water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2020

JOE MOROLONG LOCAL MUNICIPALITY

WATER SERVICES AND PROJECTS

COMPILED BY: DWS NC - PLANNING AND SUPPORT

NATIONAL DEVELOPMENT PLAN
Our Future - make it work

Contents

BACKGROUND AND LOCALITY

The Joe Morolong Local Municipality is situated within the John Taolo Gaetsewe District within the Northern Cape. The number of households within the Joe Morolong Municipality was estimated at 23 919 during the 2016 Community Survey as performed by Statistics South Africa. The total population numbered 84 201. Joe Morolong Local Municipality is located in the north-eastern part of the Northern Cape.

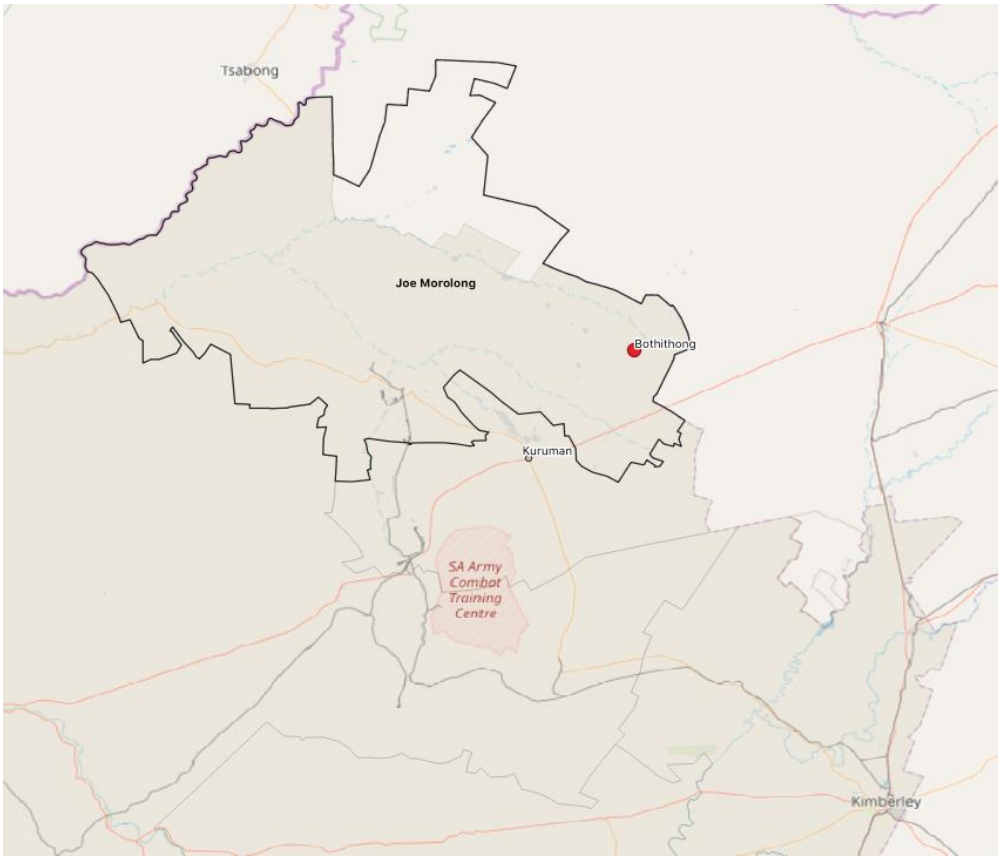

Figure 1: Locality Map showing the Joe Morolong Local Municipality.

MUNICIPAL SERVICES AND VULNERABILITY

The Department of Human Settlements, Water and Sanitation, and the Directorate: Water Services Planning perform an annual round of Municipal Strategic Self Assessments (MuSSA). The MuSSA is a multiple-choice questionnaire which is filled in online at http://ws.dwa.gov.za/mussa/. It provides vitally important information that reflects not only the state of the municipal water and sanitation business, but also the state of the institution itself. This in turn gives insight to all sector partners, which include DWS, the Department of Cooperative Governance and Traditional Affairs (via integration with the Back-2-Basics Programme), National Treasury, The Planning Commission / Office of the Presidency and the South African Local Government Association (SALGA). By leveraging the MuSSA as a strategic tool, it is possible for the municipality to manage your water and sanitation vulnerabilities, which allows for the provision of targeted support to the municipality by DWS and sector partners, as well as access to existing funding structures.

By tracking your MuSSA status, incorporating the vulnerabilities into Municipal Risk Registers and taking the appropriate corrective actions, municipalities can better manage water and sanitation services. Eighteen business attributes are measured, ranging from water and sanitation services provision, financial asset management to skill levels of personnel.

The following key vulnerabilities were identified for the Joe Morolong Local Municipality:

- Infrastructure Asset Management (IAM) (25.0%)
- Financial Management (35.0%)
- Revenue Collection (30.0%)
- Financial Asset Management (15.0%)
- Information Management (IT) (40.0%)
- Organisational Performance Monitoring (40.0%)
- Staff Skill Levels (Technical) (55.0%)
- Water Resource Management (WRM) (20.0%)
- Water Conservation & Water Demand Management (WC/WDM) (25.0%)
- Drinking Water Safety & Regulatory Compliance (59.0%)

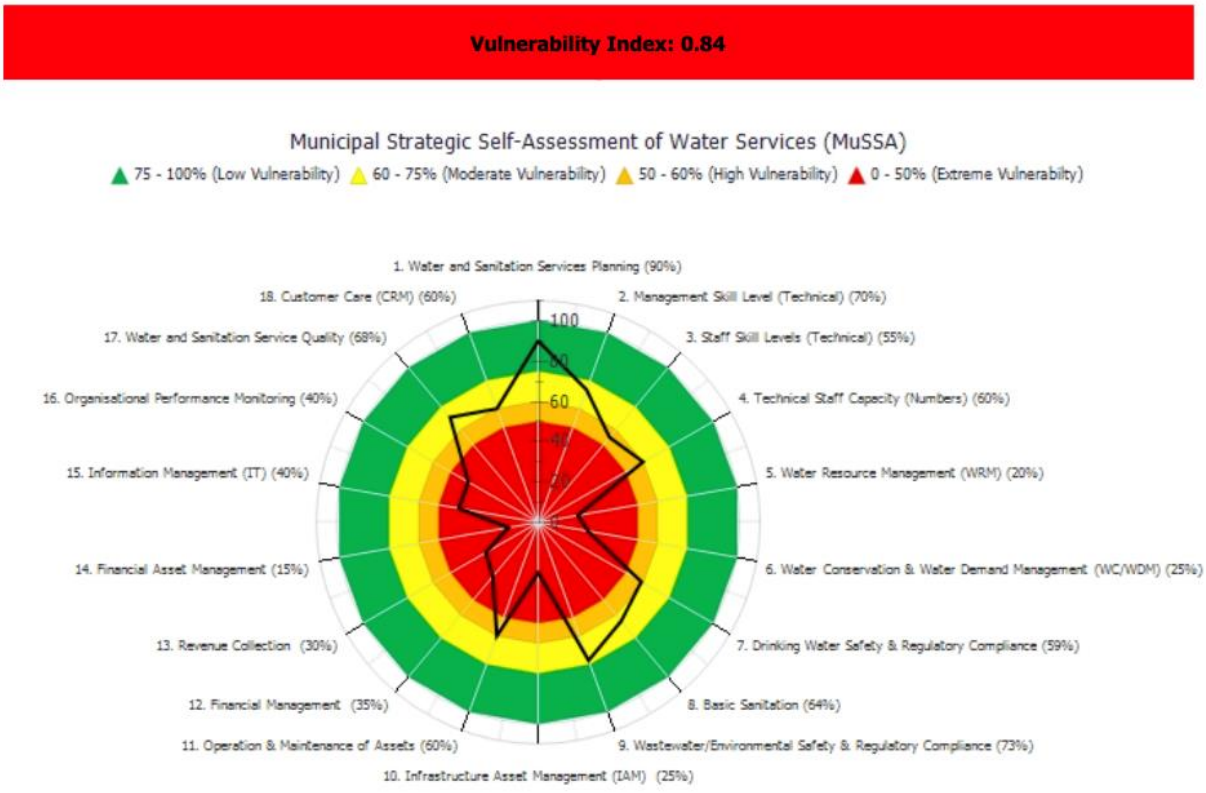

Figure 1. Municipal Strategic Self-Assessment Results for 2019.

MUNICIPAL SERVICES

The Northern Cape Regional Office of the Department of Water and Sanitation embarks on yearly updates of the level of service statistics within the province. The tables below give a breakdown of the 2019/20 levels of services on formal (surveyed) and informal (unsurveyed) stands.

Table 1. The provision of water services in formal and informal areas within the Joe Morolong Municipality.

Water Service	Households on formal stands	Households on informal stands
Communal Standpipe	17 361	0
Communal>200m	3 357	0
House Connection	1 000	0
No Service / Interim Service *	4 627	1 101
No Information	35	0
Yard Connection	325	0
Backlogs	4 627	0
Households Serviced	18 686	0
Total Households**	23 383	1 101
%Serviced	**80.03**	**76.43**

*** Interim service provided by water tankering during COVID-19.**

**** Total households may differ from information released by Stats SA as per stand level information is based on actual stands sourced from the Surveyor General's Office.**

Table 2. The provision of sanitation services in formal and informal areas within the Joe Morolong Municipality.

Sanitation Service	Households on formal stands	Households on informal stands
Bucket	0	0
Conservancy Tank	0	0
Flush to treatment	332	0
No Service	2	1 101
Septic Tank	123	0
UDS	5 327	0
Unimproved Pit	10 069	0
Unknown	13	0
VIP	7 517	0
Backlogs	10 071	1 101
Households Serviced	13 299	0
Total Households**	23 383	1 101
%Serviced	**56.89**	**0**

**** Total households may differ from information released by Stats SA as per stand level information is based on actual stands sourced from the Surveyor General's Office.**

Water Sources

The water supply reconciliation strategy was compiled for the Directorate: National Water Resource Planning of the Department of Water and Sanitation and identifies measures necessary to ensure current and future water requirements.

Table 1: Water Requirements, Unit Consumption, Water Savings and Water Sources per Ward in Joe Morolong.

Ward	Theoretical Gross Water Requirements (million m^3/a)						Normal Growth Unit Consumption (l/capita/day)		High Growth Unit Consumption (l/capita/day)		WCWDM possible savings	Sources		
	2008	2010	2015	2020	2025	2030	2008	2030	2008	2030	%	BHs	Volume (mill m^3/a)	Confidence
Ward 1	0.168	0.199	0.273	0.279	0.286	0.293	72	137	33	63	No Info	22	0.91	high
Ward 5	0.230	0.247	0.282	0.280	0.284	0.288	86	135	156	245	10.00	32	0.20	low-medium
Ward 6	0.176	0.188	0.224	0.228	0.232	0.238	90	136	88	133	5.20	27	1.55	medium
Ward 10	0.309	0.314	0.333	0.341	0.349	0.358	106	134	75	95	No Info	20	0.30	low-medium
Ward 4	0.124	0.146	0.194	0.192	0.195	0.198	67	135	66	132	No Info	26	1.17	medium
Ward 3	0.241	0.269	0.346	0.354	0.362	0.372	80	136	48	81	No Info	19	0.82	high
Ward 2	0.168	0.202	0.275	0.273	0.277	0.281	64	135	60	125	No Info	23	0.56	medium
Ward 7	0.180	0.187	0.211	0.214	0.217	0.221	96	136	64	91	No Info	20	1.39	high
Ward 8	0.260	0.276	0.318	0.326	0.334	0.343	93	134	106	153	3.10	30	1.67	medium
Ward 9	0.330	0.341	0.375	0.385	0.393	0.404	112	138	90	111	3.70	18	0.65	low-medium
Ward 11	0.079	0.090	0.118	0.122	0.125	0.129	91	132	140	204	9.00	18	0.82	low-medium

As evident from the table above, the main source of water in the Joe Morolong Municipality is groundwater. As most towns in the Northern Cape are reliant on groundwater, the Department regularly perform surveys of the number of functional boreholes used for potable water in the province. This is in addition to its normal groundwater monitoring. From January to April 2020, the department as engaged local municipalities and contracted water service providers (WSPs), as well as consultants to determine the number of non-functional boreholes in the province. The number of non-functional boreholes is given in the table below.

Table 2: The number of non-functional boreholes within the Joe Morolong Local Municipality.

Problem Description	Number of affected boreholes
Dried up / source depletion	76
Vandalised	45
Electrical Problems	1
Pump Motor Problems	89
Borehole Contaminated	11
Total	**222**

From the above table Operation and Maintenance of infrastructure is a significant problem within the municipality. Significant investments were made in infrastructure, as detailed in the sections to follow; however, infrastructure is not properly managed and maintained.

COVID-19 Emergency Water Provision

The recent Coronavirus (COVID-19) pandemic was declared a national disaster by the Minister of Cooperative Governance and Traditional Affairs and announced by the President of the Republic of South Africa as a national state of disaster.

The Minister of Human Settlements, Water and Sanitation ("Minister") has since established a National Water and Sanitation COVID-19 Command Centre to facilitate a coordinated joint response to community needs to prevent water cut across all spheres of Government.

The purpose of the National Water and Sanitation Command Centre was to coordinate and facilitate emergency interventions on water and sanitation to ensure access to basic water and sanitation during the COVID-19 pandemic. It promotes efficiencies through centralised bulk procurement of goods and services to benefit from economies of scale. It also serves as a clearing house of all blockages affecting service delivery within and amongst the various spheres of Government in the Sector. This intervention does not in any way take away powers and functions of the Department and Municipalities. It is however complementing service in terms of inter-governmental relation service's delivery model at local level.

Rand Water as the Implementing Agent on behalf of the Department and Convener of the NDCC, through the COVID 19 Funding made available by the Department. To date 884 water tanks have been deployed throughout the Northern Cape Province. Of the deployed tanks 221 (132 Rand Water, 89 Sedibeng Water) were deployed throughout the Joe Morolong Municipality.

To determine the optimal number of water tanks and their locations the following inputs were considered in order of priority:

1. Water services backlogs, i.e. high-density informal areas, and medium-density informal areas.
2. Water availability considerations, including:
    a. Drought – Surface and groundwater related.
    b. Service delivery issues and interruptions and low-density informal areas
3. Hotspots and high traffic areas.
4. Possibilities of connecting to existing water reticulation infrastructure.

The tanks deployed throughout the province, including in Joe Morolong is shown in Figure 2. Twelve (12) water tankers were allocated to refill the 221 water tanks within the Joe Morolong Local Municipality. The number of tankers was reduced to 6 at the end of September 2020 as funding was only available until October 2020. Approximately 3.5 Ml was delivered to tanks in Joe Morolong during the lockdown period.

Municipalities are also allowed to use 20% of their DWS Infrastructure Grants to connect tanks to reticulation or to continue the tankering of water. The process was started in August, with a request that municipalities compile and submit business plans to address the sustainability of water supplied via the tanks.

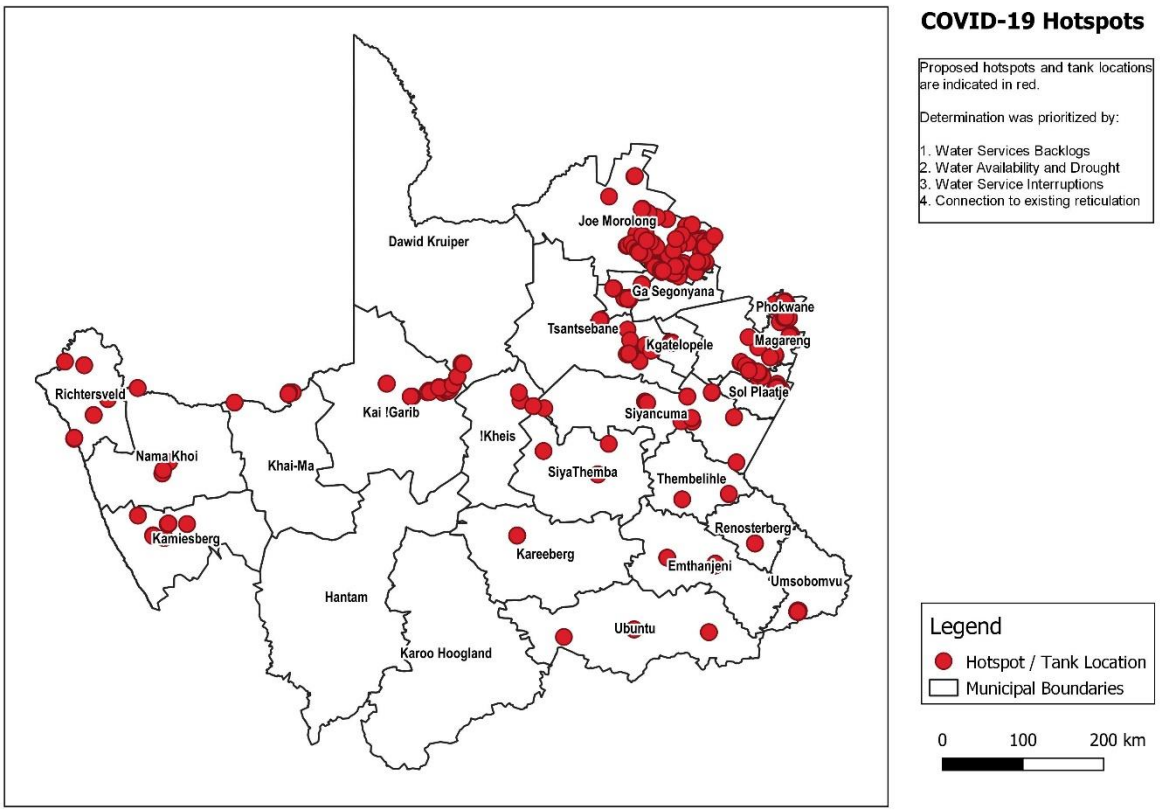

Figure 2: Water Tanks deployed throughout the province during COVID-19.

Water Treatment

There are five registered water supply systems monitored via the DWS Blue Drop System for the supply of potable water in Joe Morolong. These systems are Manyending, Tsineng, Manyneding Lower, Hotazel and Vanzylsrus. The last officially published Blue Drop assessment was in 2015, internal assessments and monitoring have continued.

The Manyending system provides 2 808 people with potable water. Its design capacity is 0.691 Ml/day and was at 105% during the last assessment. The system obtained a risk rating (lower is better) of 58.1%. Microbial and chemical quality was 99.9%, with risk defined compliance at 0%.

The Tsineng system serves 6 022 people, with a design capacity of 0.259 Ml/day. This system was also operating at 105% of its design capacity. The system obtained a risk rating of 59.2% and obtained microbiological compliance of only 84.6%, with chemical compliance at 90.9%.

The Manyending Lower system servers 5 460 people and has a design capacity of 0.143 Ml/day and is also operating at 105% capacity. Microbiological and chemical compliance was 99.9%. The system obtained a risk rating of 59.4%.

The Hotazel system provides water to 1 500 people and has a design capacity of 0.36 Ml/day. Chemical compliance was at 99.88% and microbiological compliance at 99.06% during the previous assessment. The total risk rating for this system was 68.6%.

The Vanzylsrus system has a design capacity of 0.5 Ml/day and supplies 2900 people. Chemical compliance was at 81.8% and the microbiological compliance was at 99.9%. The system scored a risk rating of 59.6%.

Wastewater Treatment

There are two wastewater treatment works within the Joe Morolong Local Municipality. The first is located in Hotazel, which is implements and activated sludge process. It has a capacity of 0.38 Ml/day and has reached 92% of its design capacity. The Hotazel works obtained a risk rating of 55.9% in 2014 and 88.2% in 2017.

The second treatment works is in Vanzylsrus. The works employs oxidation ponds, with a design capacity of 0.45 Ml and is currently at 24% capacity. The works obtained a risk rating of 55.9% in 2014 and 35.3% in 2017.

INFRASTRUCTURE PROJECTS

Completed Infrastructure Projects

From the 2013/14 financial year onwards, a total of 37 projects (see Table 3) have been completed in the Joe Morolong Local Municipality, representing a financial investment of approximately R384 million. This represents a total of 40 reservoirs, 89 equipped / refurbished boreholes, 906 standpipes and 218.6 km of reticulation. More than 4860 households have directly benefitted from the infrastructure projects.

It is thus clear that a massive infrastructure investment was made into the Joe Morolong Local Municipality; however, from the above backlog figures, borehole requirements and COVID-19 tank connections it is clear that a substantial investment will still be needed.

When specifically considering the rehabilitation and refurbishment of non-functional boreholes, it should be noted that costs do not simply arise from the drilling and equipping of boreholes. Almost all of the drilled boreholes are not near their intended points of use; hence, reticulation, pumps, reservoirs and electrical connections are needed to ensure successful implementation. The infrastructure required to connect and distribute water from a borehole can amount to several times the cost needed to drill and equip the borehole.

Table 3: Completed Projects in Joe Morolong Local Municipality from 2013/14 onwards.

Year Complete	Project Name	Projects completed	Project Cost	Water supply pipeline (m)	Reservoirs (nr)	Boreholes (equipped/ drilled/ Refurbished)	No of stand-pipes	Toilets (Dry Sanitation)	Nr of households directly benefitted
2013/14	Drieloop Water Supply	1	R 4,759,718.57	265	1	2	7	0	43
TOTAL			**R 4,759,718.57**	**265**	**1**	**2**	**7**	**0**	**43**
2014/15	Bendell Water Supply	3	R 11,134,846.05	15098	1	8	89	0	404
2014/15	Gadiboe Water Supply		R 6,225,987.25	3985	1	2	28	0	233
2014/15	March Water Supply		R 7,773,236.20	1928	1	2	18	0	91
TOTAL			**R 25,134,069.50**	**21011**	**3**	**12**	**135**	**0**	**728**
2015/16	Bosra Water Supply	6	R 7,376,537.44	3000	1	2	23	0	128
2015/16	Danoon Water Supply		R 7,207,592.53	6600	1	2	13	0	93
2015/16	Khangkhudung Water Supply		R 5,290,085.00	3018	1	0	15	0	66
2015/16	Kiangkop Water Supply		R 13,982,244.31	10150	1	3	9	0	17
2015/16	Dithakong Water Supply phase 1		R 19,681,811.84	5800	1	6	0	0	0
2015/16	Tsineng Water Supply		R 18,518,907.12	12735	1	3	62	0	571
TOTAL			**R 72,057,178.24**	**41303**	**6**	**16**	**122**	**0**	**875**
2016/17	Diwatshane Water Supply	8	R 14,222,217.72	13921	1	0	29	0	53
2016/17	Deurham Water Supply		R 11,848,473.31	8655	1	3	54	0	256
2016/17	Gakoe/Garamotsokwane Water Supply		R 19,067,791.43	16312	1	3	32	0	178
2016/17	Dithakong Phase 2 Water Supply		R 15,102,923.41	16560	0	2	37	0	0
2016/17	Gamasepa Water Supply		R 9,664,103.41	3995	1	0	21	0	259
2016/17	Cassel		R 10,568,173.69	7355	1	0	74	0	1067
2016/17	Laxey Water Supply		R 9,817,780.26	7200	1	0	16	0	0
2016/17	General Refurbishment		R 12,248,040.42	0	0	10	0	0	0
TOTAL			**R 102,539,503.65**	**73998**	**6**	**18**	**263**	**0**	**1813**
2017/18	Dithakong Water Supply phase 3	3	R 15,767,839.56	7500	1	0	0	0	0
2017/18	Loopeng / Slough Water Supply Project		R 9,457,254.57	11708	0	0	98	0	0

2017/18	Gasese Water Supply		R 13,589,014.00	11600	1	2	59	0	273
TOTAL			**R 38,814,108.13**	**30808**	**2**	**2**	**157**	**0**	**273**
2018/19	Lotlhakajaneng Water Supply	6	R 12,787,787.19	10000	1	1	34	0	213
2018/19	Deurward Water Supply		R 10,699,361.29	2300	1	3	44	0	400
2018/19	Kokfontein water supply phase 1		R 7,150,413.63	1767	1	1	15	0	32
2018/19	Mmamebe Water Supply		R 25,856,406.34	13291	1	4	24	0	271
2018/19	Dithakong Phase 4		R 11,000,000.00	5300	0	3	45	0	0
2018/19	General Refurbishment		R 12,500,000.00	0	10	11	0	0	0
TOTAL			**R 79,993,968.45**	**32658**	**14**	**23**	**162**	**0**	**916**
2019/20	Mentu Water supply	10	R 7,944,439.91	2360	1	2	11	0	82
2019/20	Kokfontein water supply phase 2		R 13,384,616.08	1769	1	1	5	0	65
2019/20	Mmamebe water supply phase 2		R 15,651,702.09	9295	1	1	24	0	65
2019/20	Majanking water supply		R 7,982,002.70	2157	1	2	14	0	0
2019/20	Molatswaneng water supply		R 7,498,522.89	2945	1	1	6	0	0
2019/20	Rusfontein Wyk 8 Refurb		R 2,040,832.05	0	1	2	0	0	0
2019/20	Penryn Refurb		R 1,500,000.00	0	2	1	0	0	0
2019/20	Cassel Refurb		R 1,900,003.02	0	0	2	0	0	0
2019/20	Klipham Refurb		R 1,497,558.20	0	0	2	0	0	0
2019/20	Majemantso Refurb		R 1,384,765.24	0	0	2	0	0	0
TOTAL			**R 60,784,442.18**	**18526**	**8**	**16**	**60**	**0**	**212**
GRAND TOTAL			**R 384,082,988.72**	**218569**	**40**	**89**	**906**	**0**	**4860**

Current and Future Projects

As stated above, 221 tanks have been installed in the Joe Morolong Local Municipality during the COVID-19 crisis. To ensure the sustained provision of water services, these tanks need to be connected to existing reticulation. Funding for connection of the tanks are planned via the utilization of the Water Services Infrastructure Grant (WSIG). Currently it is planned to connect 130 tanks to existing reticulation in Joe Morolong. For the remainder of the tanks extensive development of reticulation is required, which will require a significant future investment.

Table 4: Current and future projects.

Project Name	Town/Area	On IDP	Link with SDF	Funded /Unfunded	Budget (R)	Department / Municipality	Project Status
FY20/21 – Current projects							
Rural Refurbishment – 38 Boreholes	Joe Morolong	Yes	Yes	Funded	45 043 565.00	WSIG sch 5B	Construction
COVID – Connection of 80 tanks	Joe Morolong	No	Yes	Funded	2 000 000.00	WSIG sch 5B	Procurement
COVID – Connection of tanks	Joe Morolong	No	Yes	Funded	15 000 000.00	RBIG sch 6B	Planning
Cassel source development	Joe Morolong	Yes	Yes	Funded	20 000 000.00	Drought Relief	Construction
Mmamebe source development							
Ntswelengwe source development							
Manyeding source development							
Mmamebe Water Supply	Mmamebe	Yes	Yes	Funded	25 858 406.00	WSIG sch 5B	Construction
Majankeng Water Supply	Majankeng	Yes	Yes	Funded	7 982 002.00	WSIG sch 5B	Construction
Molatswaneng Water Supply	Molatswaneng	Yes	Yes	Funded	12 498 522.00	WSIG sch 5B	Construction
Kokfontein Water Supply	Kokfontein	Yes	Yes	Funded	13 384 616.00	WSIG sch 5B	Complete
Mentu Water Supply	Mentu	Yes	Yes	Funded	7 944 439.00	WSIG sch 5B	Construction
Tsinengkop water supply	Tsinengkop	Yes	Yes	Funded	7 906 149.00	WSIG sch 5B	Construction
Zaneen water supply	Zaneen	Yes	Yes	Funded	21 733 199.00	WSIG sch 5B	Construction
Wingate water supply	Wingate	Yes	Yes	Funded	10 255 440.00	WSIG sch 5B	Construction
Kilo Kilo water supply	Kilo Kilo	Yes	Yes	Funded	10 176 891.00	WSIG sch 5B	Construction
FY21/22 - Future projects							
Gamakgatle water supply	Gamakgatle	Yes	Yes	Unfunded	10 673 005.00	WSIG sch 5B	Planning phase
Dikhing water supply	Dikhing	Yes	Yes	Unfunded	10 849 121.00	WSIG sch 5B	Planning phase
Heiso water supply	Heiso	Yes	Yes	Unfunded	10 173 155.00	WSIG sch 5B	Planning phase
Gamatlong water supply	Gamatlong	Yes	Yes	Unfunded	8 807 440.51	WSIG sch 5B	Planning phase

Gasehunelo wyk 4 Water supply	Gasehunelo wyk 4	Yes	Yes	Unfunded	4 795 314.23	WSIG sch 5B	Planning phase
Dithakong water supply phase 5	Dithakong	Yes	Yes	unfunded	7 150 413.63	WSIG sch 5B	Planning phase

CONCLUSION

Extensive development has taken place in Joe Morolong as one of the municipalities that are part of the priority districts within South Africa. Water and Sanitation infrastructural investments in excess of R384 million have been made since 2013/14, and further projects are planned. Significant further investments are required to develop reticulation and water sources across the large number of settlements in the Joe Morolong Local Municipality.

The following key issues require prioritization:

- Operation and maintenance of existing infrastructure to ensure sustainable water provision.
- Poor Financial Asset Management
- Poor Water Resource Management – this is especially relevant in drought-stricken areas. Over-abstraction of groundwater sources can lead to permanent deterioration thereof. This also puts an unnecessary strain on pumping infrastructure.
- Poor water conservation and water demand management, which is again highly important in areas with limited groundwater resources.
- Poorly developed reticulation networks – most of the communities only have access to communal standpipes. This is further exacerbated by the need to connect the 221 additional water tanks.