



DEPARTMENT OF
CO-OPERATIVE GOVERNANCE,
HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS

NCOP BRIEFING SESSION

**ASSESSING STATE CAPACITY TO RESPOND TO THE NEEDS OF COMMUNITIES:
SEKHUKHUNE DISTRICT (FLAG BOSHIELO, DE HOOP AND MAROGA BULK WATER SUPPLY)**

29 MARCH 2022

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PRESENTATION OUTLINE

1. **Water schemes**
2. **Flag Boshielo Bulk Water Supply**
3. **De Hoop Dam**
4. **Lebalelo Bulk Water Supply**

Water Schemes

- The district has 19 water schemes
- The total available water is projected to be 55684Kl per day from all sources in the district by 2035
- The water is projected to have a deficit of -98768Kl per day to serve an estimated population of 1 477 515 by 2035



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Flag Boshielo Bulk Water Supply

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Flag Boshielo Bulk Water Supply

- The Flag Boshielo scheme is located on the Southern portion of the Sekhukhune and it is divided into two regions;
 - Flag Boshielo East and Flag Boshielo West.
 - The bigger part of the scheme lies in the Flag Boshielo East.
- Flag Boshielo Scheme supplies water to the following three Local Municipalities;
 - Ephraim Mogale, Elias Motsoaledi and Makhuduthamaga
 - With a total scheme estimated population of 131 000 and about 126 villages.

Flag Boshielo Bulk Water Supply

- Raw water is abstracted from Flag Boshielo dam formerly known as Arabie Dam and treated at Flag Boshielo Water Treatment Plant.
- The plant was initially designed to serve a population of approximately 100,000 and can now sufficiently meet the increased demand of about 131,000.
- The population in the scheme area is expected to increase to about 147 000 in 2035.
- Therefore, the plant is being upgraded to meet the current and future demand since original planning of the plant allows for expansion
 - Flag Boshielo WTW recently commissioned from 8ML to 16 ML

Infrastructure

- The bulk components of the Scheme include Flag Boshielo Water Treatment Works, 10 Pump stations, 88 Storage reservoirs and a pipeline of 387km.
- The plant is sufficiently monitored and metered.
- The bulk infrastructure assets are generally in a good conditions.
- In terms of the design standards, the minimum required storage is 48 hours however the actual storage will last for six days.

Water Demand Analysis

- LNW pumps 2-4 MI per day to Flag West (Elandskraal, Morarela, Mbuzini, Tsansabela and Dicheoung)
- The supply fills the command reservoir of 5,3 MI and six distribution reservoirs of 3,6MI combined per week.
- The minimum required water supply is 25l/c/d
- The total population of Flag west villages is at $16\ 808 \times 25l = 420\ 200l/day$.
- The actual supply is currently 2 000 000l/day
 - The current supply and demand is at surplus

Challenges

- Most of the household are having 10 000 Jojo tanks which affect the daily supply of 25l/c/d.
- Losses due to illegal connections are currently not yet quantified.
- Water meant for household usage being used for commercial purpose such as irrigation.
- Theft of electrical cables at Flag Boshielo Water Treatment Works.
- Mechanical breakdown experienced by Water tankers.
- The newly installed storages at Elandskraal collapsed.
- Infrastructure from Flag Boshielo WTW to Flag-west command reservoir and from the command reservoir to distribution reservoirs has reached its life span.
- Inconsistency of supply due to frequent breakdown from both bulk and reticulation.
- Pumps burring out due to inconsistent electricity supply

Recommendations

- The current storage capacity for Flag West is sufficient for the purposes of supplying 25l/c/d
- Improved communication in reporting breakdowns which affect water supply to the community
- Maintenance of infrastructure (reticulation and reservoir)
- Reduction of water losses
- Water conservation and demand management



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De Hoop Dam

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- De Hoop water treatment works capacity is 12ML
- Upgrading of De Hoop WTW planned and approved to be increased from 12 ML to 24 ML
 - Upgrading of the De Hoop WTW will benefit over 400 000 residents in over 56 villages within the Nebo Plateau and Steelpoort valley
- Mampuru bulk water supply scheme (project to be registered for Municipal Infrastructure Grant for funding)

Water demand for 2035

- Currently water yield is 12MI per day
- The Water Service Authority (Sekhukhune DM) is receiving 12ML per day from De Hoop but only able to distribute 2MI per day due to the bulk pipeline not yet commissioned
- The total projected water demand for 2035 is 37.5MI/ per day
- There is no deficit is projected for year 2035.



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Lebalelo Bulk Water Supply

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Lebalelo South Water Supply

- The Sekhukhune District Municipality is upgrading the water supply infrastructure in Lebalelo South, in the Fetakgomo Tubatse Local Municipality.
 - The objective of this project is to improve water services delivery to affected rural communities. The project addresses the Sekhukhune District Municipality's Water Services Development Plan (WSDP) strategic objectives.
- The Lebalelo South project is supplied by Mooihoek Bulk Water Scheme
- The Maroga Project forms part of the Lebalelo South Water Supply scheme. The villages Motlolo and Ga-Maroga, supplied by the scheme are in the Fetakgomo Tubatse Region
- The connector pipes and reticulation to Lebalelo South Villages Projects kick started in December 2017.
 - This is phase 3 of the project split into 3 contracts.
- The scope of work entails:
 - The housing and re-equipping of existing boreholes
 - The housing and equipping of new boreholes,
 - Construction and refurbishment of Reservoirs
 - Construction of a packaged water treatment plant, pump stations and bulk pipelines

Status Quo of infrastructure

- The villages are entirely dependent on ground water source
- Four boreholes exists in Ga-Maroga village, and two boreholes are presently used to supply the community with water
- The yield of the borehole is very low – total yield for the two boreholes is 130.4KI per day
- The villages have and existing reticulation network covering 20% of the village area
- Unmetered communal taps that were installed to RDP standard – most not fully functional
- No water treatment plant and water is abstracted from boreholes and used untreated
- The reservoir is in good condition and only needs minor repairs
- Water is lost due to unauthorized connections

Water demand for 2028

- Currently water demand at **Motlolo** village is 379.3KI per day
- Currently the identified boreholes in Motlolo have got adequate yield to supply Motlolo village
- The total projected water demand for 2028 for Motlolo village is 561.46 KI/ per
- The total available water from functioning boreholes in Motlolo village is 535.2KI per day.
- A deficit is projected for year 2028.

- The current total available water from functioning boreholes in **Ga-Maroga** village is 130.4 KL per day
- Presently there is a deficit in Ga-Maroga Village.
- The total estimated water demand at a year 2028 for Ga-Maroga and Motlolo village is 917.81kl per day.
- The total water demand in 2028 is estimated to be 917.81LI per day

The total water demand at year 2028 for Ga-Maroga and Motlolo villages together with adjoining villages in Driekop and Riba Cross is 4862.16KI per day

Challenges

- A deficit in water supply at Ga-Maroga village
- No water demand management

Recommendations

- The shortfall in borehole water supply should be augmented by water supply from the recently refurbished Mooihoek Water Treatment Works and borehole water from adjoining villages in Driekop and Riba Cross
- Implement the water demand management strategies

Areas not served by bulk water infrastructure

- ❖ Ephraim Mogale Local Municipality
 - Manthole Village (Physically remote)- served through tankering

- ❖ Makhuduthamaga Local Municipality
 - Moela Village (Inaccessible)-served through tankering
 - Stocking Village-served through tankering
 - Hoepakrans (Leolo- physically inaccessible mountainous area)
 - In addition there are areas per scheme where there is limited infrastructure reach due to new settlements

- ❖ **Short term measures are done through Water tankering**

Delivery of water is scheduled weekly to fill storage tanks positioned in a given village for physical access, Currently this service is rendered in:

- Makhuduthamaga Local Municipality: 90 villages
- Elias Motswaledi Local Municipality : 220 villages
- Ephraim Mogale Local Municipality: 40 villages
- Fetakgomo Tubatse Local Municipality: 255 villages

MEDIUM AND LONG TERM MEASURES

❖ Expansion of storage capacity

- Flag Boshielo WTW recently commissioned from 8ML to 16 ML
- Olifantspoort WTW planned to be increased from 12ML to 24 ML
- De Hoop WTW planned and approved to be increased from 12 ML to 24 ML

Completed reservoirs

- Jane Furse Command Reservoir 25ML practically completed
- Nkadimeng Command Reservoir 3ML commissioned

Reservoirs under construction

- Ga-Maphoha Command Reservoir 5ML under construction
- Dindela Command Reservoir 3.8 under construction
- Makgeru Command 5ML Reservoir under construction



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Strategic Water and Waste Water projects

Water Projects

- Upgrading of De Hoop water treatment works (currently under planning)
- Nebo refurbishment and commission bulk pipeline (Planning stage)
- Moutse refurbishment and commissioning bulk pipeline (Planning stage)
- Mampuru bulk water supply scheme (project to be registered for Municipal Infrastructure Grant for funding)

Waste Water Projects

- Steelpoort Waste Water Treatment Works (DBSA has appointed a PSP to do a feasibility study)
- Jane Furse Waste Water treatment Works (DBSA has appointed a PSP to do a feasibility study)



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