

201003SG09TA



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Maluti-A-Phofung Local Municipality interventions - Free State Province

Presented by:

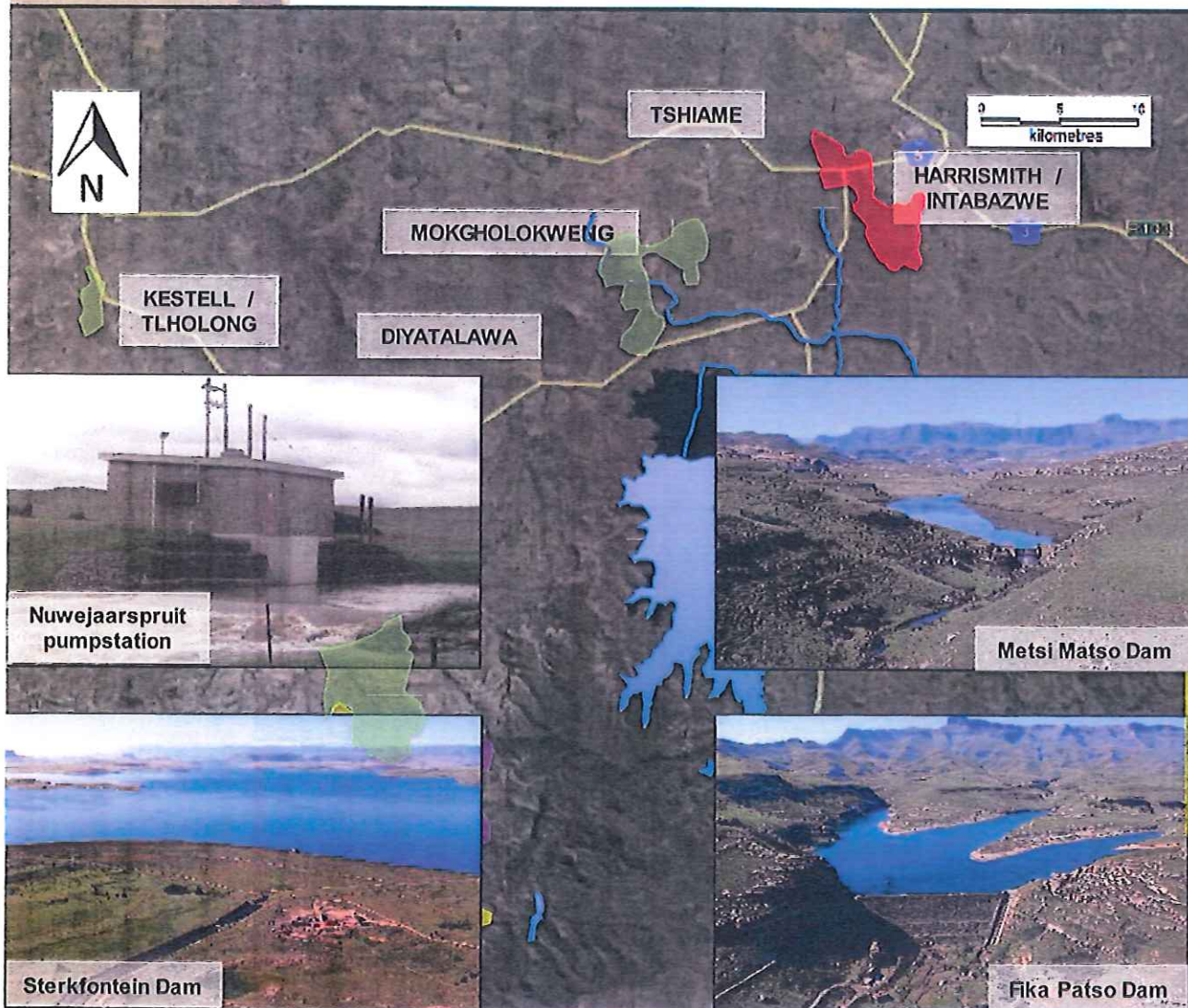
Mr M Tshangana
Acting Director General

Date: 10 March 2020

PURPOSE

- To brief the Select Committee on:
 - Measures being implemented to mitigate the effects of the water crisis in QwaQwa
 - Constraints being faced by the Maluti A Phofung Municipality to resolve the water crisis caused by drought
 - Current and future plans in place to avoid water shortages in the municipality.

Maluti-a-Phofung Water Sources/Systems



WILGE SYSTEM

- Source : Wilge River
- Max abstraction : 9.6Mℓ/day
- Wilge River not a sustainable source during drought periods, is supplemented from Sterkfontein Dam via Nuwejaarspruit pumpstation

STERKFORTEIN SYSTEM

- Source : Sterkfontein Dam
- Capacity : 2 600 000Mℓ
- 3rd largest dam in South Africa
- Sustainable water source

FIKA PATSO SYSTEM

- Source : Fika Patso Dam
- Capacity : 28 000Mℓ
- Not sustainable during drought periods
- Sterkfontein system can augment this system under extreme drought conditions

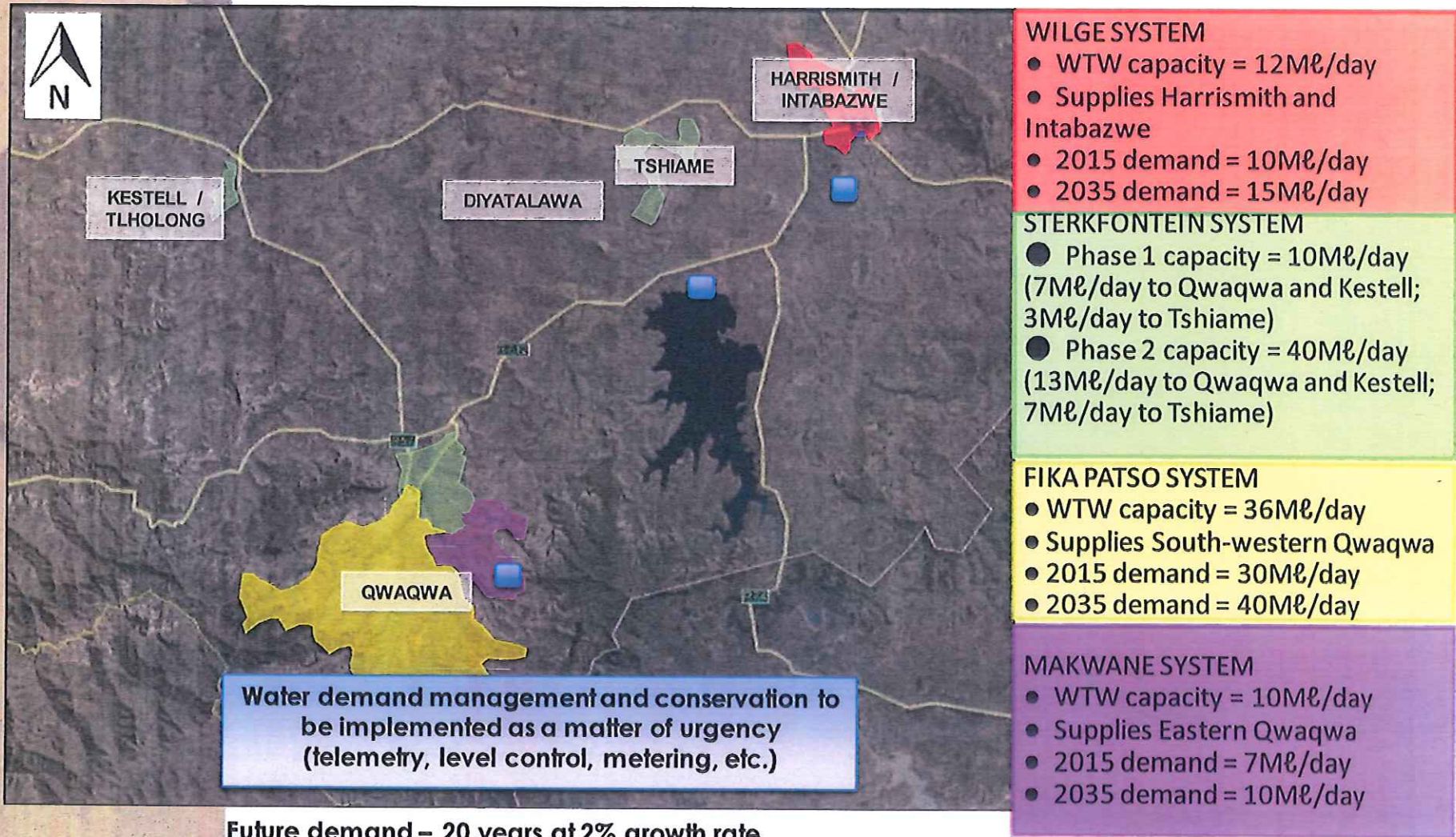
MAKWANE SYSTEM

- Source : Metsi Matso Dam
- Capacity : 4 500Mℓ
- Limited supply during extreme drought periods
- Sterkfontein system can partially augment this system under extreme drought conditions

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Current water sources are in the process of being optimised to meet the demand. There is increase in demand due to population growth. Higher service levels will require additional augmentation from Sterkfontein Dam

Maluti-a-Phofung Water Systems Characteristics



Future demand – 20 years at 2% growth rate

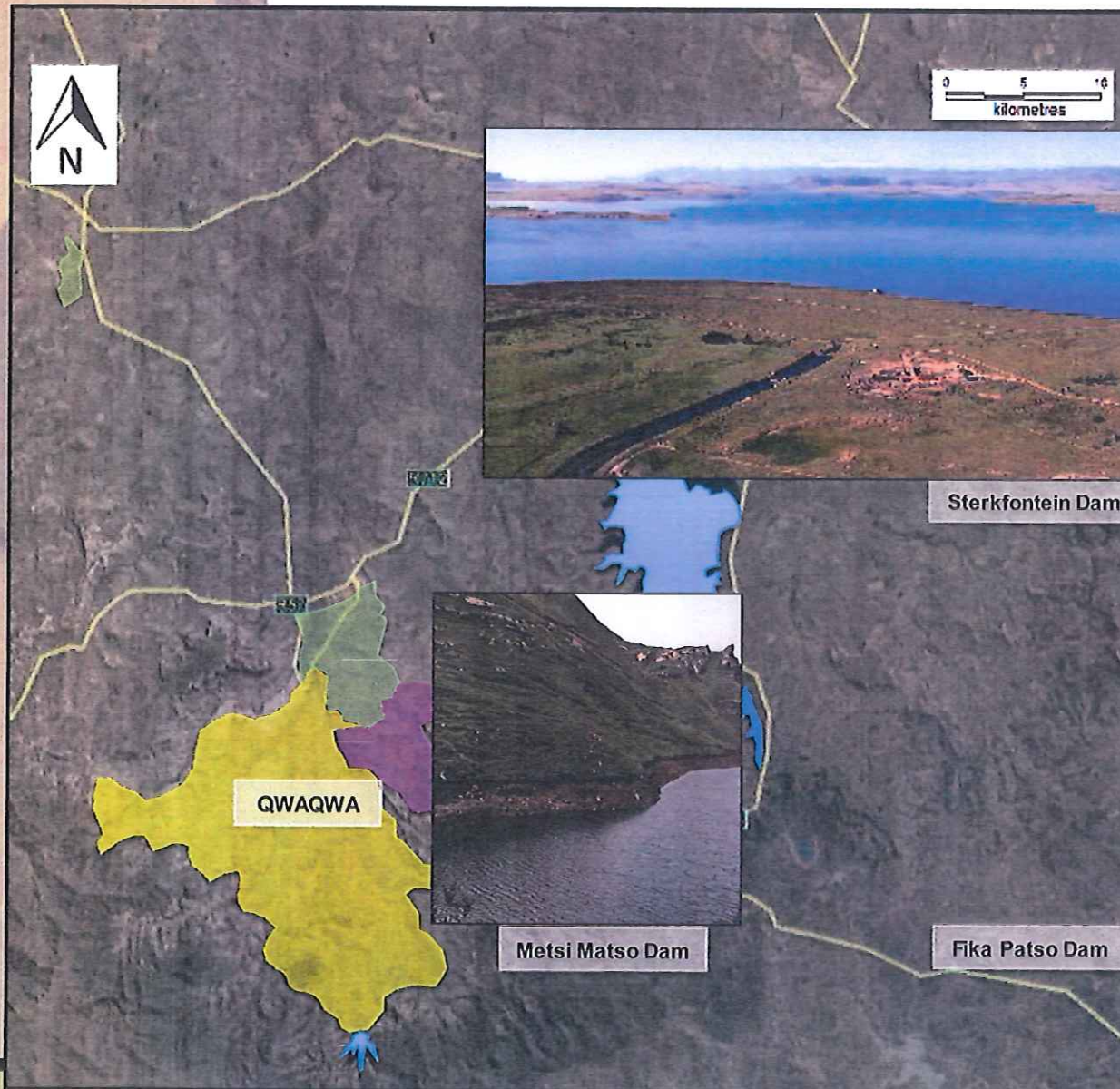
Service level– stand connections (water borne sanitation where feasible)

15.8% Non-Revenue Water (NRW)

Water Supply System Challenges

- The current three water supply systems (treatment plants) are not interlinked i.e. if one fails, the other system cannot augment the other
- Fika Patso supplies 80% of Qwaqwa (Phuthaditjhaba) including the CBD, this renders it unsustainable due to the growing demand
- Water losses are high (47%) due to aged infrastructure and poor maintenance
- Other villages in Qwaqwa do not have access to potable water due to lack of reticulation infrastructure
- The Metsi Matso, Sterkfontein and Fika Patso dams are not interlinked due to landscape challenges
- Lack of water resource management implementation i.e. drought, flood readiness plans
- Vandalism and theft of water and sanitation infrastructure
- Wastewater treatment plants are dysfunctional and contribute to pollution of water resources
- Lack of operation and maintenance of water and sanitation Infrastructure which leads to poor water quality

Current dam levels Situation



STERKFORTEIN SYSTEM

- Dam level : 92%
- Dam built for multiple use
- Limited use under normal conditions
- Reliable water source

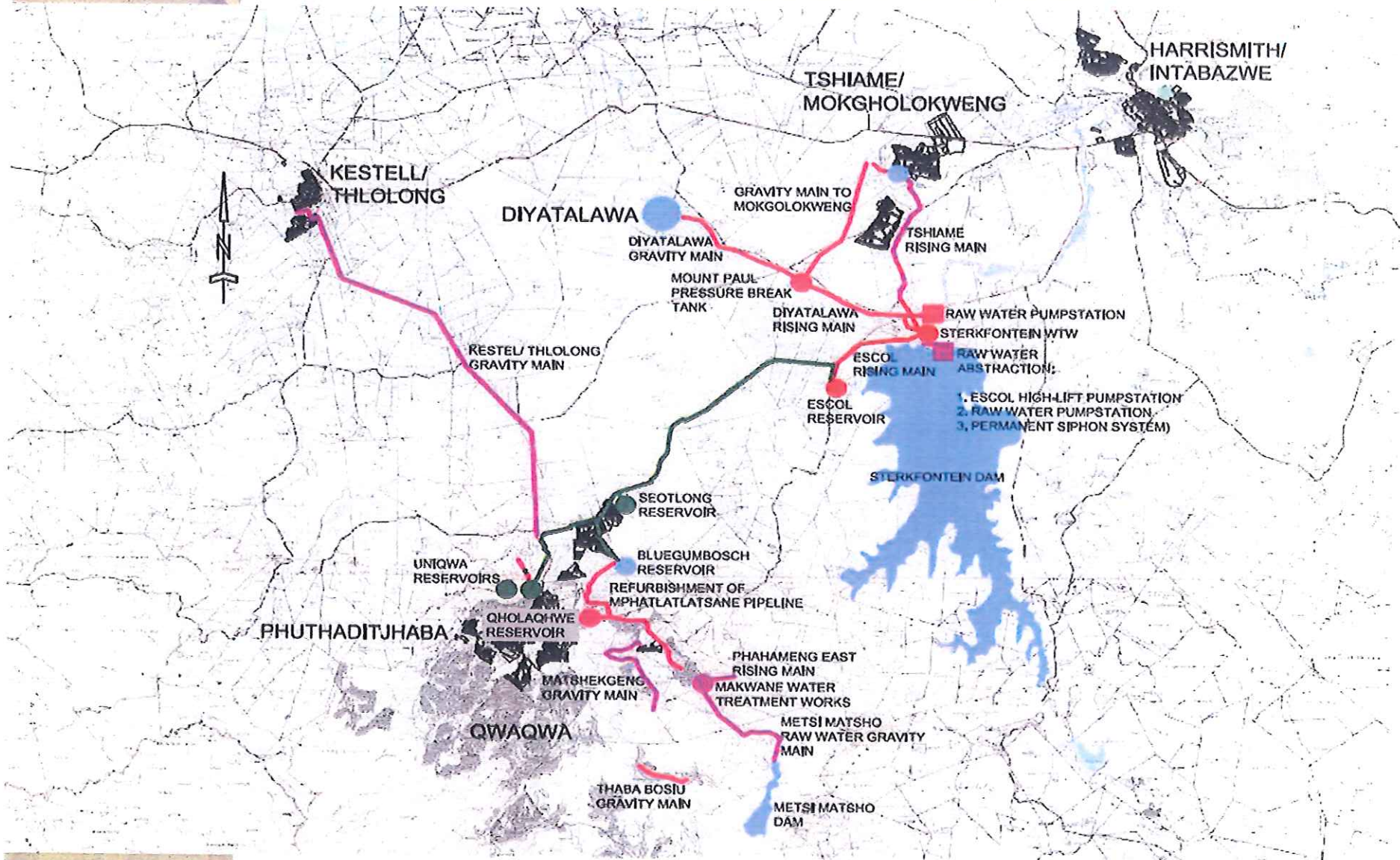
MAKWANE SYSTEM

- Metsi Matsho Dam level 82%
- Adequate storage up to end of 2016 with no additional inflow
- Possible water offtake point to augment water supplied to Fika Patso System near Pereng pumpstation

FIKA PATSO SYSTEM

- Dam level : below 32%, reserve
- Fika Patso Dam capacity under pressure almost annually
- Poor water quality when dam level is low

Current and Future Plans





Interventions (Maluti-A-Phofung LM)

- The Department has two programmes aimed at addressing the water and sanitation challenges within the Municipality, namely:
 - Regional Bulk Infrastructure Grant (RBIG)
 - Water Services Infrastructure Grant (WSIG)
- The Maluti-A-Phofung LM is benefiting from both grants.

RBIG MTEF ALLOCATIONS – DoRA Schedule 6B

Project Name	Name of WSA	Allocation 2018/19	Allocation 2019/20	Allocation 2020/21	Total Allocation
Maluti-A-Phofung BWS Phase 3 of 4 and 4 of 4	Maluti-A-Phofung	40 000 000	35 832 000	50 000 000	125 832 000

WSIG MTEF ALLOCATIONS – DoRA 5B

Construction of Kestell clear water supply pipeline	Maluti-A-Phofung	25 000 000	35 000 000	50 000 000	110 000 000
Upgrading of Fikapatso Water treatment works					
Qholaqhwe-Mphatlalatsane Pipeline					
Upgrading of the water supply system from Nuwejaarspruit Pumpstation to the Wilge WTW					

DROUGHT ALLOCATIONS

Maluti-A-Phofung Emergency Intervention	Maluti-A-Phofung		13 400 000		13 400 000
Drought Intervention within Maluti-A-Phofung LM	Maluti-A-Phofung		54 034 700		54 034 700
Total Allocation		65 000 000	103 301 700	100 000 000	303 266 700

Projects Implemented in the 2019/2020 Financial Year:

RBIG Scheme Components

Phase No.	Project	Description	Project Start & End date	Physical Progress	Estimated project value (R)	Expenditure since inception (R)	Allocation 2019/2020 FY
3	Northern Bulk Storage: Stage 1	Provision of bulk storage capacity in the northern supply area of QwaQwa by constructing three 3Ml concrete reservoirs	<ul style="list-style-type: none"> Start: 20 Feb 2015 Completion (Planned): 30 Apr 2020 	95%	45,781,404.00	41,384,045.81	4,397,357.19
	Northern Bulk Storage: Stage 2	Sealing and Waterproofing of the University of Qwaqwa Reservoirs	<ul style="list-style-type: none"> Start: 29 Jan 2020 Completion (Planned): 30 Apr 2020 	3%	2,500,000.00	0.00	2,500,000

Projects Implemented in the 2019/2020 Financial Year (cont...):

RBIG Scheme Components

Phase No.	Project	Description	Project Start & End date	Physical Progress	Estimated project value (R)	Expenditure since inception (R)	Allocation 2019/2020 FY
4	QwaQwa Borehole Project	Stage 1: Drilling & testing of 60 borehole sites to be suit able to yield two litres per second (2l/s) for long term production.	<ul style="list-style-type: none"> Start: 14 Sept 2017 End (Planned): 30 Jun 2019 	100%	15,526,800	14,261,400	1,265,400
		Stage 2: Equipping the first list of prioritized boreholes.	<ul style="list-style-type: none"> Start: 1 Nov 2018 End (Planned): 31 Jan 2020 	99%	17,745,765.94	14,724,915.43	15,733,783.22
		Stage 3: Equipping the second list of prioritized boreholes.	<ul style="list-style-type: none"> Start: 05 Feb 2020 End (Planned): 30 Sept 2020 	15%	25,000,000.00	0.00	7,500,000.00
		Stage 4: Equipping the third list of prioritized boreholes.	<ul style="list-style-type: none"> Start: 05 Feb 2020 End (Planned): 30 Sept 2020 	10%	22,000,000.00	0.00	7,500,000.00
		Stage 5: Identification and equipping of the fourth list of priority boreholes within Maluti-A-Phofung LM.	<ul style="list-style-type: none"> Start (Planned): 1 Nov 2020 End (Planned): 31 Jul 2021 	0%	30,000,000.00	0.00	0.00

Projects Implemented in the 2019/2020 Financial Year (cont...):

WSIG Project Components

Project	Description	Project Start & End date	Physical Progress	Estimated project value (R)	Expenditure since inception (R)	Allocation 2019/2020 FY
Kestell/Tlholong bulk water line	<ul style="list-style-type: none"> Supplying of potable water to Kestell & Tlholong 	<ul style="list-style-type: none"> Start: 30 Nov 2018 Completion ((Planned): 31 Mar 2021 	51%	70,000,000.00	38,960,482.27	16,000,000.00
Qholaqwe-Mphatlalatsane Pipeline	<ul style="list-style-type: none"> Construction of pipeline from Qholaqwe to Mphatlalatsane. 	<ul style="list-style-type: none"> Start: 24 Jan 2020 End (Planned): 30 Jun 2020 	10%	7,935,000.00	1,587,000.00	7,935,000.00
Upgrading of the water supply system from Nuwejaarspruit Pumpstation to the Wilge WTW	<ul style="list-style-type: none"> Construction of a new 400mm dia uPVC pipeline from the Nuwejaarspruit Pumpstation to Wilge Water Treatment Works 	<ul style="list-style-type: none"> Start: 24 Jan 2020 End (Planned): 31 Aug 2020 	10%	17,200,000.00	3,440,000.00	11,065,000.00
Upgrading and refurbishment of Fika-Patso WTWs	<ul style="list-style-type: none"> The refurbishment & upgrading of Fika Patso WTW 	<ul style="list-style-type: none"> Start: 30 Oct 2016 End (Planned): 31 Aug 2020(Project on hold) 	25%	30,000,000.00	12,704,363.68	0.00

Maluti-A-Phofung Emergency Intervention Components

Project	Description	Project Start & completion date	Physical Progress	Estimated project value (R)	Expenditure since inception (R)	Allocation 2019/2020 FY
Maluti-A-Phofung Emergency Intervention	Thaba Bosiu (Ward 19) – Inst all air valves and pipeline sections on 160mm diameter uPVC pipeline to address frequent pipeline bursts	<ul style="list-style-type: none"> Start: 8 Apr 2019 Completion: August 2019 	100%	300,000.00	8,490,513.13	13,400,000.00
	Kestell (Ward 3) – Replacement of pumpsets to address frequent failures in water supply	<ul style="list-style-type: none"> Start: 8 Apr 2019 Completion: August 2019 	100%	200,000.00		
	Thibella Village (Ward 20) – Replacement of fittings, couplings and pipeline sections on 900mm diameter pipeline to address leaks	<ul style="list-style-type: none"> Start: 8 Apr 2019 Completion August 2019 	100%	100,000.00		
	Makwane Water Treatment Works Emergency Refurbishment Project – Refurbish electromechanical equipment	<ul style="list-style-type: none"> Start: 8 Apr 2019 Completion: 3 Sept 2019 	100%	5,500,000.00		
	Wilge Water Treatment Works Emergency Refurbishment Project - Refurbish electromechanical equipment	<ul style="list-style-type: none"> Start: 8 Apr 2019 Completion: 2 Sept 2019 	100%	7,300,000.00		
Total				13,400,000.00	8,490,513.13	13,400,000.00



Drought Intervention Projects in Maluti-A-Phofung LM

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Appointment of Implementing Agent

- The DWS appointed the Sedibeng Water Board as the Implementing Agent for the Drought Relief Programme in the Maluti-A-Phofung Local Municipality

Governance Structures

The following governance structures have been established for the implementation of the drought relief programme:

- War Room
- Stakeholder Forum
- Steering Committee



Delivery of the 5000 Water Tanks (communal storage)

- Short-term relief measures:
 - Delivery of water to communities through water tankers,
 - Placement of water tanks (commonly referred to as JoJo tanks)
 - Rationing of water
- Progress is as follows:
 - 136 units of 5,000 litres (5 kL) water tanks distributed
 - 30 units of 10,000 litre (10 kL) tanks distributed
 - Construction of masonry tank stands has commenced in Ward 28 (Leribe, Theosane, Mabilela and Mabilela Central) and Ward 15 (Thabang, Masimong, Madimong, Sekgutlong).

Delivery of the Water Tankers (trucks)

- Progress regarding Water Tankers is as follows:
 - 25 Water Tankers of 16 000 litre capacity are on site delivering water to the affected areas.
 - Drivers have been assigned local guides temporarily to assist with routes and delivery points. (15 Local Drivers are utilized for this purpose)
- The Maluti-A-Phofung LM has hired 29 trucks from the local contactors.



Innovation in Water Provisioning

- New technology to deliver water has been investigated: a meeting was held on the 4 March 2020 in Qwaqwa.
- The River abstraction technology and the Package plant technology is ready to be present to the Minister on the 18 March 2020.

Commet – Ha Rankopane Pipeline

- Pipeline previously decommissioned is now being refurbished to augment water for the Fika Patso System
- It will also reduce the dependency on water tankers
- Medium-term measures are as follows:
 - construction of a 4km pipeline from Comet in the Metsi Matsho System traversing two wards, which are Ward 23 and Ward 31.
 - The pipes were delivered on Tuesday, 11 February 2020.
- Construction work commenced on 03 March 2020,
- Consultations were undertaken with MMC: Infrastructure and Ward Councillors with regard to employment of local labour.
- Estimation for project duration is four (4) months and the project is officially underway.
- This intervention will serve the Namahadi area and Ha Rankopane.

UNIQWA Reservoirs to Reversal Pipeline Project

- The contractor has since commenced with site establishment following the delivery of the pipes on Tuesday, 11 February 2020
- Machinery has been delivered on site and there has been pegging and clearing of the pipe route.
- Construction commenced on the 09 March 2020.
- 15 local labour already appointed. The number will increase to 30 as the project progresses.

Equipping of Boreholes In Qwaqwa

- 17 boreholes in total have been revived on an emergency basis to supply water to the residents of QwaQwa.
- The boreholes were equipped with submersible pumps and hand pumps
- Areas benefiting are: Masaleng, Tsheseng, Monontsha, Thabang, Setlabotjha, Mantsubise, Lekwaneng, Dinkweng, and Paballong.
- Furthermore, the Maluti-A Phofung Municipality and the Gift of the Givers have equipped 31 boreholes as follows:
 - Maluti-A Phofung Municipality - 28 boreholes
 - Gift of the Givers - 3 boreholes
- Areas benefiting from these boreholes are Lejwaneng, Tropong, Monontsha, Thabang, Tseki, Bolata, Matswakeng, Sekgutlong, and Mantsubise



Equipping of Boreholes In Qwaqwa (Cont...)

- 5 boreholes are completed and reticulated with package plant for water quality purposes
- The areas benefiting are :Kestel, Monotsha, Tebang, Phahameng, Monontsha
- The contractors have established the site for construction of boreholes and reticulation linked with the water network.
- Estimation for the duration of the project is 4 months commencing on 24 February 2020.
- The areas to be equipped include: Jwalaboholo, Sejwalejwale, Lejwaneng, Monontsha and Hlatseng.

Progress on Maluti-A-Phofung

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Local Municipality	Project Description	Communities to be served	Total Project Budget	Project budget for 2019/20	Project budget for 2020/21	Project Start & End date	Status of Project
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Development of Ground water in Qwaqwa. Equipping of boreholes, package plant, electrification and pipeline	Qwaqwa	R47 000 000	R10 000 000	R37 000 000	24 Feb 2020 to June 2020 1 April 2020 to July 2020	Repairs in various areas, 17 boreholes completed. Equipping of 10 boreholes in progress from Feb 2020 Procurement for additional 20 boreholes in progress.
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Immediate water supply in Qwaqwa: Procurement and leasing of water tankers, and 5000 Jojo tanks	Qwaqwa	R50 000 000	R20 000 000	R30 000 000	Start (Planned): 4 Feb 2020 End (Planned): March 2020	25 Water Tankers have been leased and are already in operation in Qwaqwa. 2000 Jojo tanks ordered which 166 are delivered

Progress on Maluti-A-Phofung

Local Municipality	Project Description	Communities to be served	Total Project Budget	Project budget for 2019/20	Project budget for 2020/21	Project Start & End date	Status of Project
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Construction of Comet to Ha Rankopane Pipeline (+- 5 km)	Qwaqwa	R15 000 000	R5 000 000	R10 000 000	Start (Planned): 03 March 2020 Completion (Planned): July 2020	<ul style="list-style-type: none"> • Consultant appointed, Construction commenced on 3rd March 2020. • The project is done by SW and MAP Water Teams.
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Reversal – Increase Pipeline from 160 mm to 400 mm diameter (+- 3km) in Qwaqwa	Qwaqwa	R12 000 000	R5 000 000	R7 000 000	Start (Planned): 09 March 2020 Completion (Planned): Sept 2020	<ul style="list-style-type: none"> • Consultant appointed • Construction to be done by DWS Construction Unit. • Construction to commence on the 9th March 2020.

Progress on Maluti-A-Phofung

Local Municipality	Project Description	Communities to be served	Total Project Budget	Project budget for 2019/20	Project budget for 2020/21	Project Start & End date	Status of Project
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Repairs of the Mangaung Showgrounds to Thaba Bosiu Pipeline (+- 16 km)	Qwaqwa	R33 700 000	R5 000 000	R28 700 000	Start (Planned): 16 Mar 2020 End (Planned): August 2020	Consultant appointed. Scoping work has since commenced
FS:Thabo Mofutsanyana: Maluti-A-Phofung -- FS194	Water conservation and water demand management Repair of valves, pipelines and leakages	Qwaqwa	R23 000 000	R9 034 700	R13 965 300	Start (Planned): 16 March 2020 Completion (Planned): December 2020	Audit report completed. Contractors to be appointed for repairs of valves, pump stations, and telemetry.
	TOTAL		R180 700 000	R54 034 700	R82 730 000		

Medium Term Implementation

Critical Path Project						
Project	Description	Project Start & End date	Status of the project	Estimated project value (R)	Expenditure since inception (R)	Procurement Plan
Upgrading and refurbishment of Fika-Patso WTW	The refurbishment & upgrading of Fika Patso WTW	<ul style="list-style-type: none"> Start: 30 Oct 2016 Completion (Planned): 31 Aug 2020 (Project was on hold however currently active since Feb 2020) 	25% progress. Civil work completed	30,000,000	12,704,363.68	Contractor on site. Projects progress at 25%
Total The project is implemented by the municipality				30,000,000	12,704,363.68	

Stakeholder Engagements

- Meetings were held with stakeholders as follows:
 - Councillors from Wards 23 and 31 in order to prepare for the commencement of the laying of the pipeline
 - Councillor for Ward 29 to discuss issues of labour and introduce the project

Local Economic Development

- The following will be effected in order to ensure local economic beneficiation:
 - 20 labourers including two Community Liaison Officers will be sourced from both Wards 23 and 31 for the duration of the construction period.
 - at least 30 labourers will be sourced from Ward 29
 - Local SMMEs will be roped in to assist with other functions such as provision of TLBs, Tipper Trucks and other machinery required for construction.
- Advertisement for Local SMMEs to participate has been done on Qwaqwa Radio.



Installation of Water Tanks

- Upon agreement with stakeholders, 150 temporary jobs will be created for the construction of the Water Tank stands and installation.

Committed Communal Water Tanks

No	Capacity for communal tanks	Total to be procured	Already procured	Set aside – Women, Youth and other
1.	10 000L	1000	1000	
2.	5 000L	4000	1000	3000
TOTALS		5000	2000	3000

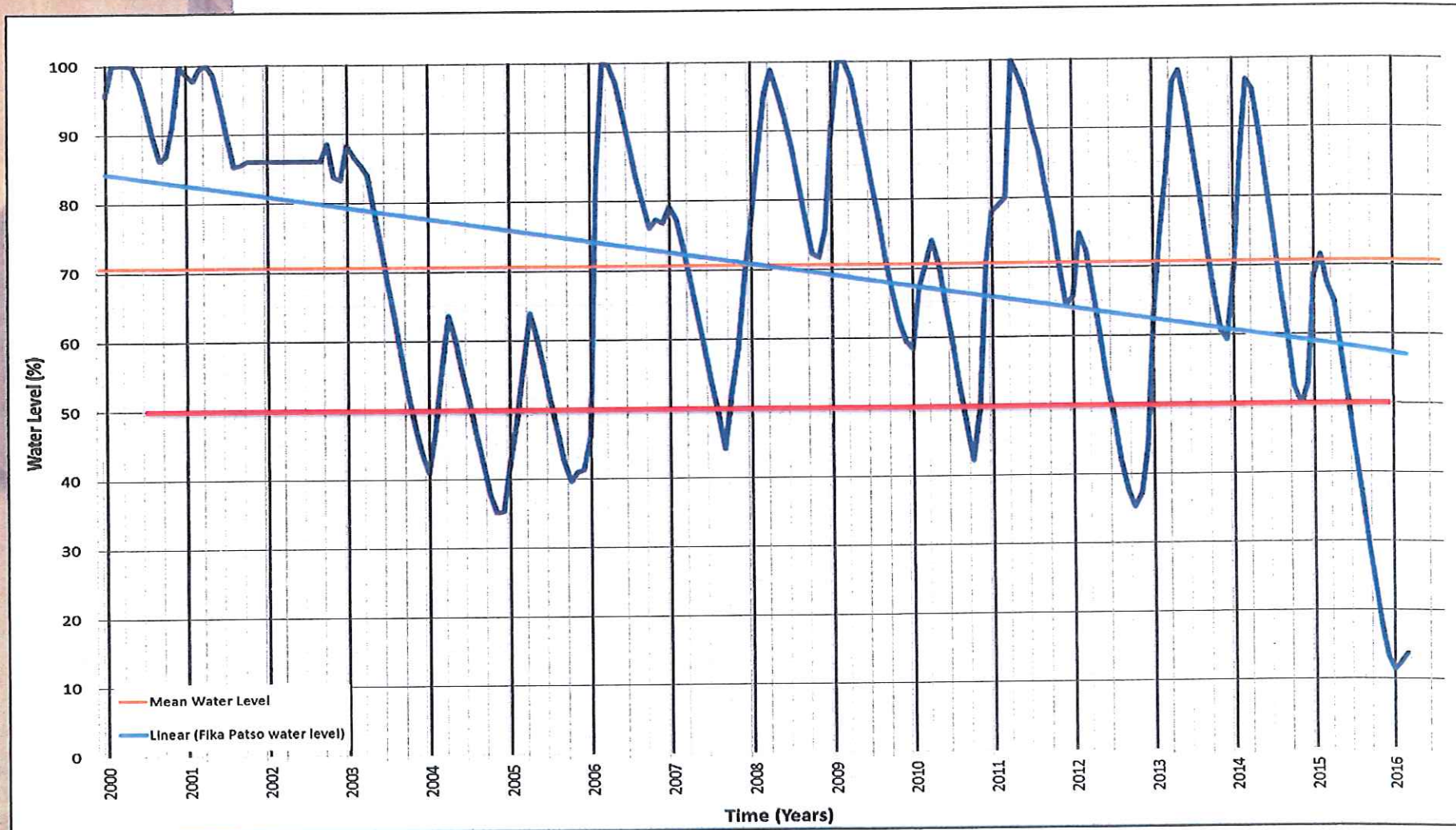
The Future of Fika Patso Dam

- The Qwaqwa water supply demand has increased due to:
 - Higher levels of water and sanitation services
 - Dramatic residential development in Qwaqwa
- Fika Patso's contribution has diminished dramatically
- Historic records indicate an average level for Fika Patso over the last 20 years at 70% of full capacity, and less than 20% in the past 5 years

The Future of Fika Patso Dam

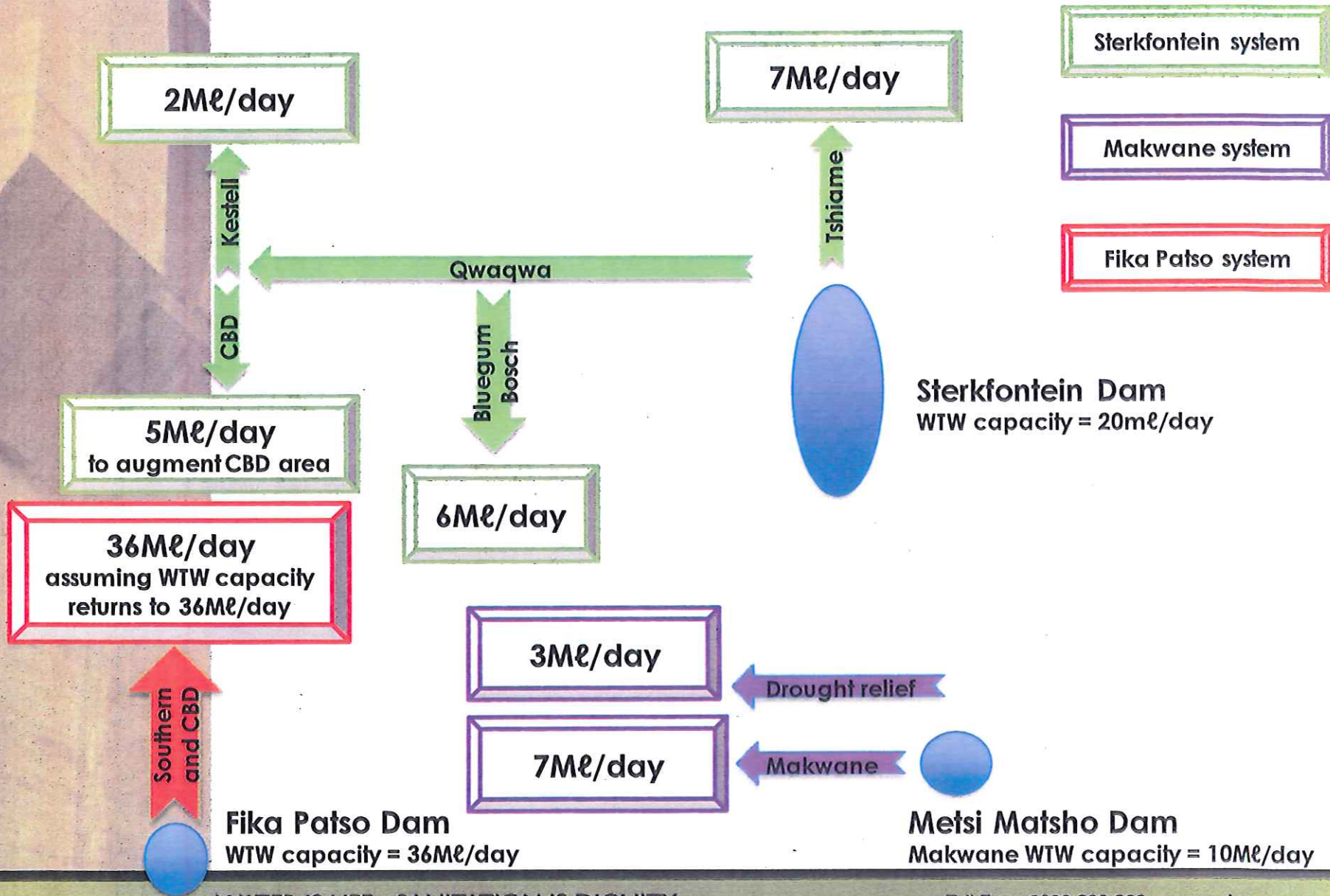
- The Sterkfontein supply system was upgraded to 10 MI/d in 2009 to augment the water demand in Qwaqwa
- The Makwane system was upgraded in 2014 to augment water supply
- Fika Patso will remain a major water source for the Qwaqwa region
 - Its historic yield and the increase in water demand has reduced the extent of its contribution to the total supply of the Qwaqwa region.

Fika Patso Dam Level History (2000 - 2016)

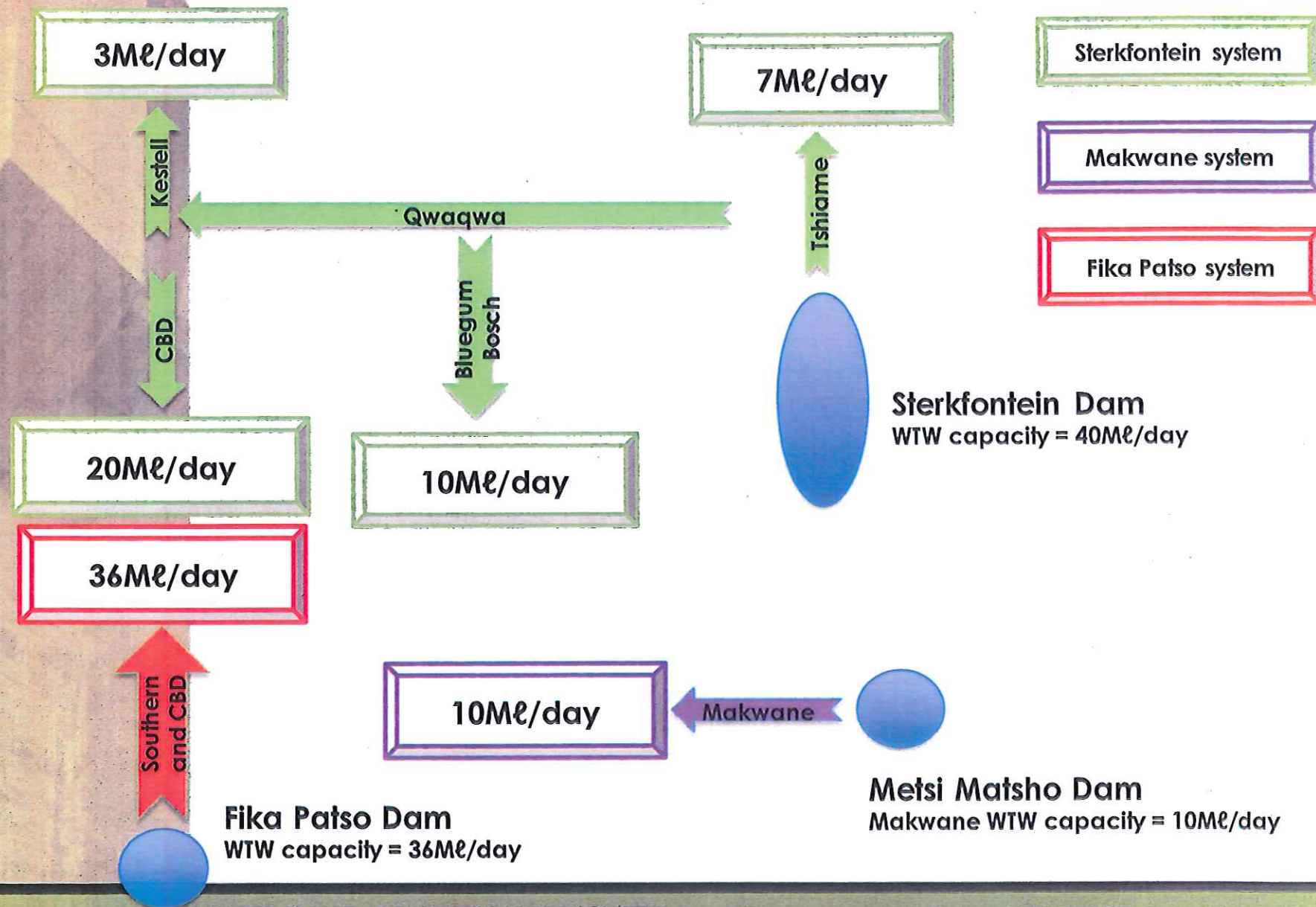


Note : Critical dam level at 50% - intervention needed at this level

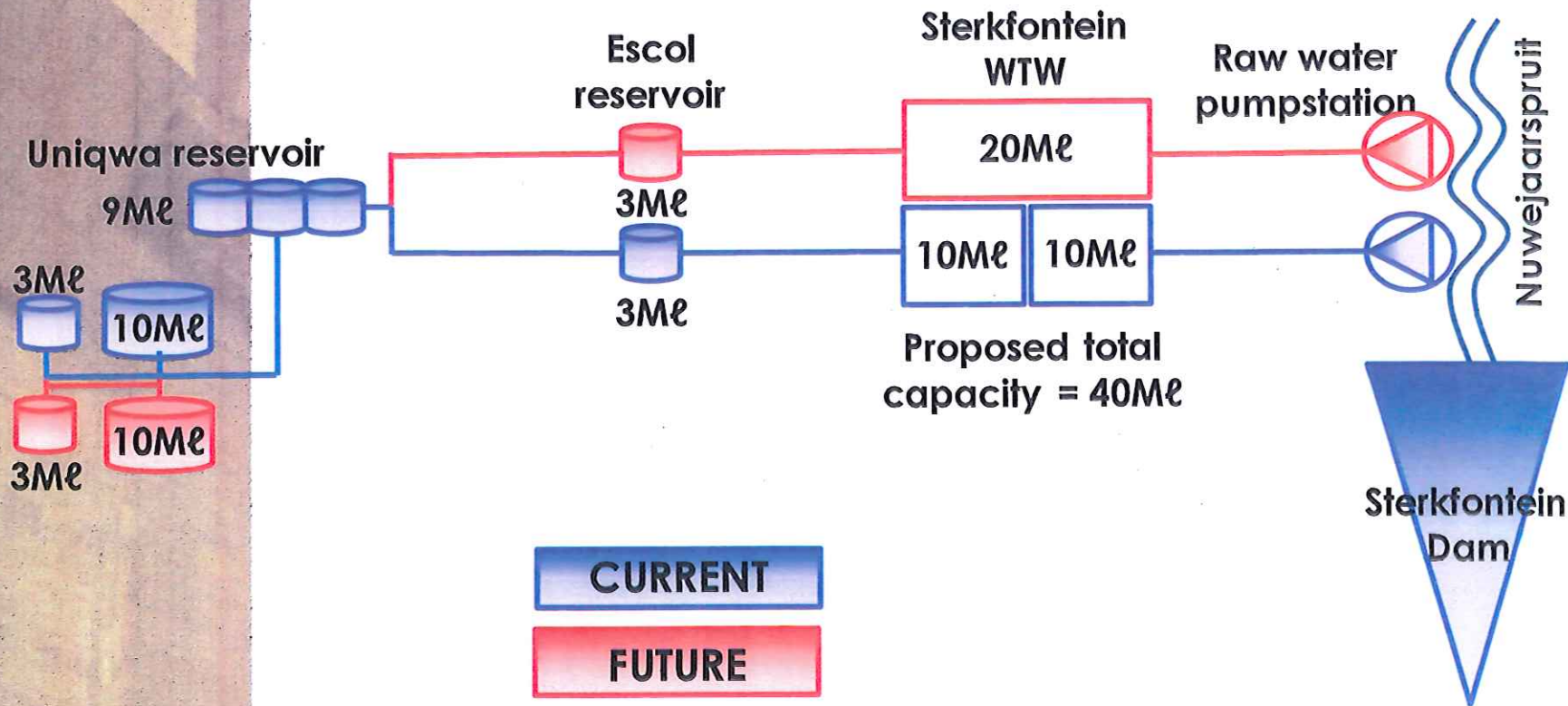
Sterkfontein WTW (upgraded to 20mℓ/Day (PHASE 2)



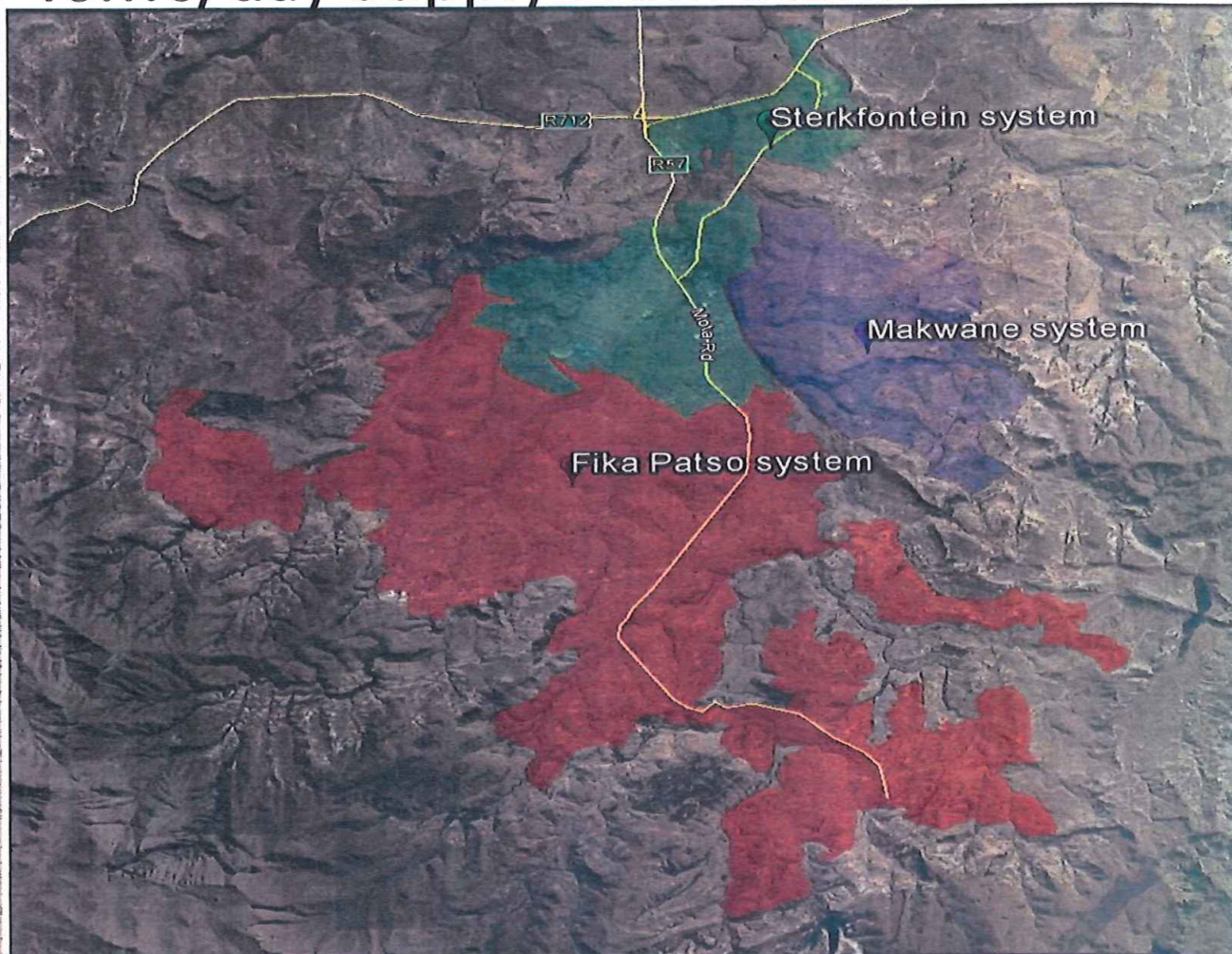
Sterkfontein WTW Capacity (upgraded to 40Mℓ/day)



Water Supply System by Upgrading Sterkfontein WTW Capacity From 20 Mℓ/DAY to 40Mℓ/DAY TO 40Mℓ/DAY (PHASE 3)




40Mℓ/day Supply From Sterkfontein





Water supply through taps with the Fika Patso system (Metsi Pompong)

- The Fika Patso Dam is currently at 32% and can be available for 258 days
- Currently the municipality is cleaning the lime contact tank to improve water quality at Fika Patso WTW
- Water reticulation audit findings are:
 - Two outlet valves were identified not to be working
 - Two pump stations were not working



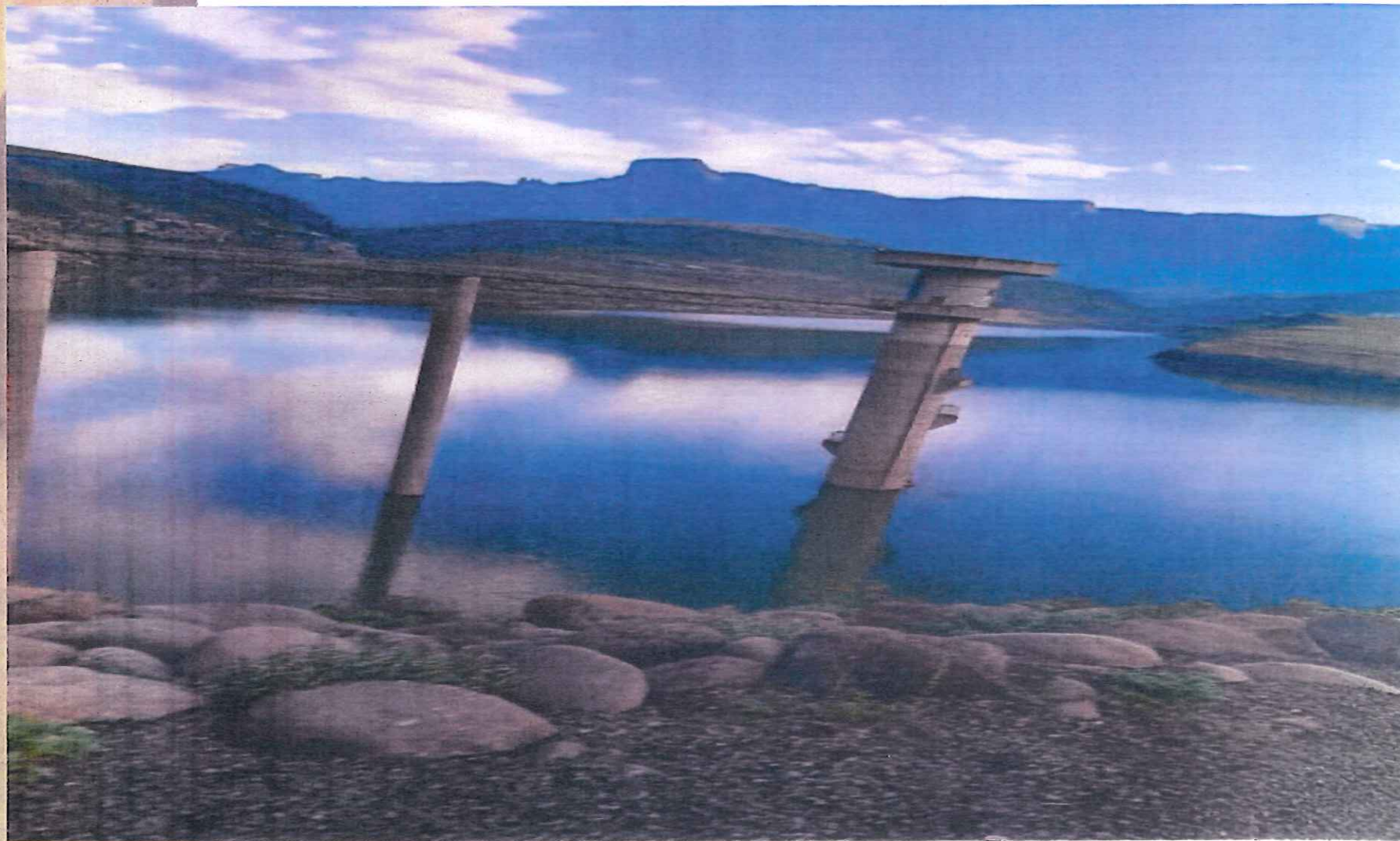
Water supply through taps with the Fika Patso system (Metsi Pompong)

- A decision was taken to close the water abstraction from The Fika Patso dam in January 2020 due to levels which were below 1%.
- Outlet valves will be used to implement water supply restrictions to the Greater Phuthaditjhaba areas.
- Water supply schedule will be developed by the 13 March 2020 and communicated to the communities through local radio stations
- The opening of the Fika Patso Dam and the Fika Patso Water Treatment Works is planned for 12 April 2020.

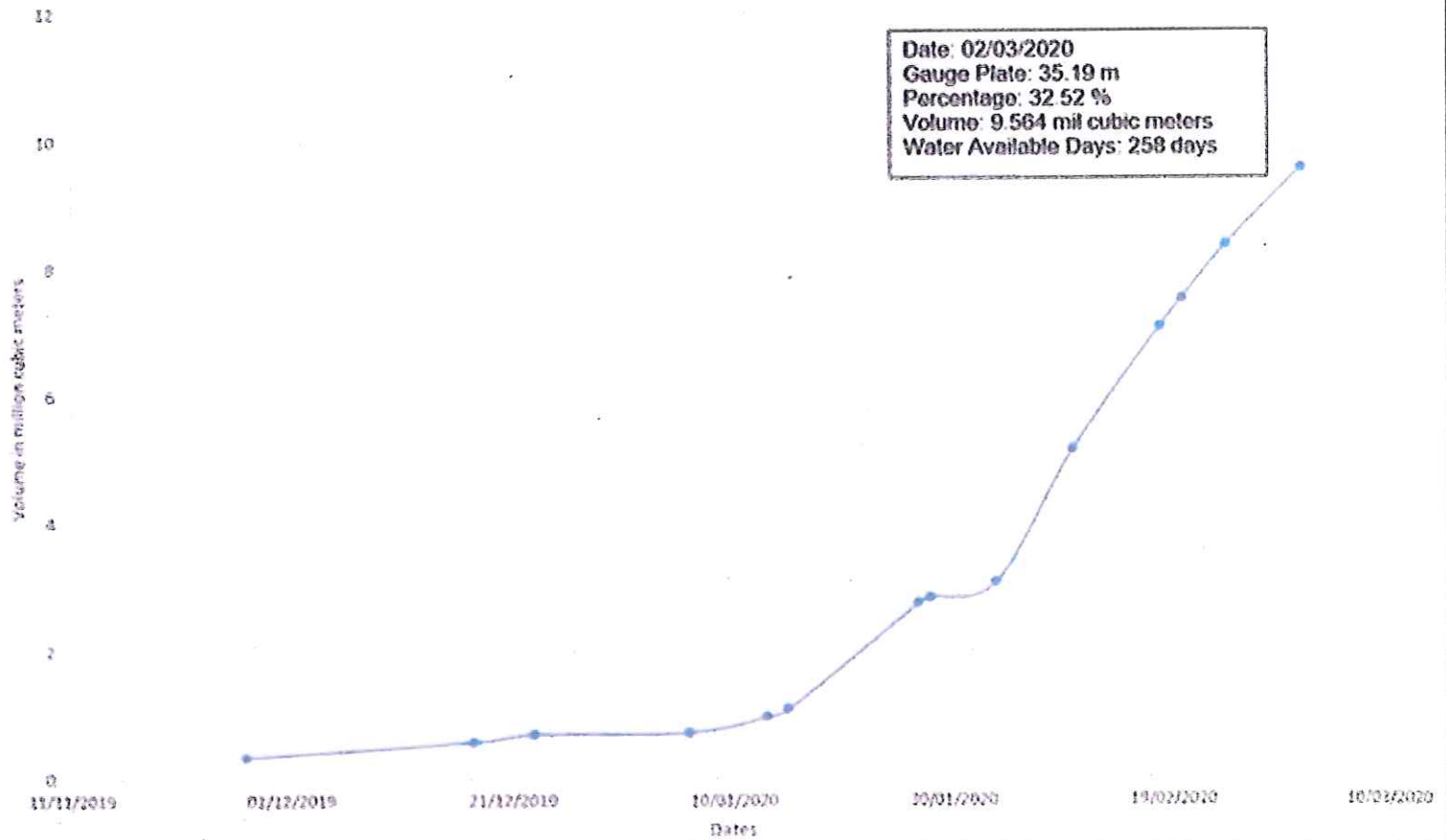
Fika Patso Dam as at December 2019



Fika Patso Dam as at beginning of March 2020



Fika Patso - C8R008 - Volume of Water in Dam





THANK YOU