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**The Establishment and Operation of National and Eastern Cape
Rural Water Supply Planning, Monitoring and Evaluation (M&E)
Units**

Visit Report

by

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for the period

18 October, 1996 to 18 November, 1996

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INTRODUCTION

1.1 Purpose of visit

In the Wallingford Water (WW) submission to the European Union (EC), the role of the GIS Specialist is defined to be:

“The post of the GIS/IS specialist will address the technical considerations of the programme .He will analyse and review the present status of data holding facilities within the Department of Water Affairs and Forestry (DWAFF) in relation to requirements and compare them to facilities in other countries. His principal role will be to define the programme for the adaptation and development of facilities to meet the required goals. This may extend to technical specifications of facilities and advice on needs for expansion of facilities for hardware, software, training and implementation. In the latter, he will work in close liaison with the Monitoring and Evaluation Advisor and the Rural Water Supply and Sanitation Expert.”

On arrival in South Africa, this was amplified as follows:

“The GIS/IS specialist will make his first input from mid-October. He will review the facilities and capacities currently available in DWAFF for GIS/IS. In particular he will examine and report upon the ease of use of the in-house system for the evolution of data sets, their inter-relation and exchange of information within and outside government departments involved in the Community Water Supply and Sanitation (CWSS) development. It is our view that this project should not aim to make extensive changes to software and hardware. The role is to review and advise on methods and organisational matters.”

However, early meetings with the Department of Water Affairs and Forestry quickly revealed that:

the project had no ‘owner’ within DWAFF

there was no statement of what GIS/IS would be required for Monitoring and Evaluation (M&E) against which the existing systems could be reviewed

although the need for M&E had been identified and all agreed that it was important to the success of such a large undertaking, there were divergent opinions as to what M&E was about

there were not even any preliminary proposals as to how M&E might be carried out in practice.

It was agreed that reviewing the systems that existed without first having a statement of requirement would be unproductive. Since any requirement specification for an information system should flow from the aims and objectives of M&E, the purpose of the visit came to be:

re-establish the purpose of the project
establish the purpose of monitoring and evaluation in relation to the CWSS
develop an approach for achieving the project objectives
develop the agenda for a workshop whose aim is obtain the client's agreement to the approach
begin to apply that approach, in particular:

- review best practice in other regions of Southern africa, especially the experience of NGO's
- draft a policy (the spirit and constraints within which M&E is to carried out)
- identify the objectives of M&E (what is to be evaluated)
- hence, identify what must be monitored
- hence, identify the organisation necessary to carry it out.

A matter of slight concern at this stage, is that a number of assumptions seem to have been made already as to the form that the information system likely to be required for M&E will take. Since onene of the by-products of the process will be a statement of requirement. It would appear be premature to anticipate the nature of that system for several reasons:

- the debate on the purpose and nature of M&E has not reached a conclusion

- the nature of the variables to be monitored are not known

- the available skills that will determine the nature of the system are neither specified nor known.

When these are established, then it will be appropriate to consider the information system tasks.

1.2 Purpose of the report

This report summarises the result of the GIS Specialist's work for the period 18th October, 1996 to 18th November, 1996.

1.3 Report layout

The report will open by summarising the background to the CWSS and outline the purpose of this project in relation to other CWSS projects, many of which are also EU funded. A major part of the initial work has been concerned with developing a methodology and the results to date are recorded in Section 3. Section 4 sets out our responses to each of the terms of reference (TOR). Supporting information is included in the Appendices.

2. BACKGROUND

2.1 Background to the CWSS

A large part of the South African population lacks even the most basic water supply and sanitation services. The government has stated that everyone should have access to at least a minimum level of service and has put in place an ambitious scheme, the Community Water Supply and Sanitation Scheme (CWSS), to achieve that aim. However, the government is aware that many similarly well intended schemes have failed in the past and is anxious to avoid repeating known mistakes. Experience suggests that many failures were due to the fact that the beneficiaries of the schemes did not 'own' them. When a scheme was in need of repair, it was perceived to be someone else's responsibility. A dependency culture had been built that prevented people from taking responsibility for their own affairs, although, that said, in much of South Africa, there were, and still are, no democratic structures at the local level to take ownership of such schemes. Therefore, the government is using the CWSS to begin building a civil administration. This process is often referred to as 'capacity building'.

A key aim of the CWSS is that the individual community water supply and sanitation projects that make up the programme be demand driven and community based. In other words, the people have got to ask for a scheme. They must take the initiative. Further, they must demonstrate that they can form a committee to represent themselves and organise, with help, a business plan and then undertake the construction. The purpose of the business plan is to ensure the viability of the scheme, in particular, the community's ability to sustain the project into the future. Although, the government will fund the capital costs of approved schemes, thereafter, the community has to take responsibility.

The number of people below the minimum level of service is uncertain, estimates vary from 6M to 12M for water supply and are around 19M for sanitation. More accurate figures will emerge from the 1996 census. Whatever the figures, the sums of money required to rectify the situation are large (several billion Rand) and the potential for things to go wrong great. The requirement for a system of monitoring and evaluation is therefore self evident.

2.2 The projects that make up the CWSS

The vast majority of the funds for the CWSS come from the government and are routed via DWAF. However, the CWSS is made up of many sub-projects and an awareness of these is important to the M&E task, as many are collecting information and all are part of the process to be monitored.

The other relevant projects and programmes and the organisations involved are shown in the Table below:

| Project | Sub-project | Contractor |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Collecting basic data on villages (referred to as Form B), hydrology, groundwater resources, etc, from existing sources. | Project management | Uhlmann, Witthaus and Prins (Pty) Ltd. |
| | Data collection | Bosele Community Support Services (Pty) Ltd |
| | | Civil and Rural Consulting Engineers |
| | | Fongoqa Skade Toyi and Associates |
| | | HKS Law Gibb (Pty) Ltd |
| | | Jakoet & Associates |
| | | Ninham Shand (Cape) Inc. |
| V3 Consulting Engineers Inc. | | |
| The EU Programme of support for the Department of Water Affairs and Forestry with Rural Water Supply and Sanitation in the Eastern Cape | Programme Management and Co-ordination (PMC(1)) | GKW Consult/ Ninham Shand Inc. |
| | Water Supply and Sanitation Projects in the rural areas of the ex-Transkei and the ex-Ciskei(RWSS(6)) | GKW Consult/ Ninham Shand Inc. |
| | Establishment and Operation of National and Eastern Cape Rural Water Supply Planning, Monitoring and Evaluation (M&E) units(M&E(2)) | Wallingford Water/ CSIR |
| | Integration of ex-Transkei and ex-Ciskei Water Supply Data into the DWAF's Geographical Information System(GIS(5)) | Wallingford Water/ CSIR |
| | Environmental Conservation Consultancy(ECC(3)) | Gerad Dassonville / DWAF |
| | I) Provincial and Regional Organisation | Carl Bro International / Steffen, Robertson & |

| Project | Sub-project | Contractor |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| | Development Project (Organisation) II) Formation of Water Supply Authorities in the Eastern Cape III) Community training and support programme(OWT(4)) | Kkirsten (SRK) |
| ???????????????????? ???(James Dent to complete) | | British Overseas Development Agency |

2.3 The terms of reference for the Establishment and Operation of National and Eastern Cape Rural Water Supply Planning, Monitoring and Evaluation (M&E) units (M&E (2)) and Integration of ex-Transkei and ex-Ciskei Water Supply Data into the DWAF's Geographical Information System (GIS(5))

This report is concerned with reporting progress on M&E(2). However, the two Wallingford Water/CSIR projects are closely inter-related, the second delivering the supporting information system identified in the first. Therefore set out below is a summary of the TOR of both projects.

2.3.1 M&E(2)

- Establish an M & E Policy
- Plan M & E units at
 - National level
 - Regional level (E.Cape)
- Establish operational guidelines
- Design an information system
- Establish operation units at
 - National level
 - Regional level (E.Cape)
- Train staff
- Supervise initial operation of units
- Create infrastructure inventory (CEC)

2.3.2 GIS(5) - Phase 1

- Identify data sources
- Assemble reports

- Assemble data
- Water supply
- Hydrology
- Hydrography
- Hydrogeology
- Meteorology
- Assess and evaluate information
- Determine information policy & formats
- Capture all information
- Create integrated database

2.3.3 GIS(5) - Phase 2

- Verify information
- Identify problem areas
- Assist building infrastructure inventory in EC

3. APPROACH

3.1 Introduction

At the outset of the project, there was an implicit assumption that M&E was about measuring the success and failure of the CWSS scheme in engineering and financial terms. It was, after all, a project about water supply and sanitation, run by a Department of Water Affairs and staffed by engineers. However, during the first days of the project, when the team were exploring how to translate the terms of reference into reality, it became apparent that the project was as much about social engineering as water engineering. Our conversations with a wide range of people both at the centre and in the regions revealed that, on a relative scale, the engineering problems and their solutions were well understood. The keys to success and failure lay much more in organisational psychology than in engineering hydrology. This was stressed over and over again. The problem was how to go about it.

The discovery led to a major change of emphasis. It caused the team to pause and re-establish their bearings. For, while there are well established methods for designing M&E systems in the engineering field, comparable formal methodologies for the monitoring the "soft issues" of a social engineering project are not so advanced, though we are aware of the work by the Mvula Trust and other agencies in this area and these will form a useful basis from which to start.

Whereas, in an engineering project, the indicators of success and failure are well understood and easily quantified (rainfall, river flow, supply, demand, properties of materials, cash flows, etc.), in this project, the indicators are less certain and harder to measure. When is a water supply scheme a success? The naive answer is when water comes out of the tap. In this case, success would appear to be when the community is able to sustain the supply system through its own democratically organised structures without outside help.

While this may appear to be a good one sentence test with a clear yes or no answer, it

is a considerable simplification of what is really a complex question. The CWSS has many objectives, most of which would be unfairly judged on a yes/no basis. Therefore, in developing our approach, our starting point has been to ensure that we have a thorough understanding of all the CWSS objectives. These are set out and explained in the White Paper.

3.2 The White Paper

Authority stems from parliament. Therefore, to re-establish the purpose of our project in relation to the CWSS, we have made a careful study of the White Paper. This sets out not only the specific objectives of the CWSS, but the intentions behind them. It also specifies a requirement for an M&E function and sets out the spirit in which it should be carried out. The White Paper therefore, albeit at a very high level, defines what is to be monitored and evaluated and sets the outline of a policy for guiding how M&E is to be carried out. It provides, in part, the first of the deliverables required under our terms of reference.

The key points from the White Paper in relation to the CWSS are:

- Development must be demand driven & community based
- Basic services are a human right
- “Some for all” not “All for some”
- Equitable regional allocation of resources
- Water has an economic value
- The user pays
- Integrated development
- Environmental integrity

It is the degree to which these objectives are or are not attained and why, that the M&E unit must report.

3.3 Developing a systematic approach

Having understood the purpose of the CWSS and established the authority by which our project exists, the team then turned its attention to developing a systematic approach by which we could develop the deliverables required in the TOR.

Several problems arose at this point. Neither the TOR nor the White Paper define the objectives of M&E. There are no defined deliverables, nor are there any limits set on the scope of M&E or the resources available for it. The White Paper only sets the spirit of M&E. The White Paper is primarily concerned with ideals and the objectives of the CWSS are not, with one exception, expressed in terms that are easily monitored in a sense that an engineer would understand. There is no sensor that measures the degree of democratisation. Also, no criterion of success by which the CWSS is to be judged has been set. It is difficult to evaluate something in the absence of a defined objective. Here, it is useful to look at some past schemes that have been deemed failures. Consider the attempt to provide windmills in the Transkei by the former government, where there has been an implicit assumption that 100% had to work in perpetuity. When some did not, the scheme was judged to have failed. In the circumstances, was this realistic? Might not it have been a major achievement, if 30%

had still been working after five years. Learning is a long process. It is certain that some projects within the CWSS will fail. Failure will often be a question of degree rather than absolute. What if a scheme delivers 20 l/head/day instead of 25 l/head/day? What if the committee is less than democratic but the system delivers water reliably? Therefore, it is important to establish realistic success criteria, in order that the whole scheme is not wrongly condemned.

In this situation, it was clear that the first task was to establish:

- the criterion of success for the CWSS
- the spirit and constraints within which M&E should take place (i.e the guiding policy)
- the objectives of M&E

Once these things are defined, then a logical path opens up by which the TOR can be achieved.

One of the outcomes of the first task will be an appreciation of what M&E is evaluating, first at a high level, then in detail. The information required to make the evaluation leads to what must be monitored. Planning the organisation to capture and evaluate the information can then begin. The form of organisation and its *modus operandi* will be determined by the policy and the constraints. Numbers of staff, their location and equipment are governed by the answers to these questions:

- what is to be monitored?
- Where?
- how often?
- by whom?
- How?
- to whom the information is to be given?
- in what form?
- how up to date the information must be?
- the constraints on resources?

Thus the plan and operating guidelines flow naturally from the process. Once agreed, the M&E teams can be recruited, trained and set to work.

We are, however, aware that there are important points that this approach will not pick up. As has been discussed, we do not possess the knowledge with which to anticipate many of the problems that will arise. Many potential problems are known but are not formally written up. There is no standard list of performance indicators to warn of impending problems. An important part of the process will therefore be to record all the known problems and ways of either forecasting their emergence or detecting their existence.

We thus have a systematic approach by which the TOR can be accomplished and which may be summarised as:

- fact finding
- review of best practice
- establish criterion of success
- define the M&E policy
- identify objectives of M&E
- establish what is to be evaluated
- identify what is to be monitored
- identify monitoring and evaluation tasks
- plan organisation
 - staff
 - accommodation
 - equipment/systems
 - etc
- write guidelines
- recruit
- train
- oversee operation

4. RESULTS

This section summarises the team's provisional conclusions to date.

4.1 Criteria of success

Evaluation is concerned with measuring and explaining success and failure. In relation to the CWSS, this needs to take place at many levels, for instance:

- Policy
- Planning
- Design
- Construction/implementation
- Operation and maintenance

Many of these can be considered under four headings:

- national
- regional
- project
- community

Considering the last heading first, that of the community, the criterion of success would seem to be that a scheme has been established that yields:

- water of adequate quality
- 25l/head/day
- within 200m
- 10 l/min
- 98% of the time
- with < 1 week/year downtime for maintenance

at a price that the community can afford and which the community can maintain through its own democratically organised structures. This definition has been derived from the White Paper. It is the only instance where the White Paper departs from setting guidelines and is explicit as to what the Government is trying to achieve.

The degree of success with which the first items have been, and continue to be, achieved is relatively easily monitored. Further study will be needed on what constitutes success with respect to capacity building. The mere existence of a committee says very little about the community's genuine involvement or the committee's abilities to fulfil its role.

The same questions would appear relevant at the project level, except that on a large scheme, it is possibly unrealistic to expect all the component communities to participate with equal success. How much failure is acceptable? The question can be repeated at the regional and national levels and remains to be answered.

It will of course be possible for a scheme to meet all these criteria and yet still fail for any of many reasons: entrepreneurs selling (stealing) water being one example. How then are individual schemes and the CWSS as a whole to be judged? These issues also need to be addressed.

4.2 Policy

Using the White Paper as a starting point, it is proposed that the M&E policy should be that:

- the scope of M & E covers the whole of the CWSS project
- M & E should be supportive not punitive
 - sets the attitude
 - assures workers about the way data will be used
 - implies M & E will have an analytical capability
- information should be accessible
 - implies that the M&E should collect and/or collate data
 - implies that M&E has a duty to publish in an appropriate form
 - implies published reports free or at cost of printing (i.e. affordable to all)
 - implies M & E data free or at cost of delivery
- information should be useful, relevant, reliable, in an appropriate format, timely and delivered to the right person
- M & E is the responsibility of DWAF
- M & E must maximise the use of existing systems
- M & E resources are limited to(the constraints within which the M&E units must operate need to be defined in terms of budgets, manpower, etc..)

4.3 Objectives

It is proposed that the objectives of the M&E units are:

to assess

- if the objectives of the CWSS are being achieved.
- if they being achieved in the most appropriate way.

to provide feedback for:

- policy
- planning
- design
- supervision
- construction
- operation and maintenance

4.4 Evaluation

The team's work on identifying how the work of the CWSS may be evaluated and the information required to enable an evaluation is still underway. However, the slides shown in Appendix A illustrate how we are taking each of the White Paper objectives and are examining them to find how the ideal expressed will turn into a tangible reality, hopefully of benefit to society. If we can do this, then we should be well on the way to being able to evaluate both the CWSS policy and the methods by which it is being achieved. We will also have an initial list of variables to be monitored.

It is stressed that the slides represent the current state of our work and are in no sense our final thoughts. The headings of most of the slides derive from a CWSS objective in the White Paper and the sub-headings are either our interpretation or come from the explanatory notes in the White Paper. The blank lines that follow are for the reader's notes.

5. FUTURE WORK

Section 4 has outlined the work so far and the way in which we propose to achieve M&E(2). The headings below indicate how we propose to develop section 4 over the project to create the final report. They are of course empty at this stage.

5.1 Monitoring

5.2 Tasks of the organisation

5.3 Planning

5.4 Guidelines

5.5 Recruiting

5.6 Training

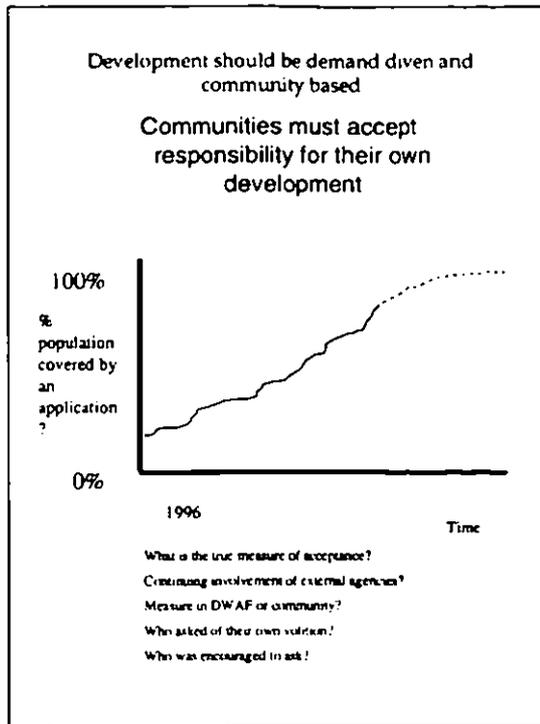
5.7 Operation

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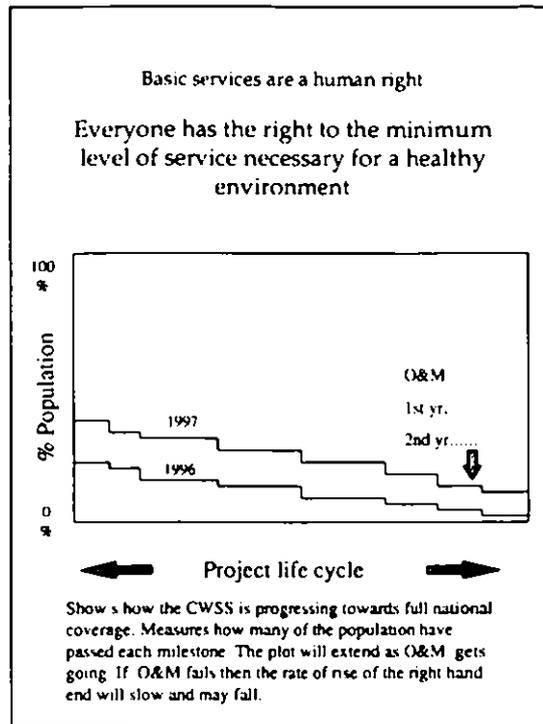
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APPENDIX A

This Appendix contains a selection of slides prepared by the GIS Expert during his visit to illustrate the team's approach. They were used after his departure to at a presentation to the Department of Water Affairs and Forestry in early December, 1996.



Demonstrating 'acceptance of responsibility' is difficult. The graph shows the proportion of the population who have applied for a water supply scheme. However, simply counting applications can lead to misleading results. Many communities are being coerced or encouraged into participation rather than asking of their own volition. It is not clear where 'acceptance of responsibility' should be measured - in the community or in DWAF? Measurement in DWAF will be easier and cheaper, but is likely to yield optimistic results.



Shows year by year the % of the population attaining each stage in the development of its water supply scheme. In theory, eventually 100% of the population should be covered. Realistically, this won't happen for a long time as some projects are bound to fail. The right hand side of the graph represents the % of the population covered by operational systems. Each year the graph will get a step wider as schemes move from first to second to third years of operation. If schemes begin to fail during operation and are not repaired, the rise of the right hand side will slow down and could even begin to fall, if large numbers of schemes fail.

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