



AUDITS OF DOMESTIC ENVIRONMENTAL ISSUES

**MANAGEMENT OF WILDLAND FIRES BY THE DEPARTMENT
OF FORESTRY AND RANGE**

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(Botswana)

1.0 Background

Wildland fires in Botswana occur mainly around June to August and are said to have both negative and positive effects on the natural environment. Traditionally, fires were perceived as negative because they had an impact on land use, carrying capacity and biodiversity. However, most recently, wildland fires are viewed as an essential factor in the maintenance of the diversity and stability of the forest ecosystems. Irrespective of whether wildland fires are regarded as positive or negative, safety and risk reduction precautions cannot be viewed in isolation. There is need for proper control and management of spreading wildland fires.

The audit was motivated by the rising concern for the frequent occurrence of wildland fires, which engulfed vast area of lands as well as the perceived pattern of burns. The burns are concentrated on those districts where tourism is highly vibrant. The districts are home to a variety of wildlife species, both animals and plants and these attract lots of tourists from all over the world. Their constant burning as a result of unwanted fires would impinge negatively on Botswana's tourism sector. The Office of the Auditor General conducted this audit to determine the extent to which the Department of Forestry and Range Resources implemented and complied with the laid down statutory instruments in place.

Consequently, there was looming dissatisfaction at the manner in which the DFRR was managing wildland fires. That was in spite of the fact that large sums of money were being channelled towards the management of these fires, through the procurement of fire fighting equipment, which turned out to be inappropriate and under-utilised in some DFRR district offices.

The audit was therefore, undertaken with the entire motive of examining the administrative process established to effectively manage wildland fires, as well as checking the efficiency of the operational systems used in detection, reporting, suppression and monitoring of wildland fires.

1.2 Audit Planning

1.2.1 Audit Scope and target

The audit focused on all processes, systems and procedures relevant and related to the management of wildland fires, starting from the time fires start, through the reporting stage until the time of responding to the fires. All data relevant to the subject of audit

was to be gathered, compiled and analysed for the three financial years, namely; 2004/05, 2005/06 and 2006/07. The audit was focused at Headquarters (Gaborone) and the six DFRR District Offices at Kanye, Tsabong, Maun, Kasane, Francistown and Serowe.

1.2.2 Audit Objective

The primary objective of the audit was to carry out an assessment of how wildland fires were being managed by the Department of Forestry and Range Resources. That was to take into consideration the level of adherence to procedures, standards, guidelines and policy instruments used in the management of wildland fires. Precisely, the audit was to:

- ❖ Determine the extent to which the DFRR implemented and complied with the laid down statutory instruments such as the Agricultural Resources Conservation Act and the Herbage Preservation Act, as well as any other policy instruments in place.
- ❖ Assess the efficiency of the operational systems established by the Department to detect, suppress, report and monitor wildland fires.

1.2.3 Audit Criteria

- ❖ A fire management Policy should be developed to provide guidance on the efficient management of wildland fires by the Department of Forestry and Range Resources.
- ❖ The existing policy instruments (Acts) should be reviewed to address contemporary aspects related to the management of wildland fires.
- ❖ Proper guidelines and standards should be developed and followed to address all aspects relevant and related to the management of wildland fires.

2.0 Methodology

2.1 Interviews

The management of wildland fires is a complex that calls for the application of skills, knowledge and expertise from different personnel at different levels. A total of 64 interviews were conducted at the Department of Forestry and Range Resources.

2.2 Document review

Relevant documents were reviewed so as to acquire a deeper understanding of the administrative procedures and policy guidelines that gave shape and direction to the way the DFRR was managing wildland fires.

2.3 Observation

Direct field observations were made to a total of 15 firebreaks in all the 6 districts visited. Particular emphasis was made to certain issues such as the 20 metres firebreak width, as stipulated in the Herbage Preservation Act of 1977; construction and/or alignment of the firebreaks in relation to such factors as wind direction and development projects; as well as the degree of re-growth along the firebreak.

In addition to these methods, photographic films of various sites were captured, as part of the new initiative to provide evidence based assessment of the condition of aspects and tools associated with the management of wildland fires. These were used to support the findings derived during the audit.

3.0 Findings and Recommendations

3.1 Key findings

3.1.1 Policy

The DFRR had not developed its own policy framework to manage wildland fires. The lack of a policy resulted in the lack of guidance for the efficient management of wildland fires by the DFRR since there was lack of clarity concerning the roles and responsibilities of all the stakeholders involved as well as establishing all that was required to efficiently and consistently manage wildland fires.

3.1.2 District Fire Contingency Plans

The District Fire Contingency Plans were developed very late and not submitted to Headquarters on time. There were also inconsistencies in the format and comprehensiveness of these plans because they varied from one District to another. It had been difficult to enforce the plans because of lack of a statutory instrument that could be used to compel stakeholders to honour their pledges.

3.2 Coordination

There was limited or no clear coordination between the DFRR and the different stakeholders, involved in the management of wildland fires. That resulted in the lack of clarity concerning the roles and responsibilities of each stakeholder. The ultimate lack of coordination had resulted in the DFRR failing to provide sufficient logistics, such as transport and equipment as well as the deployment and placement of fire fighting crews to areas infested with wildland fires.

3.3 Response to fires

The targeted response time of 2 hours set by Management, was found to be unrealistic and unachievable, that is, the DFRR never met the target in the sampled cases. On average, the DFRR responded to fires within 17 hours. The Department had not been able to meet the target because the mobilisation process had been very slow. The delayed response resulted in wildland fires not being easily contained, which had rendered those fires more hazardous to human life, wildlife and the environment.

3.4 Firebreaks

The construction and maintenance of firebreaks was not done with due care to economy, efficiency and effectiveness. The construction of firebreaks did not take into account such factors as the size of firebreaks, interference with planned and existing developments, and direction of wind flows. Furthermore, tenders for the maintenance of the firebreak were awarded very late to private contractors, when the fire season had already passed.

The DFRR had not set clear guidelines and standards to be followed during the inspection of firebreaks. The lack of performance standards made it difficult to measure the level of efficiency and effectiveness with which the Contractors maintained the firebreaks.

3.5 Resources

The Department of Forestry and Range Resources had inadequate staff and the significant percentage of its staff did not have the requisite skills in fire management. There was serious shortage of staff at the Districts and most of the Officers at Management level were not trained specifically for fire management. The fire fighting equipment was wrongly allocated, under-utilised and poorly serviced. The Department did not provide quick and reliable transport service during fire suppression activities.

3.6 Reporting

The level of reporting at DFRR was not satisfactory and it needed some improvement. The District Coordinators were not producing and submitting Monthly Reports for Early Warning System Meetings. None of these reports were availed on request during the time of audit. The Fire Report Sheets were not entirely completed because some crucial parts of the sheets were left blank.

4.0 Recommendations

4.1 Fire Management Policy

- ❖ The DFRR should expedite the development and implementation of a unified and cohesive departmental fire management policy, codified in agency, interagency and departmental manuals, guide books and other departments, through clear, concise and uniform language across all agencies. In developing the policy, the DFRR should take into account the crucial steps of making important organisational decisions including the identification of different alternatives such as programmes or spending priorities, and choosing among them on the basis of the impact they will have. That will call for effective policy analysis and instrumentation, proper consultation, which should permeate the entire process, enhanced coordination and excellent decision-making.

4.2 Contingency Plans

- ❖ The DFRR Management should ensure that the District Fire Contingency Plans are developed and submitted to the relevant authorities well on time.
- ❖ Management should consider developing uniform guidelines on the compilation and submission of the plans. The issuing of such guidelines will ensure that the plans are more comprehensive, capturing all the important details and that issues are submitted at the required time and venue. That would help to eliminate the confusion and uncertainty that arose during the development and submission of the plans.

4.3 Coordination

- ❖ Management should develop a comprehensive fire management policy as well as detailed contingency plans as they will help in improving the levels of coordination among the relevant agencies involved in wildland fire management.
- ❖ The DFRR Management should have an improved level of coordination that will ensure that fires are responded to well in time and that any unnecessary loss is averted.
- ❖ Management should develop a coordinated network system for pooling and deploying resources for effective initial attack while fires are still small. This can prove to be an efficient and cost saving strategy.
- ❖ Management should established Fire fighting Teams at the Districts and should ensure that such teams are on standby during the fire season to avoid delays in mobilization.
- ❖ Management should also ensure that specific roles and responsibilities of the team members and the command structure are well defined and clearly outlined, to take charge in the event of fire eruption.
- ❖ Moreover, Management should ensure that financial plans are put in place for immediate provisions during fire outbreaks so as to enhance quick response.

4.4 Response to fires

4.4.1 Response Time

- ❖ The DFRR Management should develop an effective Incident Command System for fire management at District and National Levels, that encompasses specific job positions for a variety of fire management activities.
- ❖ Management should revise the response time to a more reasonable and achievable target.

4.4.2 Personal Protective Clothing

- ❖ The DFRR should acquire and distribute suitable protective clothing to fire fighters to reduce the risk they are exposed to when suppressing fires.
- ❖ Management should ensure that better mechanisms are in place to provide protective clothing to people helping in suppressing fires.

4.5 Firebreaks

4.5.1 Construction of firebreaks

- ❖ The DFRR Management should ensure that effective mechanisms are in place to monitor and supervise performance of contractors.
- ❖ The DFRR Management should consider the policy of compensating for fields and farms that are normally found within the firebreaks.
- ❖ Management should ensure that firebreaks are gazetted to avoid the risk of encroachment of the development undertakings.
- ❖ The DFRR Management should re-consider the realignment of firebreaks across the country.
- ❖ Management should construct firebreaks in such a way that they cut across the local wind direction.
- ❖ Management should take advantage of some of the firebreaks that run parallel to the main tarred roads as a means of a cost saving measure, during maintenance of such firebreaks, thus opting them out.

4.5.2 Maintenance of firebreaks

- ❖ Management should invite and award tenders for maintenance of firebreaks before the start of the fire season so that the contractors can complete their work well before start of the season. This will ensure that the firebreaks serve their purpose of guarding against any fires.
- ❖ The Department of Forestry and Range Resources Management should enforce Section 9 (1) of the Herbage Preservation Act of 1977. There should be absolutely no justification as to why land Occupiers should not maintain boundaries around their ranches or contribute part of the cost or labour necessary to construct and maintain the boundaries.
- ❖ The DFRR should establish guidelines and standards to be followed during the inspection of firebreaks. Management should also develop an inspection criterion in the form of a performance matrix to be used at the Districts to avoid some inconsistencies in firebreak inspection.

4.6 Resources

a) Staff adequacy

- ❖ The DFRR management should ensure that all the divisions are represented at the Districts and that there is adequate skilled personnel to enhance decision-making.
- ❖ Management should ensure that the rationalization of staff, which is currently taking place is made with due regard to the available skills and expertise both at the operational and management levels.

b) Staff capacity

- ❖ The Department Management should strengthen its staff capacity to ensure quality service delivery. There is need to improve the human technical capacity and capabilities to effectively lead major elements of the fire management such as fire information, prevention and suppression.

C) Training

- ❖ The DFRR Management should develop a customized and practical training plan that is geared towards the core competencies of staff. The training structure should be effective enough to meet the emerging challenges of fire regimes.

4.7 Reporting

- ❖ Management should encourage all the District Officers to generate the different forms of reports as required from time to time. These reports should be comprehensive and contain all required information, in order to enable informed decisions, Nationally and Regionally. The reports should be submitted within a stipulated time frame and at a suitable venue.
- ❖ Management should also compile Minutes of the Herbage Preservation Committee and send them to the rightful authority on time.

5.0 Impact and Results

Generally, the DFRR Management accepted the findings of the audit, albeit indications that the Department was already in the process of implementing some of the recommendations.

6.0 Challenges and Barriers

6.1 Time and Resources constraints

Due to time and resources constraints, only 6 out of 10 District Offices were visited to gather information to substantiate the preliminary findings identified during the preliminary study phase at Headquarters

6.2 It was not possible to gather some of the needed information, more especially for the 2004/05 and 2005/06 financial years since the DFRR was still at an infant stage.

7.0 Lessons learned

- ❖ The capturing of data on photographs proved to be a valuable initiative because it provided a measure of evidence based assessment of the situations as depicted in reality.
- ❖ The Auditor's visit to selected firebreaks provided a firsthand experience of how adequate the maintenance of firebreaks was being done.