



WATER QUALITY

13 February 2009

CHOLERA REPORT IN

MPUMALANGA

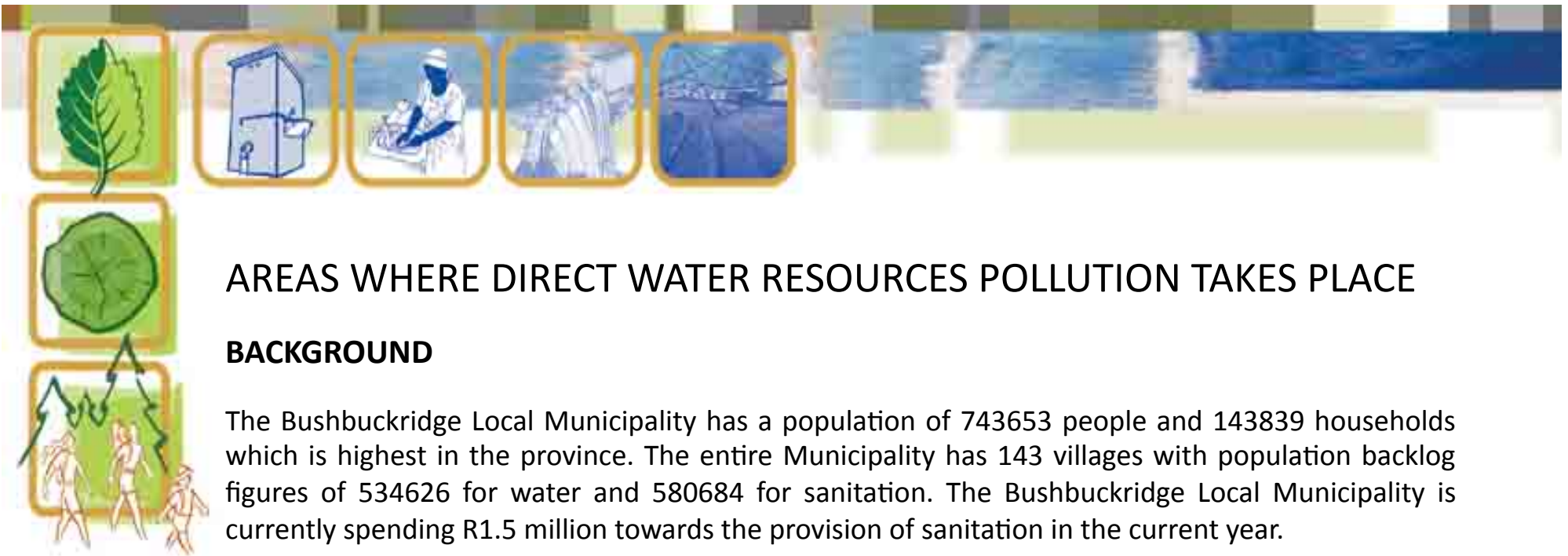
masibambane coordinating
committee



water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

HASANI MAKHUBELE:
REGIONAL DEPUTY DIRECTOR: INSTITUTIONAL DEVELOPMENT
13 FEBRUARY 2009



AREAS WHERE DIRECT WATER RESOURCES POLLUTION TAKES PLACE

BACKGROUND

The Bushbuckridge Local Municipality has a population of 743653 people and 143839 households which is highest in the province. The entire Municipality has 143 villages with population backlog figures of 534626 for water and 580684 for sanitation. The Bushbuckridge Local Municipality is currently spending R1.5 million towards the provision of sanitation in the current year.

The cases in Mpumalanga have escalated to 4799 with 30 confirmed deaths. The area where high numbers of Cholera cases were reported is Nsikazi North right opposite to Mkhuhlu where the Matikwane Hospital is situated, where 22 people died. The area where possible Cholera outbreak started is shown in the attached map as Annexure A (Marite) where the Ngwaritjane River flows to the Sabie River and later joins to Sabie River Sand up to the Kruger Gate in Kruger National Park.

The Bushbuckridge Water Board operates 10 of the schemes in and around Bushbuckridge and Mbombela Local Municipalities. The other rudimentary and none rudimentary schemes including the sewage works are operated by Bushbuckridge local municipality. The schemes were transferred to the municipality in 2007 and personnel transfers are still to be finalised within the current financial year.



THE FOLLOWING SEWAGE WORKS WERE FOUND TO BE NONE COMPLIANT TO THE SEWAGE DISCHARGING TO THE RIVERS

MBOMBELA LOCAL MUNICIPALITY SEWAGE WORKS

NAME OF SEWAGE	DISCHARGING TO	TEST	
		23 January 2009	
Hazyview Sewage Works	Sabie River	High-coli and Coliform	
Kabokweni Sewage Works	Crocodile River	High-coli and Coliform	
White River Sewage Works	White	High-coli and Coliform	

BUSHBUCKRIDGE LOCAL MUNICIPALITY SEWAGE WORKS

NAME OF SEWAGE	DISCHARGING TO	TEST	
		23 January 2009	30 January 2009
Mkhuhlu sewage works	Sabie River Bejani	E-Coli – Coliform	E-Coli – Coliform
Magwaza Biodisc	Sabie River	E-Coli – Coliform	E-Coli – Coliform
Hoxani Sewage Works	Sabie River	E-Coli – Coliform	E-Coli – Coliform
Tintswalo Sewage Works	Sigugula River	E-Coli – Coliform	E-Coli – Coliform
Thulamahashe Sewage Works	Tshunelane River	E-Coli – Coliform	E-Coli – Coliform
Dwarsloop Sewage Works	Sephiphiri to Endinburgh Dam	E-Coli – Coliform	E-Coli – Coliform



INYAKA BULKLINE

The Inyaka dam lies between Marite and Bushbuckridge and a 50mg/l purification plant was constructed by DWAF to supply bulk water to the entire Bushbuckridge. After the completion of the purification plant, a pipeline was constructed by the Bohlabela District Municipality through DWAF construction as the implementing agent. At that time it made business sense to appoint DWAF (Construction). The project faced a number of financial constraints and the original steel pipeline was used from Inyaka to Shatale. From Shatale to Arconhoek, GPS materials made out of fibre glass were used to complete the remaining 24km of the pipe. The GPS pipes were on term contract with our head office. After the completion of the 24km pipeline, the GPS pipes could not meet the required pumping pressure and the system failed the test. The matter is with legal services and currently negotiating with the Bushbuckridge Municipality to have the 24km section of the pipeline replaced at a cost of R99 million.

Budget: 2008/2009 = R5 million
 2009/2010 = R30 million
 2010/2011 = R74 million

FINANCIAL IMPLICATIONS

The financial implication on the current financial year is as follows:

•Bulk Infrastructure	= R3 million
•Operations and Maintenance	= R16.1 million
•Personnel (HR)	= R 33.7 million
•Refurbishment 1	= R11.9 million
•Refurbishment 2 VAT Funding	= <u>R10.863 million</u>
TOTAL	<u>R75.563 million</u>

The operation and maintenance funding has been fully transferred as per the division of revenue Act. An amount of R3 million is paid to the Water Board to operate the schemes and the balance.



THABA-CHWEU LOCAL MUNICIPALITY

NAME OF SEWAGE	DISCHARGING TO	TEST		
		30 December 2008	23 January 2009	30 January 2009
Lydenburg Old Sabie Sewage	Sabie River	E-Coli – Coliform	E-Coli – Coliform	Nil
Sabie Sewage	Sabie River	E-Coli – Coliform	E-Coli – Coliform	Nil

NKOMAZI LOCAL MUNICIPALITY

NAME OF SEWAGE	DISCHARGING TO	TEST	
		23 January 2009	30 January 2009
Hectorspruit Sewege Works	Crocodile River	E-Coli – Coliform	E-Coli – Coliform

NKANGALA DISTRICT MUNICIPALITY - DELMAS LOCAL MUNICIPALITY

NAME OF SEWAGE	DISCHARGING TO	TEST		
		31 December 2008	23 January 2009	30 January 2009
Delmas Sewage	Bronkhorstpruit River	E-Coli – Coliform	Not Tested	Vibrio Cholera Positive



MKHONDO MUNICIPALITY

NAME OF SEWAGE	DISCHARGING TO	TEST
		30 January 2009
Leandra Sewage	Wilge River	Positive – Vibro Cholera

EMALAHLENI LOCAL MUNICIPALITY

NAME OF SEWAGE	DISCHARGING TO	TEST
		30 January 2009
Kruger Dam: Raw Water	Olifants River	Vibrio Cholera - Positive

DEPARTMENT OF PUBLIC WORKS SEWAGE SYSTEM:

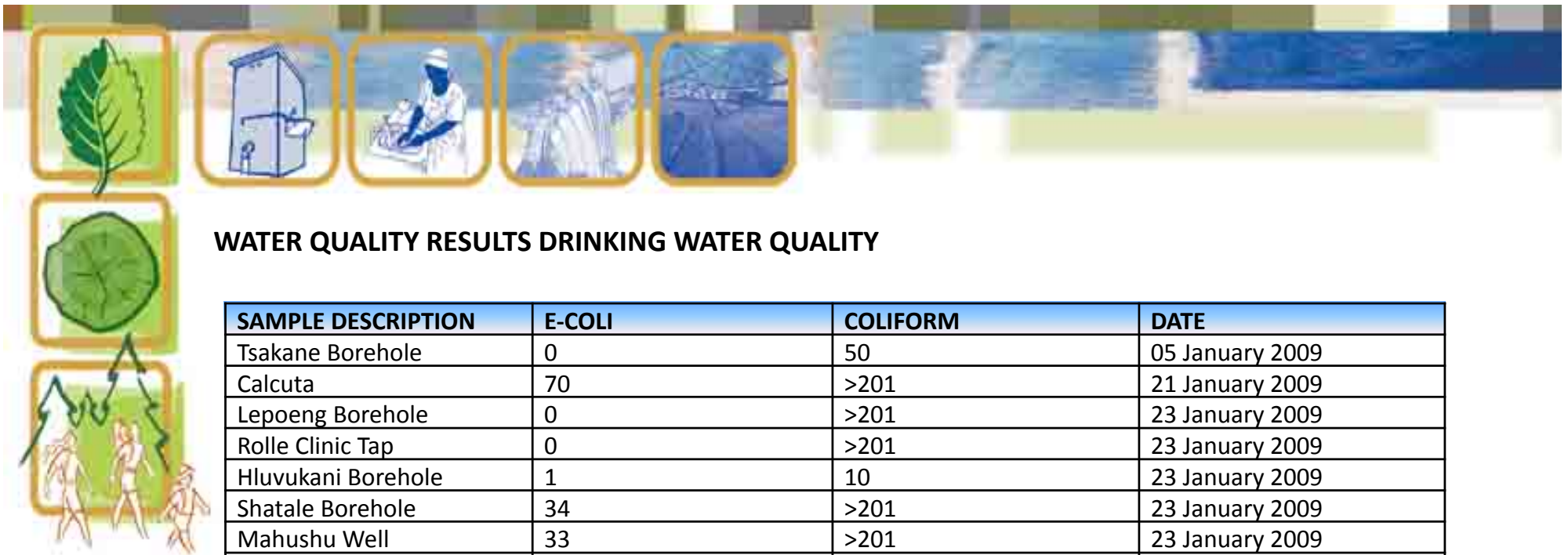
•Most Hospitals water sewage systems are operated by Public Works except those operated to those connected to the main sewer.

1. Tinstwalo Hospital
2. Acornhoek Police Station Ponds (Not Complying)
3. Mapulaneng Technical Ponds (Not Complying)
4. Mkhuhlu Sewage Treatment Works
5. Mangwaza Biodisc
6. Hoxani Sewage Treatment Works
7. Thulamahashe Sewage Treatment Works
8. Dwarsloop Sewage Treatment Works



WATER QUALITY RESULTS (RIVERS) MPUMALANGA

SAMPLE DESCRIPTION	E-COLI-COLIFORM	VIBRIO CHOLERA	DATE
Ngwaritjane River	Yes	Positive	05 January 2009
Crocodile River	Yes	Not Tested	13 January 2009
Komati River	Yes	Not Tested	13 January 2009
Lebombo Boarder	Nil	Not Tested	13 January 2009
Hoxane Weir	Yes	Positive	27 January 2009
Bega River (Mkhuhlu)	Yes	Positive	27 January 2009
Sabie River Coch	Yes	Positive	27 January 2009
Marite Well	Yes	Negative	13 January 2009
Noordkaap River	Yes	Negative	03 February 2009
Hendrina Raw	Yes	Negative	03 February 2009
Parados Old Joe's Luck	Yes	Negative	03 February 2009
Kanyamazane Bridge	Yes	Negative	03 February 2009
Elands River	Yes	Negative	03 February 2009
Kriel and Matla Power Station	Yes	Negative	03 February 2009
Kin Ross	Yes	Negative	03 February 2009
Kwagga Bridge	Yes	Negative	03 February 2009
Doornfontein Rietkuil Bridge	Yes	Negative	03 February 2009
Middelburg Dam	Yes	Negative	03 February 2009
Trichardt Dam	Yes	Negative	03 February 2009
Arnot Mine	Yes	Negative	03 February 2009



WATER QUALITY RESULTS DRINKING WATER QUALITY

SAMPLE DESCRIPTION	E-COLI	COLIFORM	DATE
Tsakane Borehole	0	50	05 January 2009
Calcuta	70	>201	21 January 2009
Lepoeng Borehole	0	>201	23 January 2009
Rolle Clinic Tap	0	>201	23 January 2009
Hluvukani Borehole	1	10	23 January 2009
Shatale Borehole	34	>201	23 January 2009
Mahushu Well	33	>201	23 January 2009
Jerusalem	165	>201	23 January 2009
Sand River	12	78	23 January 2009

The above results are mainly for the failures that were detected on the dates reflected. The analysis of these results points the point of contamination as the sewage works. **The underground water seems to be polluted which is a rare situation**; this could have been promoted by the heavy rains that we received during the December and January months.



INTERVENTION BY DWAF REGIONAL OFFICE

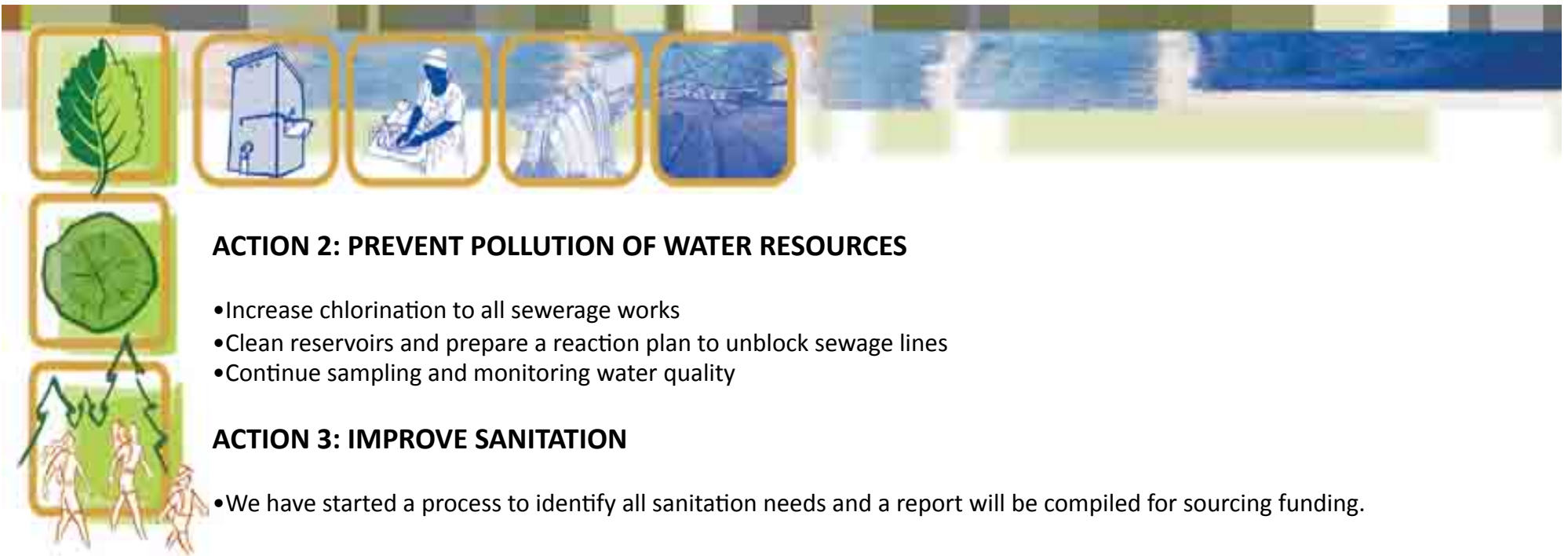
ACTION 1: INCREASE ACCESS TO SAFE WATER AND STRENGTHENING COMPLIANCE MONITORING

We have assessed the water treatment works operated by the Municipality and some by the Water Board.

DRINKING WATER SCHEMES OPERATED BY THE WATER BOARD

NAME OF SCHEMES	COMPLIANT/NON COMPLIANT	INTERVENTION
Hoxane Water Works	Compliant	Install standby pumps
Shatale WTW	Compliant	Training and installing apparatus
Edinburgh A	None Compliant	Install chlorination plant, repair pumps and install package plant
Endingbugh B	None Compliant	Install package plant
Sand River WTW	None Compliant	Install Chlorination system
Thulamahashe WTW	None Compliant	Install gas chlorinator
Acornhoek WTW	Compliant	Repair pumps
Inyaka WTW	Compliant	

- **The chlorination of 35 boreholes was completed on the 03/02/2009**
- Assistance with alternative supply of water
- DWAF infrastructure supplied two water tankers from Infrastructure branch and also supplied the construction of Jojo tanks
- Most reservoirs are not fenced and have no ladders for inspection



ACTION 2: PREVENT POLLUTION OF WATER RESOURCES

- Increase chlorination to all sewerage works
- Clean reservoirs and prepare a reaction plan to unblock sewage lines
- Continue sampling and monitoring water quality

ACTION 3: IMPROVE SANITATION

- We have started a process to identify all sanitation needs and a report will be compiled for sourcing funding.

ACTION 4: PROMOTION OF HEALTH AND HYGIENE

- DWAF with other stakeholders continue with the door to door awareness campaign on health and awareness.
- Placing of sign board and strategic points around the stream and rivers

RECOMMENDATION

It is recommended that:

- We assist the Bushbuckridge local municipality by replacing the outdated and irreparable package plant. Total number required being 5. **(R8 million)**
- We speed up the implementation of the failed Arconhoek bulkline project R99 million **(Budgeted on the MTEF starting on the financial year 2009/2010)**
- We continue monitoring the water quality results and the region be financially assisted **(R3 million)**
- We intensify our WASH and awareness campaign for the next six months to improve the health and hygiene practices **(R500 000.00)**
- Site and drill boreholes on those areas without any water supply infrastructure **(R2 million)**
- Assist the municipality with the implementation of sanitation project