

NATIONAL MICROBIAL MONITORING PROGRAMME

2004

PROBLEMS AND SOLUTIONS

Presenter: Nkuna M.E
Institution: DWAF
E – Mail: nkuna@dwarf.gov.za



Overview of the Programme

- The aim of the process was to ensure a successful implementation of the programme at Levhubu/Letaba Catchment so that the national objectives are realised
- The presentation focuses on Klein Letaba and Greater Letaba rivers.
- Both rivers are on the far East of the Limpopo
- The selection of sampling sites have been done with precautionary approach taking into consideration the national objectives
- The frequency of sampling differ from one river to another.



2. CATCHMENT'S CONCERNED PARTIES (STAKEHOLDERS)

- CMA – don't exist in the catchment
- WUA – still to be established
- Regional office coordinate all activities.
- Parties involved in the implementation process of NMMP
 - DOH
 - Mopani District Municipality
 - Department of Agriculture



3. MONITORING FRAMEWORK

3.1. Microbial Water Quality variables

- Main objective
 - assess and manage the health risk to water users
- Microbiological variables used
 - Faecal coliform (counts / 100ml)
 - Escherichia Coli (counts / 100ml)
- Other Water Quality variables
 - PH : extreme pH conditions increase the rate at which microorganisms decay
 - Temperature: higher temperatures increase growth rates
 - Turbidity: high turbid water can result in the increase in the faecal coliform levels



3. MONITORING FRAMEWORK

3.2. Sampling sites selection

- Sampling sites (points) have been selected primarily on the basis of the national objectives

<..\..\NMMP 2004 WORKSHOP\map.doc>

a) Klein Letaba River

- Three points identified:
 - Palakop
 - Klein Letaba upstream
 - Klein Letaba downstream

b) Greater Letaba River

- Four points identified:
 - GLR – Upstream (bridge next to Letaba Hospital)
 - Maribe Stream
 - Letsitele River (Ritshindele River)
 - GLR – Downstream (bridge next to Caltex Garage)



3. MONITORING FRAMEWORK

3.3. Registration of sampling sites

- All points were registered on the WMS
 - Palakop : I.D. No. 185112
 - KLR Downstream: I.D. No. 183878
 - KLR Upstream: I.D. No. 183879
 - GLR Upstream: I.D. No. 187157
 - Maribe Stream: I.D. No. 187161
 - Letsitele River: I.D. No. 187159
 - GLR Downstream: I.D. No.
- All the points are currently running



3. MONITORING FRAMEWORK

3.4. Sampling Frequency and Analysis

- Samplers – WQ – Giyani District Office
- Frequency – KLR, furthest point is ± 36 km from the lab, then done weekly
 - Samples = $4 \times 3 = 12$ samples per month
- GLR, furthest point is ± 113 km from the lab
 - Samples – twice per month.
 - Samples = $4 \times 2 = 8$ samples per month
- 20 samples taken per month from both rivers
- Analysis – Giyani Laboratory Services by WQ personnel



4. CONSUMABLE REAGENTS (RESOURCES REQUIRED)

- KLR – NMMP implemented in JANUARY 2001
 - Variables : Faecal Coliform (counts /100ml)
 - Method : MF Technique
 - Reagents : MFC Agar
 - Period : 24 hrs test

- MF used from January to June 2001

- On July 2001 changed from MF to DST
- ❖ DST – Define substrate technology (new method)
 - Variables: Total Coliform and E.Coli (counts / 100ml)
 - Reagents: Colilert Reagent Powder Pillows
 - Period: 24hrs or 18hrs test



CONSUMABLE REAGENTS (RESOURCES REQUIRED)

- Advantage of DST : Read both T. Coliform and E. Coli from one analysis (test)
- NMMP at GLR implemented in August 2003
- Only DST used
- F under: National office – only consumable Reagents
- Consumable Reagents are collected from Roodeplaat



5 Information

5.1 Results and Reports

- Results – Bi- monthly
- Bi- monthly reports received from Roodeplaat
- Reports forwarded to different stakeholders



5. Information

5.2 Interventions

- All points indicated pollution
- Actions taken on the following areas:-
- Palakop
- Klein Letaba Upstream
- Klein Letaba Downstream [A:\Analysis Results.April and May 2004.ppt](#)



6. Accreditation

- Giyani Lab services subscribed to SABS
- The Lab participates in group 3 constituents
- Involves major constituents in water
 - pH, conductivity, potassium, dissolved solids, calcium, magnesium, sodium, chloride, fluoride, sulfate and total alkalinity
- Done on quarterly basis



7. Problems and Solutions

- Main Problems :
 - ✓ Lack of support from other stakeholders despite DOH.
 - ✓ Limitation on kilometers allocated for sampling.
 - ✓ Collection of consumable reagents.
 - ✓ Lack of enough staff at WQ.
- Solutions : all problems are being addressed.



The End

■ Thanks

