

PERSPECTIVES ON THE FUTURE OF WASTE MANAGEMENT IN SOUTH AFRICAN PROTECTED AREAS

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KEY FINDINGS

A comprehensive assessment of waste management across 20 South African national parks identified gaps between conservation goals and operational practices. The findings give rise to five key conclusions:

- There is a consistent disconnect between high-level conservation aspirations and the operational reality of waste management.
- Waste management remains marginal within strategic planning and is frequently treated as an operational "afterthought".
- Acceptable levels of cleanliness often rely on short-term staff diligence rather than resilient, integrated systems.
- Effectiveness of waste infrastructure varies widely; while animal-proofing is strong in some parks, others face containment failures.
- The future trajectory of waste management will be shaped primarily by governance decisions and leadership prioritisation undertaken in the present.

INTRODUCTION

Effective waste management is critical to the ecological integrity, operational sustainability, and public credibility of South Africa's protected areas. While these areas are vital for biodiversity, they face increasing development pressure to generate tourism revenue, which elevates the risk of pollution and human-wildlife conflict. This study, funded under the Waste RDI Roadmap, explored future perspectives to understand key challenges and identify pathways toward more responsible waste management

METHODOLOGY

The study adopted an exploratory case study design focusing on waste management in South African national parks. A qualitative research approach, underpinned by the Seven Questions Method, was used to explore alternative future trajectories for waste management in protected areas. Data were generated through a review of protected area management plans, field-based observations across a range of national parks, and semi-structured interviews with key stakeholders. A futures-thinking framework was applied to assess how current practices and institutional dynamics may influence divergent future

trajectories, including a worst-case scenario of increasing environmental risk, a most-probable middle-ground scenario, and a more optimistic "Blue Skies" scenario characterised by integration, circularity, and proactive waste management.

MAIN RESULTS

The findings reveal a consistent disconnect between high-level conservation aspirations and the operational reality of waste management. While acceptable levels of cleanliness are often maintained in national parks, waste management remains marginal within strategic planning, uneven in implementation across parks, and constrained by limited institutional capacity and leadership prioritisation. Infrastructure effectiveness varies widely, separation at source is at an early and fragmented stage, and specific weaknesses (such as poorly maintained infrastructure and public roads traversing parks) undermine waste management outcomes. At the same time, examples of good practice were observed with positive stakeholder perspectives demonstrating that a more sustainable waste management future is both plausible and achievable.

The study identifies three plausible futures for waste management by 2040:



Key Factor Comparison

Aspect	Optimistic	Realistic	Pessimistic
Funding	Adequate and sustainable	Limited but sufficient	Insufficient, unsustainable
Infrastructure	Modern, eco-friendly	Mixed condition	Poor, aging, inadequate

Figure 1. Comparative summary of three possible scenarios for waste management in South African national parks.

- Optimistic (Blue Skies):** A transformative shift where circular economy principles are embedded in operations, resulting in near-zero waste to landfill and proactive resource recovery.
 - Realistic (Glass Half):** Incremental progress where basic separation exists in flagship parks, but remote areas remain constrained by high transport costs and limited infrastructure.
 - Pessimistic (Doom and Gloom):** Systemic decline where leadership disengagement leads to uncontrolled waste accumulation, increase in littering and pollution, potential loss of biodiversity, and reputational damage.
- Adopting a coordinated, futures-oriented approach that aligns park-level actions with organisational strategy and anticipates future pressures.
 - Focusing on waste prevention and behaviour change to reduce waste generation and reliance on infrastructure.
 - Implementing separation at source pragmatically, prioritising high-volume sites with adequate supporting systems.
 - Strengthening leadership and institutional capacity to enable long-term, system-wide improvement.
 - Pursuing circular economy partnerships selectively, ensuring alignment with conservation priorities.

RECOMMENDATIONS FOR THE WAY FORWARD

The report concludes that the future of waste management in South African protected areas will be shaped primarily by governance decisions made in the present. Key recommendations to achieve the “Blue Skies” future include:

- Elevating waste management to a core conservation function, with clear objectives and accountability embedded in planning.

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