A STRATEGY FOR MONITORING AND ASSESSMENT TO SUPPORT WATER RESOURCES MANAGEMENT

APPENDIX 1

PROCEEDINGS OF A WORKSHOP HELD IN SEPTEMBER 1999

DRAFT

Proceedings of a Workshop on

THE DEVELOPMENT OF A NATIONAL MONITORING AND INFORMATION SYSTEMS (MAIS) IMPLEMENTATION PLAN TO SUPPORT WATER RESOURCE MANAGEMENT AND WATER SUPPLY IN THE IMPLEMENTATION OF THE NATIONAL WATER ACT AND WATER SERVICES ACT

13 September 1999

1. Introduction

A workshop to initiate the development of a monitoring and information systems (MAIS) strategy for the Department of Water Affairs and Forestry (DWAF) was convened under the mandate of DWAF's Water Law Implementation Committee (ICOMM), to give effect to the monitoring and information systems requirements of the National Water Act (Act 36 of 1998) and the Water Services Act (Act 108 of 1997).

The legislative mandate was further reinforced by another critical component. Information Services of the Department has been outsourced to an Integrator who will take responsibility for the overall high-level management and integration of the entire information system (IS) environment. Under the new IS governance model, liability for defining and prioritising the IS service requirements lies in the Chief Directorates. Alignment of user requirements between and within Chief Directorates will be essential for the "outsourcing" model to be effectively and beneficially implemented.

Major issues to be addressed in the MAIS strategy include

- The devolution of water resource management to catchment management agencies will result in a large number of new stakeholders who will be involved in the creation and exchange of information.

- Integrated water resources management needs a wide range of information for effective decision making.

2. Participants in the workshop

The workshop was held at CSIR on 13 September, 1999 and facilitated by Dr Alex Weaver. The following participants attended:

Pieter van Niekerk	Chief Director; Planning	iaa@dwaf.pwv.gov.za
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Billie Twala	Portfolio manager, public service, DEBIS	
John de Kock	Project Manager, Integrator, DEBIS	
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Joël Malan	Pollution Control Officer, Gauteng Region	malanj@dwaf.pwv.gov.za

3. Purpose

The aims of the workshop were to:

- Reach agreement on a desired state for the development of a monitoring and information system implementation plan.
- Initiate participation in the development of the plan.
- Prioritise requirements and key components.
- Identify current and planned initiatives and their champions.
- Discuss and obtain agreement on the way forward.

4. Approach

The workshop followed a "theory of constraints" (TOC) process. That process identifies a desired state that the participants agree on, and then lists the constraints or obstacles to achieving the desired state, that is, the reasons why the desired state has not yet been achieved. The constraints are then consolidated and intermediate objectives (IO's) stated, that when achieved, will have overcome the obstacles and constraints.

Each IO is broken into components that can be clearly identified as individual projects, and dependencies identified. IO dependencies occur when the outcome of one IO is a pre-requisite for a second IO. Skills, financial and time requirements for each project can then be described and the entire effort can be incorporated into a single large project plan with each task sequenced into an overall time frame. The process is shown schematically in Figure 1.

5. Achievements

The workshop reached agreement on the desired state and a comprehensive list of almost 50 constraints, which were consolidated into 11 key obstacles. IO's for 5 of the 11 obstacles were debated and proposed by the workshop participants. The remaining six objectives (Numbers 5-9 and 11; shown in italics in Section 7 were debated by J Harris, W Geldenhuys and A Howman after the workshop and were submitted for scrutiny and comment to all participants in the first draft of the proceedings.

Some recommendations were made for the way forward and have been incorporated in Section 8

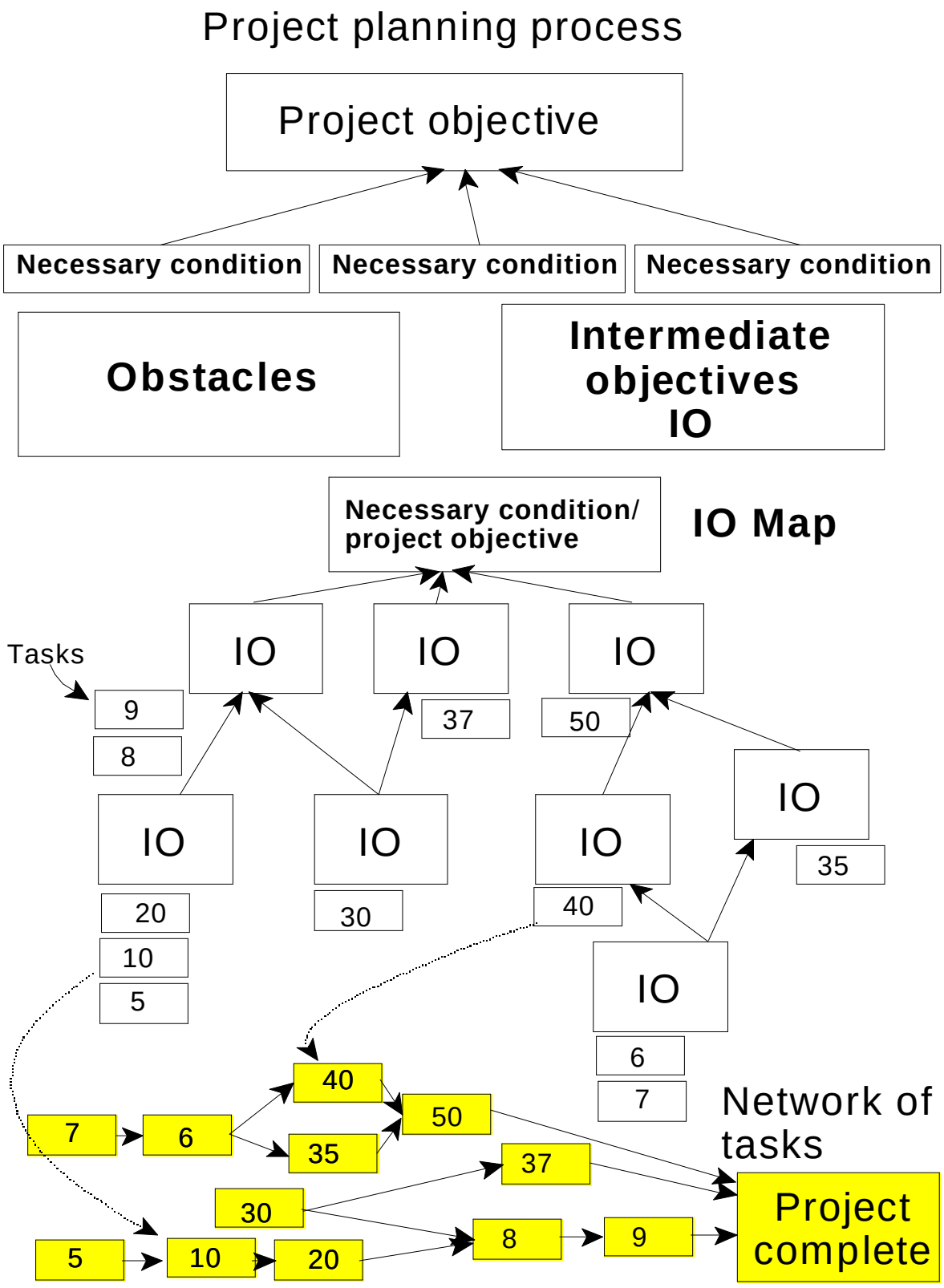

Figure 1 TOC process of project planning

5.1. Desired State

The accepted desired state description was:

> **DWAF has led the development of easily accessible information and knowledge systems to support wise decision making for sustainable water use at all levels.**

A more comprehensive statement of the desired state was initially presented and discussed. It is included as Appendix 1.

5.2. Obstacles and Intermediate Objectives

The following table lists the consolidated obstacles agreed at the workshop. Appendix 2 contains a list of all the individual obstacles and constraints within the consolidated category. IO's agreed at the workshop are included in the table below in normal font. IO's suggested by a smaller group are listed in italics font.

	Obstacle	**Intermediate objective**
01	There is a lack of stakeholder empowerment	IO01 Stakeholders have been identified and information and knowledge is accessible to enable participation in wise water resources decision making
02	There is a lack of alignment around the emerging vision	IO02 We have a shared understanding and vision regarding the use of enabling information systems in support of water resources management amongst all stakeholders
03	There is a lack of agreed conceptual models for information and knowledge management systems	IO03 There are agreed enduring concepts for the business processes, data elements, and reference information sets
04	There are a number of uncertainties regarding technologies for I&KMS	IO04 A goal information technology framework (architecture) is maintained as the focal point for technology management
05	There are uncertainties from the external environment	IO05 All stakeholders acknowledge the value of monitoring water resources and water services delivery and are committed to the use and long-term development of information systems for sustainable water services and water resource management.
06	There is an inadequate and inappropriate distribution of resources	*IO06 Adequate and appropriate financial, technical, and human resources are developed, planned, acquired and deployed in accordance with an agreed upon National*

		Monitoring And Information Systems (MAIS) Implementation Plan .
07	There is a lack of data sharing	*IO07 Policies and effective procedures are in place to promote standards and to ensure the security and confidentiality of the data and its source and to facilitate the identification, access and purchase of data and information.*
08	There is inadequate data acquisition and management	*IO08 We have a thorough understanding of appropriate data acquisition, processing, quality control, information generation and reporting requirements to ensure accurate assessments and predictions of the nature and status of water resources and their use*
09	There is a legacy of past failures of IT initiatives	*IO09 A participative process has been established to capture innovative ideas from all stakeholders as input to an interactive plan that results in successful implementation of IT products.*
10	There is insufficient common understanding of the current reality.	*IO10 We have a clear articulation of the needs of the water business arena and DWAF's role and structure within it.*

NB: The organising committee suggests

1.1 Incorporating "inadequate data … management" from Obstacle 08 into "lack of data sharing" in Obstacle 07 to create an obstacle described as "lack of appropriate data management structures." Obstacle 08 would change from "Inadequate data acquisition and management" to become "Inadequate data acquisition and use".

1.2 Incorporating "lack of understanding of appropriate use of information generation systems (models)" suggested as Obstacle 11 into the revised Obstacle 08, "Inadequate data acquisition and use."

1.3 The Intermediate Objectives listed above for Obstacles 07 and 08 would still apply.

2.1 The term "conceptual model" as used in Obstacle 03 and the corresponding IO need further consideration and definition. There appears to be a lack of common and unified understanding of the application of the term.

6. Proposed way forward

The desired state and IOs will be consolidated and verified by the end of October 1999.

The proposal for the next phase is that, for each IO, a "theory of constraints" process will be followed to expand the IO. An identified champion for each IO will take the lead in expanding the IO to a set of project plans that includes a description of the required resources and time. Both internal and external participants will be engaged to provide input to the planning process. Once this is achieved, these individual plans will be incorporated into a comprehensive project plan with identified priorities, resources and time frames.

It is anticipated that the expansion of IO's into projects will identify relevant current initiatives being undertaken within DWAF. These initiatives will be incorporated into the overall plan.

In order to ensure alignment with initiatives undertaken by the new Integrator, it is critical that this process starts immediately and is run in parallel and interacts with the initial IS analyses the Integrator will carry out between October and January.

It should be noted that the responsibility for developing and implementing DWAF's information technology strategies and policies has been assigned to the new position of Chief Information Officer.

7. Benefits of this proposal

A systematic, thorough planning process will enable a stable and effective implementation plan to emerge. The opportunity will be created to bring DWAF personnel and external stakeholders into this process to contribute to the development of a shared vision. This activity in itself will help address the legacy of past IT failures, identified as a constraint at the workshop. A comprehensive, integrated plan will be produced that will identify specific skills, time frames, and financial resources, as well as priorities for implementation. This will provide essential information to establish priorities within the budgeting process. It is foreseen that new projects will only be initiated in the 2000/2001 financial year.

8. Recommendations

It is recommended that the responsibility for implementing this process be supported by a coordination group consisting of identified officers from the following Chief Directorates: Scientific Services, Water Services, Water Resources Planning, Water Use and Conservation, Forestry, and Regions, the Integrator, and the CIO. A broader reference group, incorporating many if not all of the attendees of the 13 September workshop will contribute ideas and provide feedback.