

# NMMP NEWS

**NMMP NEWS** is a newsletter about the development and implementation of a national water quality monitoring programme to assess and report the potential health risk associated with faecal pollution of our water resources.

## In this newsletter ...

A reminder of the ultimate objectives  
 The products of the national programme  
 A very brief past, present and future  
 Implementation Manual announcement  
 Aims for the New Millennium  
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## The NMMP Objectives

**y** To locate, assess and prioritise those areas in South Africa where potential health risks associated with faecal pollution of water resources are highest.

**y** To provide information on the status and trends of the extent of faecal pollution, in terms of the microbial quality of surface water resources in the high risk areas.

**y** To provide information to help assess the potential health risk to humans associated with the possible use of faecally polluted water resources.

**y** To help assess the effectiveness of measures to protect water resources against faecal pollution in terms of trends in the microbial water quality.

The objective is not to quantify the effect of individual activities on the microbial water quality, nor to determine the potential health risk to specific water users at specific points of abstraction or contact. The latter would require a specially designed regional programme which would need to reconsider such design aspects as sampling frequency, sampling variables, and selection of sampling sites.

At present, the NMMP focusses only on surface waters. Initiatives are underway to extend the programme to include groundwaters and estuaries.



**Cholera** is a waterborne disease that was confined to Asia (mainly India) until the early 1800s. Then epidemics occurred at intervals throughout Europe and America during the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Outbreaks continue to occur every year in different parts of the world. In particular, they have occurred in countries to the north of South Africa, particularly in Mozambique, and a number of imported cases are identified each summer in South Africa [Klugman, 1999].

Cholera is caused by a bacterium, *Vibrio cholerae*, that invades the intestines causing acute diarrhoea. If present in a surface water, it will be due to faecal pollution.

By using the presence of faecal coliforms as an indicator of recent faecal pollution, the National Microbial Monitoring Programme not only helps prevent disease associated with faecal coliforms but

To meet the objectives ...

**To meet the objectives, the NMMP will produce ...**

**K 5-yearly National Prioritisation Reports**

which objectively prioritise all catchments in South Africa in terms of health risk due to faecal pollution on the basis of land use and water use characteristics.

**K Annual National Reports** on potential risks to human health from faecal pollution of South African surface water resources based on the actual microbial quality.

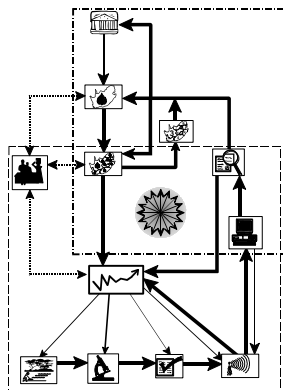
These reports will be sent IWQS (DWAF) to regional and national government departments as well as the relevant ministers and any other concerned parties who request them.

**The National Programme - past, present and future**

1994	Design started by DWAF
1996	Conceptual Monitoring Design completed
1997	WRC project starts (high risk areas selected, pilot scale monitoring, testing of design)
1998	NMMP presented in various articles and conference presentations
1999	Implementation Manual completed containing recommended procedures
*	<b>WRC funded project to choose first two areas for monitoring, create local capacity and formally register the local monitoring programmes with DWAF</b>
2000	Microbial monitoring to start in the two chosen potential high risk areas

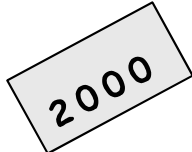
**Implementation Manual captures "How To Do It"**

A manual, compiled by Insight Modelling Services, now captures the details of the implementation process at all levels. The **National Prioritisation Process** section describes how potential high risk areas are identified (coordinated by DWAF). A section on the **National Implementation Process** describes the inter-sectoral implementation strategy for the programme and details the calculation and reporting of the potential health risk to all concerned parties. A **Local Implementation Process** describes the creation of sustainable local monitoring capacity and how to adapt and implement a local monitoring programme (including selecting sampling sites) so that the objectives of the national programme are met. **Monitoring Roles** from sampler through database manager to national policy maker are also described. Typical organisations that can fulfill these roles are given and their tasks described. (Readers interested in establishing the most appropriate roles for themselves should request copies of this section.) This manual will be updated from time to time.



**Monitoring kicks off in earnest at the start of the new millennium**

The National Prioritisation Process (completed in 1998) identified those catchments having the highest potential health risk due to faecal pollution. The Water Research Commission (WRC), in recognition of the national importance of the NMMP, has granted interim funding to initialise local implementation during 1999. This involves



- < Creating local capacity in two potential high risk areas,
- < Adapting the monitoring framework (particularly in respect of selecting sampling sites), and
- < Registering formal monitoring programmes in the two areas (by December 1999) with the Department of Water Affairs and Forestry.

These steps will ensure that actual sampling, analysis and reporting will commence promptly in January 2000. It is the intention that the number of potential high risk areas be increased by two every six months over the ensuing two years.

*Stakeholder comments ...*

"The Department of Water Affairs and Forestry is concerned about the increasing risk of faecal pollution of South Africa's water resources. This risk stems from the rapid demographic changes currently taking place as well as the lack of appropriate sanitation infrastructure and poorly maintained wastewater treatment works in many parts of the country. To address this concern the Department commenced in 1994 with the development of a conceptual design for a national microbial water quality monitoring programme to supplement and extend its existing national water resource quality monitoring and assessment programmes. The conceptual design was subsequently tested and refined and has now reached the implementation phase.

Improvement of the microbial quality of water resources will require sustained effort from a wide range of organisations as well as the input of local communities to protect our scarce water resources from faecal pollution. The Department of Water Affairs and Forestry is thus, in terms of its clear mandate in the National Water Act (Act No. 36 of 1999), looking forward to cooperate with other stakeholders to commence with the implementation of the **National Microbial Monitoring Programme** (NMMP). It is hoped that the pilot implementation we are about to embark on will contribute significantly to developing the necessary inter-sectoral structures to sustain full-scale implementation of the programme into the future.

Having a primary responsibility, as Director of the Institute of Water Quality Studies (IWQS), to facilitate and coordinate national water resource quality monitoring programmes within the Department, I give this pilot implementation my full support."

**Mr Mbangiseni Nephumbada, Pr. Sci. Nat.  
Director: Institute for Water Quality Studies  
The Department of Water Affairs and Forestry**

"The Department of Health (DOH) regards the **National Microbial Monitoring Programme** as providing critically important information for achieving its mission. The NMMP will identify those areas at highest risk from faecal pollution. It will also provide valuable information on the current status and trends. This will give the DOH a sound basis for effective implementation of its programmes. The DOH is already investigating ways of involving its Environmental Health Officers in the proposed microbial monitoring of selected high risk areas."

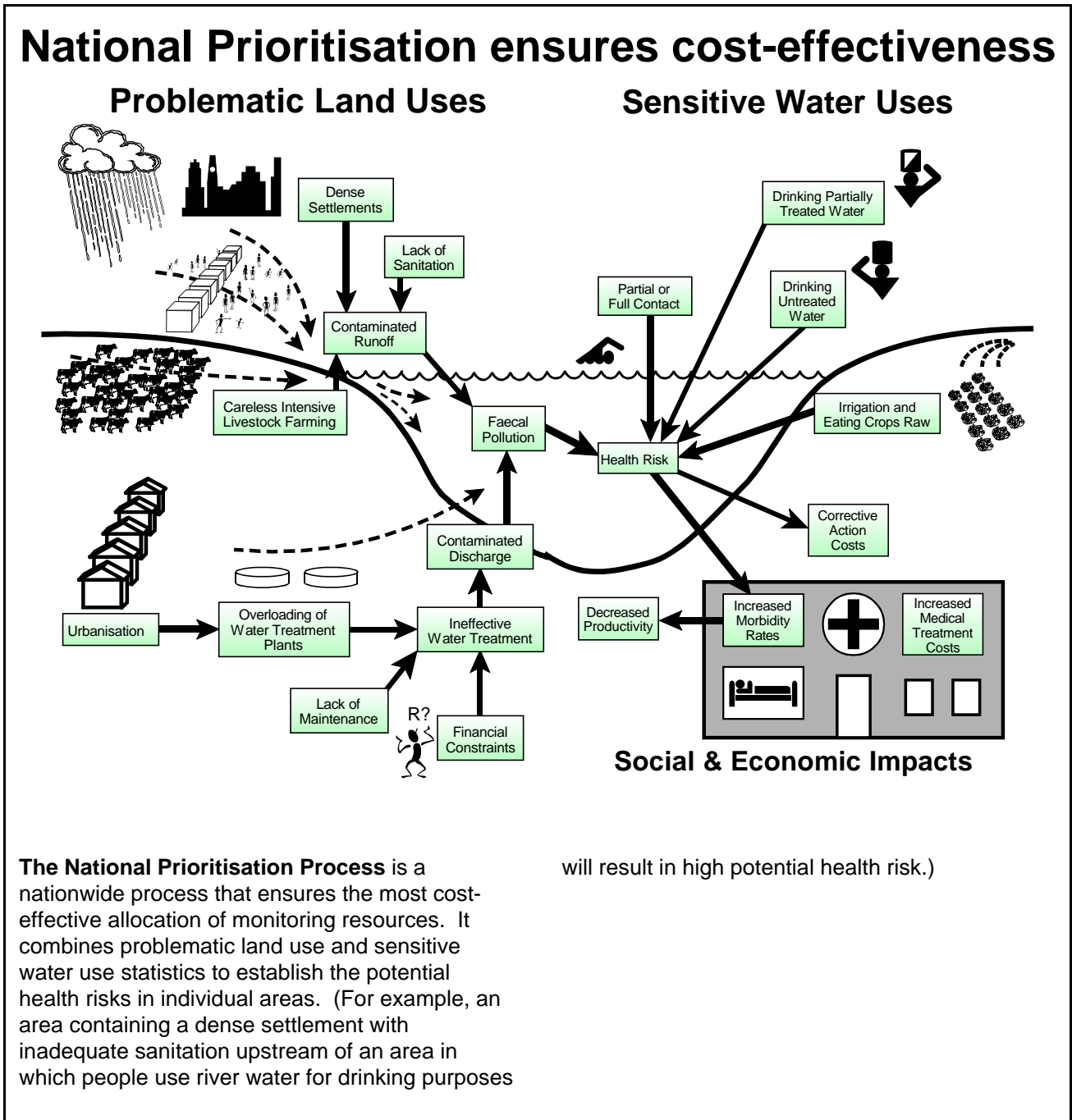
**Mr Thebe A Pule  
Director, Environmental Health  
Department of Health**

## Local involvement: a win-win situation

Although DWAF has the primary responsibility for coordination (in terms of the National Water Act), a programme of the magnitude of the NMMP cannot be implemented by DWAF alone. It requires the involvement of local and regional concerned parties such as the Department of Health, catchment management agencies (when these become established), water user associations, water boards and major industry. These organisations will themselves benefit directly in various ways:

- i The annual reports will present an objective assessment of water quality in respect of faecal pollution that these organisations can use for their own purposes.
- i Reports of unacceptable levels of faecally polluted water can be used to justify the allocation of local resources to (1) establish the exact causes and (2) ultimately take the necessary corrective action so that health risks to water users are minimised.
- i Industry involvement in the local implementation of the NMMP will demonstrate the organisation's concern and pro-active commitment to local microbial water quality (and hence to the general well-being of its own employees as well as local populations).
- i Contributing to local microbial water quality monitoring will help water boards and water user associations meet the requirements of their respective Acts.

*National Prioritisation and Cost-effectiveness...*



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