



AUDITS OF DOMESTIC ENVIRONMENTAL ISSUES

**MAINTENANCE OF URBAN WATER SUPPLY BY THE WATER
UTILITIES CORPORATION**

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(Botswana)

1.0 BACKGROUND

Water Utilities Corporation (WUC) is Government owned enterprise established through the Act of Parliament known as the Water Utilities Corporation Act of 1970 (Revised in 1978) Cap 74:02. The Corporation supplies potable water to Botswana's urban areas of Gaborone, Lobatse, Jwaneng, Francistown, Selibe Phikwe and Sowa. The WUC provides water to the peri-urban areas and villages close to the urban centres through bulk supplies to the Department of Water Affairs. The Corporation's water resources comprise of five dams namely; Bokaa, Gaborone, Letsibogo, Nnywane and Shashe. The full capacity of all the five dams is 350 million cubic meters. The WUC provides 50 million litres of water per day and its investment in the infrastructure for provision of water is P2.043 million.

The Corporation conforms to the policies in terms of Water Act (Cap 34:01) of 1968 which defines ownership of any rights to the use of water and provides for the grant of water rights and servitudes. It also conforms to policies stipulated in terms of Water Works Act (Cap 34:03) of 1962 which guides all authorities that supply water.

The Southern African Community of Supreme Audit Institutions (SADCOSAI) Auditors General approved a proposal to use parallel audit as a practical tool to enhancing the audit expertise of the performance auditors. It was agreed that the parallel audit would be managed as a pilot activity under on the job training programme. The Supreme Audit Institutions (SAI's) of Botswana, Lesotho and Zimbabwe participated in this initiative. The Auditors General agreed that separate reporting should be in line with the existing Audit legislations and Mandate of respective SAIs.

The performance audit focused on the maintenance of WUC's infrastructure namely; dams, equipment, treatment, plants and reservoirs, used in the provision of water to urban areas and related environmental issues. This was chosen considering its importance to the environment and human beings. The audit was also prompted by the growing awareness on international environmental issues.

1.2 AUDIT PLANNING

Audit Scope and Target

The audit therefore, focused on the administrative processes systems and procedures employed to efficiently maintain the WUC's infrastructure.

The Corporation is geographically divided into South and North and it provides water to six (6) urban centres; therefore, the audit covered four (4) centres; two from the South and two from the North. The centres were selected basing on factors such as; size and geographic locations. The period of audit coverage was 3 fiscal years, that is; 2001 to 2002/2003.

The audit at the 4 centres concentrated on the operations relating to maintenance of infrastructure; commencing from notifications made up to the time maintenance was completed.

1.2.2 AUDIT OBJECTIVE

The primary objective of the audit was to determine the arrangements made by the Entity to carry out its maintenance operation and to assess the extent to which economy, efficiency and effectiveness was taken into consideration when maintenance was carried out. The audit examined inter alia whether:

- The Corporation Management had developed strategic, annual and operational plans for ensuring that maintenance is carried out efficiently
- Repairs were carried out within prescribed set timeframes
- Management monitored maintenance to satisfy whether accountability requirement was adequate
- Maintenance personnel was adequately trained in using the technology for recording maintenance information

1.2.3 AUDIT CRITERIA

- The Corporate Plan has to be developed as a maintenance frame work for overall direction, guidance and focus to the operational staff.
- The WUC needed to maintain the water infrastructure by following a consistent system of preventive maintenance.
- Maintenance performance standards and guidelines needed to be developed and followed in order to address all aspects related to maintenance of infrastructure.

2.0 METHODOLOGY

2.1 Interviews

2.1.1 Testimonial

Interviews were conducted in order to understand maintenance and monitoring processes and implementation of maintenance plans.

2.1.2 Survey Questionnaires

One hundred (100) standardized questionnaires were distributed to the WUC customers in order to assess their perception regarding the Corporation's performance.

2.2. Documents Review

The relevant documents were reviewed to acquire an understanding of the Government's policy intention regarding incorporation of the Water Utilities, maintenance processes, administrative procedures and guidelines established to ensure efficient maintenance of the water infrastructure.

2.3 Observations (Field Visits)

Three (3) dams out of six (6) namely; Bokaa, Letsibogo, and Shashe treatment plants and reservoirs in Gaborone, Francistown, Selibe Phikwe and Jwaneng were visited to ascertain whether they were maintained as per prescribed schedules (no leakages and algae formation) and cleaned (dam's surroundings weeded, debushed and delittered.)

3.0 KEY FINDINGS AND RECOMMENDATIONS

3.1 Corporate Plans

The corporate maintenance plans of entire network, which was necessary for providing overall directions to the staff and establishment of accountability in the entity, had not been prepared.

RECOMMENDATION

The OAG recommends that the WUC should review the WUC Maintenance policy leading to an assessment of the extent to which maintenance objectives should be met and the cost effective way to achieve them. That is, the review should provide broad directions for the future of maintenance operation which can form the foundation for development of the Strategic Planning of the maintenance operation across all the Entity's Divisions and Sections.

3.2 PREVENTIVE MAITENANCE PLANNING

There was lack of effort on the part of WUC Management to ensure that maintenance of the infrastructure followed a consistent system of preventive maintenance. Therefore, water infrastructure had been maintained within parameters of corrective maintenance approach.

RECOMMENDATION

The OAG recommends that all Sections that are involved in maintenance activities should draw preventive plans that will form basis for developing accurate forecasts of maintenance and they should be implemented to the latter.

3.3 MAINTENANCE CLEANING OF PLANT AND COMPONENTS AND RESERVOIRS

The OAG noticed that the Mmamashia Master balancing and Nyangabwe reservoirs had not been maintenance cleaned during the period of audit. It was also not possible to substantiate whether other facilities were maintenance cleaned in accordance with the provisions of the Maintenance Policy Statement due to absence of documentation.

RECOMMENDATION

The OAG recommends that the reservoirs should be cleaned according to standards to avoid formation of algae, which may lead to bad taste and odour in water.

3.4 PRESCRIBED TIMEFRAMES/STANDARDS

There were no comprehensive policy guidelines that indicated prescribed performance standards in relation to the frequency and speed of maintenance activities. That is; the WUC effort was focused on the satisfaction of malfunctioning demands from treatment plants/networks and reservoir components requiring repair/replacements.

RECOMMENDATION

The OAG recommends that the WUC should develop consolidated and credible performance standards to assist in proactive management of key maintenance processes at both the corporate and operational levels.

3.5 SITE VISITS

During dams site visits the OAG observed abundance of domestic animals' dung around the water front thus leading to water pollution. This was an indication that dams' surroundings were not maintenance cleaned. In response WUC indicated that serious water pollution was exacerbated by materials carried by the feeding rivers from far and water catchments.

4.0 **IMPACT AND RESULTS**

WUC Management accepted our findings and stated that the findings would assist the Corporation in making improvements in their operations.

5.0 **LESSONS LEARNT**

- There was opportunity for exchanging experiences and reaching common solutions in the event there were difficulties.
- The cooperative audit assisted in building up a Regional Knowledge and Skills on environmental auditing.