3.1 Regional Schemes

The ten Regional Water Supply Schemes require the largest portion of external funding due to costly bulk infrastructure. Due to this, ZDM augment the bulk reservoir zones with intermediate stand-alone schemes as well as survivial-level rudimentary water supply. Each rollout is prioritised as described above.

Since the master planning was done for the regional schemes, ZDM has experienced some unique challenges concerning the sustainability of the water sources to be used for the regional schemes. Land reform areas have seen an unexpected high household growth in certain areas, which increased the water demand for regional schemes drastically. Critical issues related to the above have been identified for each regional scheme, and project progress and interventions to these issues are discussed in more detail below.

## 11.3.1.1 Nkonjeni

#### • Background

The Nkonjeni regional scheme is in the privileged position of having a well-developed and sustainable water source. Therefore the bulk of the available funding can be applied towards the progressive rollout of water services to the respective communities.

#### • Key Issues and Interventions

The sustainability of the scheme is threatened by water losses in existing networks and excessive water usage from unmetered consumers. A water audit was done in 2006 (Ulundi Water Audit – October 2006) that indicated the inefficiency of water usage in Ulundi town to be 68% of the volume of water put into the system. ZDM has initiated a waterloss management programme where these waterlosses are systematically been addressed.

Due to limited spatial information that was available for planning purposes at the start of the Regional Schemes, the area around Babanango was not covered initially under Nkonjeni Regional Scheme. During 2008 a demographic verification process was done which allowed ZDM to identify existing settlements footprints in the Babanango area. A business plan was submitted to DWA and MIG in 2009 which included these settlements under MIG funding, and implementation of water supply is completed.

## External Support

Funding for Nkonjeni Regional Scheme is provided through MIG.

## 11.3.1.2 Usuthu

#### • Background

The Usuthu Regional Scheme is the largest water supply scheme in the district and also represents the biggest portion of the total backlogs. The scheme required the development of a new water source from the Black Mfolozi river and expensive bulk infrastructure to be rolled out over vast distances to scattered rural communities.

#### • Key Issues and Interventions

The biggest challenge with this scheme is the funding of the enormous capital investment of more than R500m that is required to provide the required infrastructure. ZDM has aquired additional DWA funding to fast-track the implementation of bulk services for this scheme.

The huge capital investment required eradicating the backlogs through the regional scheme infrastructure and the resulting slow progress with the roll-out of services requires an intermediate solution to be developed to alleviate immediate water supply needs. The existing rudimentary supply programme, whereby local groundwater sources are developed within 800m walking distance from households, was hampered in Usuthu area due to difficulty in finding reliable and good quality water sources close to communities. ZDM has initiated intermediate, stand-alone water schemes to address the delay in providing reticulation to communities. These intermediate schemes are developed from production boreholes where available, and are designed in such a way that they can easily be integrated into the bulk services network in future.

The sustainability of the main water source of Nongoma town is under severe strain and no longer sustainable during drought periods. The installation of a bulk pipeline from the Black Mfolozi river to Nongoma is currently in progress to address this issue. The internal bulks for Nongoma town will also be upgraded to augment the existing water supply.

Nongoma town frequently experiences intermittent water supply to consumers and businesses, even outside of drought periods. Excessive water usage by unmetered consumers and high water losses contribute to the problem. A water loss study conducted in 2003 indicated that unaccounted water supply in Nongoma was in excess of 41%. A waterloss and water demand strategy is in progress as part of the Usuthu Regional Scheme planning.

#### External Support

Funding is provided by MIG as well as RBIG (Bulks).

## 11.3.1.3 Mandlakazi

#### • Background

The Mandlakhazi Regional Scheme represents the second largest supply area in the district and also the second biggest portion of the total backlogs of the municipality. There are no towns in the supply area and the communities are sparsely scattered and vast distances apart. The provision of water services to all communities are therefore extremely expensive and will take a long time to conclude.

Water supply problems in the neighbouring Hlabisa area has resulted in a change of priorities and the construction of a bulk supply pipeline to supply the eastern side of Mandlakazi and eventually reach the Hlabisa communities.

The scheme is supplied with raw water from a privately-owned dam outside of the Zululand municipal area. The dam is supplied by the owner from the Pongolapoort Dam, which is a very reliable water source. Bulk water supply agreements are in place with the owner and the supply is secured. ZDM is however investigating the possibilities for an individual allocation and raw water abstraction permit from DWA for abstraction from the Pongolapoort Dam for long-term sustainability.

#### Key Issues and Interventions

The Mandlakazi area is also in need of an intermediate solution to accelerate the provision of services to households until the regional scheme bulk infrastructure can eventually reach all the communities. Drought problems are frequent in the area and the rudimentary programme has limited success in finding sustainable and potable local sources. However, success has been achieved in some areas for good production boreholes and this will be developed as intermediate stand-alone schemes which will be integrated into the regional scheme in future.

#### External Support

The regional scheme is funded by MIG as well as an allocation from RBIG to accellerate the implementation of the bulk services.

## 11.3.1.4 Mkhuze

#### • Background

The Mkhuze Regional Scheme area comprises of mostly formal farm areas and a small number of sparsely scattered rural communities. The construction of a single regional scheme to supply the entire footprint is not feasible, but rather individual schemes from local sources.

#### • Key Issues and Interventions

An existing land reform project at the Gumbi settlement has resulted in a dramatic influx of families that settled without any water or sanitation infrastructure being in place. This resulted in the construction of an emergency supply from the neighbouring Pongolapoort Dam. This project is completed. The abstraction point at the dam is however not ideal and in future a second abstraction point from a more ideal position should be investigated.

There is huge potential for economic development on the western side of the Pongolapoort Dam but abstraction on that side of the dam is unfortunately very difficult. Groundwater sources in the area are also of poor quality and insufficient yield to sustain large scale development.

• External Support

Funding is provided by MIG.

## 11.3.1.5 Simdlangentsha East

#### Background

The Simdlangentsha East Regional Scheme is a well-served area and consist of the lowest backlogs in the district. The scheme supplies Pongola town as well as a vast rural area. Water is abstracted from irrigation channels next to the Pongola river and with an emergency supply that is available further down at the Pongola river. The irrigation channels are managed by DWA and the supply is mostly reliable, except when the channels are closed for maintenance. ZDM also pays DWA a raw water charge for water abstracted from the channels.

#### Key Issues and Interventions

Water supply in the rural areas is under severe pressure with frequent interruptions to the supply. Excessive water usage and high waterlosses due to illegal and unmetered connections are the main contributors to the problem. Apart from the above problems the bulk infrastructure is also in need of upgrade as a result of population growth since the inception of the scheme. The challenges on the

scheme therefore require a combination of water demand management interventions and the upgrade of bulk infrastructure to address the long-term sustainability of the scheme. The waterloss managagement programme initiated by ZDM is addressing this at present, and the upgrading of the existing bulk infrastructure for the southern part of the scheme is in progress.

Pongola town has experienced significant development over the recent years and this was hampered by especially the absence of waterborne sanitation throughout the town. There is a need to compile a sewerage master plan for the area and plan upgrade requirements systematically.

#### • External Support

Funding is provided by MIG.

## 11.3.1.6 Simdlangentsha Central

#### Background

The planning of the Simdlangentsha Central scheme is complete and the first phases of the bulk infrastructure have been completed. The project also requires a substantial investment in bulk infrastructure before communities will be reached with water supply. The area is however quite well served with localised schemes from local sources. The challenge is to keep these schemes operational until the bulk scheme can reach all the areas.

#### • Key Issues and Interventions

The Simdhlangentsha East Regional Scheme experienced water pressure problems, and the Simdhlangentsha Central Regional Scheme is used to augment water supply to these settlements.

The Simdlangentsha Central scheme contributes a small portion to the total backlogs of the ZDM and therefore also receives a small portion of the available capital funds, although a substantial capital investment is still required to provide the necessary infrastructure.

Although the area is generally well-served, all schemes are old and the regional scheme planning will include infills to provide water to additional households.

#### External Support

Funding is provided by MIG.

## 11.3.1.7 Simdlangentsha West

#### Background

Simdhlangentsha West Regional Scheme mainly consists of rural areas to the east of Paulpietersburg town. The area is generally well-served although existing networks are old and infills and waterloss management is required.

The current capacity of the rising main line from the existing weir in the Pongola River to the existing Water Treatment Works at Frischgewaagd Township is 2ML/day (Supplies Frischgewaagd and Mangosuthu with raw water), and the current capacity of the existing Water Treatment Works at Frischgewaagd town is 3Ml/day. New networks were installed at Frischgewaagd during 2007/2008. and the water demand was reduced from the maximum possible supply of 2ML/day to 0.7Ml/day. The balance of the water (1.3ML/day) is consumed by Mangosuthu (with only 20% of the population of Frischgewaagd). A new rising main line from the Pongola weir to Frischgewaagd will be constructed. The Frischgewaagd Water Treatment Works will be relocated to the Pongola River Weir, and will provide treated water to Ezimbomvu, Tholakela, Mangosuthu and Opuzane.

#### Key Issues and Interventions

High waterlosses are evident, especially in the Mangosuthu area. ZDM has addressed this issue and the construction of new networks at Mangosuthu is completed. Construction includes metered yard connections and consumers will be restricted to 200 litres per household. Consumers will be able to register for a higher level of service, but will be billed for the balance.

In the near future Frischgewaagd will also be restricted to 200 litres per day, with the option to register and pay for a higher level of service.

The biggest challenge is to obtain funding for the proposed bulk infrastructure. Funding of more than R120M will be needed just to supply Frischgewaagd and Mangosuthu with treated water.

# External Support Existing funding is provided by MIG.

## 11.3.1.8 Khambi

#### • Background

The Khambi Tribal Authority area is well-served with several small stand alone schemes. (Esihlengeni, Kwamakweshe, Ngenetsheni, Cibilili and Ntumbane Community Water Supply

schemes). Not all of these schemes however have had a sustainable water source. The clinic at Ntumbane is often without water during the dry winter periods.

A weir was constructed in the KwaMthazi River and a new water treatment works was constructed. This supplies water to the Khambi Tribal Authority and the integration of all the stand-alone schemes to this bulk service is completed.

#### • Key Issues and Interventions

The long-term planning was to supply water from the Coronation Dam to the Khambi area, but an indepth study by ZDM concluded that the Coronation Dam will not be a sustainable solution for the long-term additional demand, and the cost per capita would be too high. ZDM is currently equipping sustainable local sources closer to Khambi area, which will result in a substantial saving in bulk infrastructure.

#### • External Support

Funding is provided by MIG.

## 11.3.1.9 eMondlo/Hlahlindlela

#### • Background

The eMondlo area is well-served with existing stand-alone schemes. eMondlo town receives water from the Mvunyane dam. These existing sources are however not sustainable for future use, and will receive water in future from the Klipfontein dam situated next to Vryheid town. Mvunyane dam is silted up to such an extent that it is no longer a sustainable source for eMondlo town.

#### Key Issues and Interventions

During 2000 a new water reticulation network at eMondlo A and B was installed in order to lessen the water demand from 12 Ml/day to 4 Ml/day. The eMondlo water treatment works can supply 8 Ml/day. This meant that 4 Ml/day would have been available towards the settlements surrounding eMondlo A and B after the installation of the new networks. Networks were installed at these settlements and connected to eMondlo A and B. The old network at Emondlo A and B was never decommissioned and expected savings of 4Ml/day never realised. The residents of eMondlo also connected the new network to the old network with pipes in their yards.

The eMondlo water treatment works has been refurbished and upgraded to supply 12MI/day, but the water demand has grown from 8MI/day in 2000 to 16 MI/day currently. With the refurbishment completed there is still a shortfall of 4 MI/day. The existing rising main line from Mvunyane Dam to eMondlo Water Treatment works can furthermore only supply 12 MI/day.

The above issues will all be addressed with the bulk services implementation through the Hlahlindlela Regional Scheme. In future water will be supplied from Klipfontein Dam to Vryheid Water Treatment works. Water will then be pumped from the Vryheid Water Treatment works to Hlahlindlela (including eMondlo Township). A regional water supply assessment will however first be done during 2015 before water can be supplied to eMondlo area.

The funding available to implement the Hlahlindlela Regional water supply is not adequate, but ZDM is reviewing the annual budget allocation for this scheme to fast-track the implementation of bulk services. The estimated cost to implement the water supply from Klipfontein Dam to eMondlo is well over the R200M.

AbaQulusi as the WSP for urban areas has initiated a waterloss programme at eMondlo B. This is crucial towards the sustainability of water supply to the area. All connections will be inspected for water leaks and repaired where neccessary. IN additiona to this, ZDM has allocated funding for the remaining Emondlo B as well as eMondlo A to resolve the excessive waterlosses experienced in these two areas.

#### External Support

Funding is provided by MIG.

## 11.3.1.10 Coronation

#### Background

The Coronation Regional Scheme consists of a few small and isolated towns and a number of scattered and very isolated rural settlements within formalised farm areas.

## • Key Issues and Interventions

The towns have a high level of service but the infrastructure is very old and urgent refurbishment is required in most cases. The Coronation scheme however is a small contributor to the total backlogs of the district and receives a small portion of the total capital funds. Refurbishment needs are competing with new infrastructure requirements for limited available funds. There is a need for refurbishment funding over and above funding for the eradication of backlogs.

The original planned regional scheme is currently under revision. The Coronation dam is not sustainable to supply Khambi Regional Scheme with additional water, and bulk services to the rural scattered settlements of Coronation area will be too costly to supply from a bulk infrastructure network. A revised Master Plan is currently in progress whereby stand-alone schemes from local sustainable sources will be developed to cover as many settlements as possible. Khambi Regional Scheme will also receive additional water needed from local sustainable sources.

The town of Louwsburg within the Coronation regional scheme area have a water resource challenge that will not be easy to solve. The existing dam has a limited catchment and groundwater is difficult to find due to the locality of the town. Any possible solutions will be very costly and there is insufficient funding at this stage to address the issue. The town is also in need of waterborne sewage, but the water problems receives a higher priority at present.

A revised Master Plan for Coronation is in progress to assess local water sources for stand-alone schemes in areas where no sustainable water is present.

#### • External Support

Funding is provided by MIG.



#### The following map depicts the rollouts of the regional schemes:

## 11.3.2 Intermediate Stand-alone Schemes

Due to time and budget constraints with implementation of costly bulk infrastructure, ZDM has initiated an intervention to alleviate the severe water shortage in areas where a sustainable local source can be

developed. These water sources will supply several settlements in the surrounding area, and will become part of the Regional Scheme infrastructure in future.

New production boreholes are continuously been identified under the Rudimentary Programme, and if suitable, an intermediate stand-alone scheme will be designed around these production boreholes.

Implementation are done according to the ZDM Prioritisation Model for water services within each Regional Scheme.



The following map depicts the rollouts of the current intermediate stand-alone schemes:

# 11.3.3 Rudimentary Water Supply

In areas where settlements cannot be served in the near future by the Regional Schemes or Intermediate Schemes, local water sources will be used to provide a survival level of water on a rudimentary level. Implementation is done according to the ZDM Prioritisation Model for water services. Through the rudimentary programme production boreholes are also identified for possible implementation of stand-alone schemes.



#### The following map depicts the rollouts of the rudimentary programme:

## 11.3.4 Sanitation Services

Sanitation in the rural areas is being provided in the form of dry-pit VIP toilets. Implementation is done according to the ZDM Prioritisation Model for rural sanitation services.

A Rural Sanitation Replacement Programme has also been deemed neccessary in 2013 to replace the old Archloo-, Block- and Zink-type VIP's. This programme's implementation will be included in the next 5-year review of the WSDP.

The following map depicts the rollouts of the sanitation programme:



## **11.3.4 Emergency Intervention Projects**

Emergency Intervention Projects are projects which require immediate intervention, such as during disaster management. Two such projects have been implemented over the past few years in ZDM, namely:

#### ✤ Drought Relief

Emergency drought relief funding was provided to ZDM in 2016. An amount of R37 493 000 was made available in 2016 for drought relief interventions, and a planned 7 880 households were to benefit from this funding allocation.

A summary of the interventions can be seen in the next table.

Municipal Name	Spring Protection	Water Tankers rental (6 months' period)	Boreholes Drilling and equipping	Refurbish Non- functioning Schemes
	Qty	Qty	Qty	Qty
Abaqulusi LM	4			
		1		
			14	
				1

Nongoma LM	2			
		2		
			27	
				3

uLundi LM	2			
		2		
			18	
				2
		2	18	2

eDumbe LM	6			
		1		
			8	

uPhongolo LM	4			
		1		
			10	

The town of Vryheid was forced to rely on water tankers and water points at designated borehole and water tank points. Since then dam levels have normalised again but it is clear that the greater Vryheid region is in urgent need for major interventions in terms of sustainable water during dry winter months.

The present status of ZDM is satisfactory, but water use and dam levels are closely monitored.



#### COVID-19

South Africa is currently in lock-down due to the COVID-19 epidemic. Emergency interventions were immendiately put in place in ZDM, with 2 task teams deployed to plan, manage and oversee emergency interventions.

Two task teams, namely the ZDM Techincal Task Team and the ZDM Command Council was established, which are represented by ZDM and it's local municipalities' management delegates, MEC, the SADF, SAPS and Dept. of Health. These task teams meet bi-weekly where feedback and planning are discussed.

The COVID-19 pandemic accelerated the need for emergency interventions and as a result the municipality was required to expand the programme to include additional vulnerable communities.

The emergency water supply interventions include water provision through static tanks and water tankers. These interventions are implemented throughout the district, in each of the five Local Municipalities. Water tankers operate on fixed routes and pre-approved water supply rosters, which determine when each community will receive water. The aim is to supply each community at least once a week.

Local Municipality	Total	Hired	ZDM	Rand Water	COGTA	LM's
Ulundi	22	18	3	1		
Nongoma	11	10		1		
eDumbe	9	7	1		1	
Abaqulusi	15	12		1	1	1
uPhongolo	10	8		2		
	67	55	4	5	2	1

The table below shows the full contingent of water tankers operating in the district and the distribution per LM's:

The majority of the water tankers are hired and operated by external Service Providers, under the supervision of ZDM technical personnel. ZDM water tanker supervisors accompany the water tanker drivers to ensure that the supply routes are adhered to and water is delivered where intended, in accordance with the water supply roster. ZDM also contributed four water tankers from our own fleet towards the programme.

The Department of Water and Sanitation, through Rand Water, recently contributed an additional five water tankers to the district for the duration of the pandemic. COGTA also contributed two water tankers, albeit directly to the eDumbe and Abaqulusi LM's. These water tankers are being controlled by the respective LM's. Abaqulusi LM also contributed a water tanker from their own fleet.

COGTA made available 50 x 2 700L static tanks during April 2020. The bulk of the tanks have been distributed and installed.

COGTA also distributed static tanks directly to certain Local Municipalities. ZDM is in the process of confirming the quantities that have been distributed to the respective LM's and the status of the installation of these tanks.

The distribution of static tanks throughout the district is shown in the table below:

Local Municipality	ZDM	LM's
Abaqulusi LM	83	31
eDumbe LM	44	TBC
Nongoma LM	93	TBC
Ulundi LM	83	TBC
uPhongolo LM	29	TBC
	332	31

A map depicting settlements benifitting from the water tanker water supply as well as positions of current Jojo tanks can be reviewed in the map sbelow. Distribution of tanks is however still in progress and more locations will be added.



ZDM has also assisted with the provision of emergency sanitation facilities in some areas, as part of the COVID-19 intervention programme. Temporary sanitation facilities have been provided at the following places, to assist with the COVID-19 prevention measures:

- uPhongolo taxi rank (2 units)
- Mavalane road block (4 units)

ZDM has, in response to Circular 11 of 2020, issued by the Department of Cooperative and Traditional Affairs on 1 April 2020, reprioritised the MIG and WSIG capital programmes to make funding available for covid-19 interventions. ZDM reprioritised R15m from the WSIG and R20m from the MIG allocations towards this programme. A Technical Report, detailing the intervention programme, was submitted and approved by *Department: Water and Sanitation* last week. The WSIG Business Plan for the approval and re-prioritisation of R15m funding was also approved.

The aim of this programme is to refurbish existing non-functioning water schemes and provide additional handpumps as an emergency intervention for water supply to communities. The first 40 water schemes and 90 handpumps have been prioritised for work to start urgently. Contractors and professional service providers have been appointed and work is in progress.

# **PROJECT ROLLOUT MAPS**

11.1 Regional Water Supply Schemes11.2 Intermediate Stand-alone Schemes11.3 Rudimentary Water Supply11.4 Sanitation Rollouts

Map 11.1: Roll-out of regional water services in the district over the next 5 years







![](_page_31_Figure_1.jpeg)

![](_page_32_Figure_1.jpeg)

![](_page_33_Figure_1.jpeg)

![](_page_34_Figure_0.jpeg)

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![](_page_37_Figure_4.jpeg)

![](_page_38_Figure_1.jpeg)

![](_page_39_Figure_1.jpeg)

![](_page_39_Figure_5.jpeg)

![](_page_40_Figure_1.jpeg)

![](_page_40_Figure_5.jpeg)

![](_page_41_Figure_0.jpeg)

![](_page_41_Figure_1.jpeg)

Table 11.1: Roll-out of Regional Water Infrastructure

Table 11.2: Roll-out of Stand-alone Schemes

Table 11.3: Roll-out of Rudimentary Water Services

Table 11.4: Roll-out of New Rural Sanitation Services