

Balancing Profit and Preservation: Sustainable Strategies for Wildlife Management in South Africa

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Abstract

This paper analyzes the ethical, economic, and strategic dilemmas faced by Kruger National Park following government funding cuts that led it to sell rhinos at auction. While this decision generated short-term revenue, it contradicted the park's conservation mission and exposed it to reputational and ecological risks. Using stakeholder mapping, materiality assessment, and risk analysis, the paper identifies key threats — including extinction, poaching, and NGO backlash — and opportunities such as international partnerships, technology adoption, and new revenue models. Recommendations focus on rebalancing the park's natural, social, human, and financial capitals through actions like monetizing conservation expertise, fostering ecotourism and film partnerships, leveraging technology for anti-poaching efforts, and increasing international entry fees. The study concludes that long-term sustainability for Kruger Park depends on aligning its financial strategies with its conservation values and meaningfully engaging local communities in protecting wildlife.

Introduction

Kruger National Park is one of the world's largest and most biodiverse conservation areas, renowned for its ecological management practices and anti-poaching operations. It attracts millions of visitors each year, contributing significantly to South Africa's tourism economy.

However, recent government funding cuts have forced the park to seek alternative revenue sources, including the controversial decision to auction rhinos for profit. This practice directly conflicts with the park's core mission of wildlife conservation and raises critical questions about how protected areas can remain financially viable without compromising their ecological and ethical responsibilities.

This paper examines how Kruger National Park can ensure enduring value creation while continuing to fulfil its conservation objectives under financial constraints. It proposes a sustainability strategy grounded in the four-capital model (natural, human, social, and financial capital) to achieve long-term balance between economic performance and ecological integrity. These capitals are interdependent: undermining one inevitably weakens the others. For instance, selling rhinos may offer short-term financial relief, but it erodes natural capital, jeopardizes biodiversity, and ultimately diminishes the park's social legitimacy and long-term revenue potential.

To operationalize this framework, the analysis proceeds through stakeholder identification and materiality assessment, followed by a structured evaluation of the park's key risks and opportunities.

Findings and Analysis

Stakeholders

Defining and prioritizing stakeholders at the outset helps inform the design and implementation of the recommendations. The following matrix displays the identified stakeholders by their level of influence (active involvement in the park and capacity to shape decisions) and impact (direct operational or financial ability to effect change). For convenience, Appendix 1 provides additional details about this classification.



Figure 1: Influence/Impact Matrix. Stakeholders with a more significant influence are in the upper quadrants, while those with a higher impact are in the right quadrants.

Materiality assessment

An effective approach to issue selection is to identify matters that both affect the organization and are material to key stakeholders, as shown in the following chart.



Figure 2: Materiality Matrix. Issues that matter most to stakeholders and have a greater influence on the organization lie in the top-right corner of the chart.

Risk assessment

Each identified threat also presents potential opportunities when addressed through appropriate risk responses. Systematic risk management reduces variability and uncertainty of outcomes, supporting the creation of enduring value. The following table summarizes the threats and opportunities associated with the material issues identified above.

| Threat | Opportunity |
|--|--|
| T1. Ceasing to receive funds from the government | O1. Ensuring economic independence without asking for contributions from South African taxpayers |
| T2. Selling rhinos to hunting businesses | O2. Relocating rhinos to other areas of the world while making profits |
| T3. Witnessing the government bailing out the hunting industry | O3. Increasing goodwill by taking a stand against trophy hunting |
| T4. Driving rhino populations toward extinction | O4. Finding new sources of income |
| T5. Killing rhinos during capture | O5. Monitoring rhino population and understanding its behaviour |
| T6. Losing employees to poachers | O6. Achieving sustained reductions in poaching |
| T7. Being undermined by NGOs and experts | O7. Leveraging the park's reputation through education and outreach |

The tables below determine the likelihood and consequences of the previously mentioned threats and opportunities, serving as a baseline to assess their priority.

| Threat | Likelihood/Consequence |
|------------------------------------|---|
| T1. Lack of funding | Highly Likely/Moderate consequence — The lack of funding is almost certain to occur. However, government funding is not the park's primary source of income; therefore, the consequence is moderate. |
| T2. Hunting businesses' monopoly | Highly Likely/High consequence — Hunting businesses drive demand to such a level that they would likely become the only actors able to purchase rhinos during open auctions. The consequence is high because it would materially increase the likelihood that purchased rhinos are killed, undermining conservation objectives and causing irreversible losses in natural capital. |
| T3. Hunting industry bailout | Probable/Low consequence — This industry represents 7% of South Africa's GDP and can be considered "too big to fail". |
| T4. Rhino extinction | Probable/High consequence — White rhinos are on the verge of being endangered, while black rhinos already are (WWF, 2019). An epidemic outbreak or a natural catastrophe could constitute a tipping point for species survival. |
| T5. Death of rhinos during capture | Very Unlikely/Low consequence — Animals infrequently die during capture. However, studies have shown that the associated stress threatens their life (Bittel, 2019). While individual fatalities are severe, isolated incidents are unlikely to produce population-level impacts under current conditions, resulting in a low overall consequence. |

| Threat | Likelihood/Consequence |
|-------------------------------------|---|
| T6. Death of employee from poachers | Probable/High consequence — In 2015, poachers killed 45 rangers worldwide (WWF, 2019), which makes this threat probable. Moreover, the death of an employee represents one of the most significant human, operational, and reputational impacts an organization can face. |
| T7. NGO and expert backlash | Probable/Moderate consequence — NGOs and wildlife experts already raised concerns against Kruger Park selling rhinos to the highest bidder (Strickland, 2019). If this practice continues, sustained public criticism could erode reputational capital and reduce demand among ethically sensitive visitor segments, resulting in a moderate decline in revenue. |

| Opportunity | Likelihood/Consequence |
|---------------------------|---|
| O1. Economic independence | Unlikely/High consequence — Most of the national parks worldwide are funded by governments and are rarely for profit. When they are, they derive income from mining activities and brand partnerships (e.g., Coca-Cola) (Dolack, 2015). Kruger Park could be a trailblazer if it managed to ensure economic independence while maintaining focus on its core missions. |
| O2. Rhino relocation | Highly Likely/High consequence — Prior to profit-oriented sales, Kruger Park transferred rhinos to other protected areas for conservation purposes, coinciding with population growth across Africa (WWF, 2019). A return to this approach would likely sustain this outcome. The consequence is high, as conservation is fundamental to the park's mandate. |

| Opportunity | Likelihood/Consequence |
|--------------------------------------|---|
| O3. Goodwill increase | Probable/Low consequence — Big-game trophy hunting has faced negative public attention in the last decade. For instance, the death of Cecil the lion generated widespread condemnation and led Emirates Airlines to ban the transport of hunting trophies on its flights (Howard, 2015). Taking a stand against this practice would probably increase the park's goodwill, but this alone is unlikely to translate into material revenue effects in the absence of complementary strategies. |
| O4. New sources of income | Probable/Moderate consequence — If needed, the park would likely identify new sources of income, with substantial implications for its ability to achieve financial independence. |
| O5. Rhinos monitoring | Highly Likely/Moderate consequence — The park's services already monitor rhinos using RFID chips implanted during capture (Strickland, 2019), thereby improving understanding of rhino behaviour and the effectiveness of anti-poaching operations. |
| O6. Sustained reductions in poaching | Very Unlikely/High consequence — Poachers and rangers are engaged in an ongoing arms race in which poachers, supported by substantial financial resources, currently hold a structural advantage. Although success is unlikely, any significant reduction in poaching would yield disproportionately high ecological, financial, and social benefits for the park. |

O7. Good image utilization

Probable/Moderate consequence

— As stated above, goodwill alone is unlikely to produce material revenue for the park, but strategically utilizing this positive image could significantly increase these revenues.

The following matrix shows the relative priority of the identified risks and opportunities, with priority increasing toward the top-right quadrant.

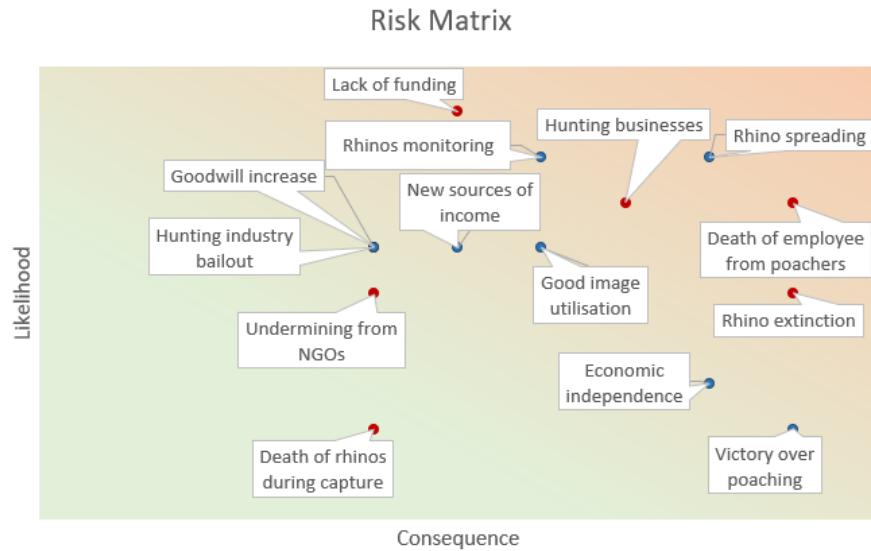


Figure 3: Risk Matrix. Red dots indicate threats, while blue ones indicate opportunities. The gradient serves as a marker to represent the priority of the item.

Discussion

The case of Kruger National Park highlights the inherent tension between economic survival and ecological preservation faced by many conservation institutions. The park's decision to sell rhinos for profit exposes the fragility of relying primarily on financial capital to sustain operations. While such measures may offer temporary relief, they risk undermining the park's long-term capacity to deliver on its conservation mandate by eroding natural and social capital.

The four-capital framework, encompassing natural, human, social, and financial resources, illustrates how sustainability depends on balance rather than substitution. When one form of capital is prioritized disproportionately, the others inevitably weaken. In Kruger's case, converting wildlife into financial assets jeopardizes biodiversity, diminishes public trust, and threatens future income from tourism and research partnerships. Likewise, the human and social dimensions of sustainability are strained by ranger fatalities, limited community engagement, and increasing scrutiny from international NGOs.

This imbalance also reflects a deeper structural issue within conservation governance. As public funding declines globally, protected areas face mounting pressure to behave like commercial enterprises, blurring the boundary between ecological stewardship and market logic. Kruger Park's experience demonstrates that financial independence achieved at the cost of moral legitimacy or environmental degradation cannot constitute true sustainability. Instead, long-term resilience depends on maintaining coherence between purpose and practice, aligning institutional identity, stakeholder expectations, and environmental responsibility.

Recommendations

An organization can only achieve long-term stakeholder engagement by addressing their intrinsic motivations, which implies coherence between its mission and its operational behaviour. This alignment is currently insufficient at Kruger Park, and the situation must change to reduce the risk of staff losses and partner disengagement.

Consequently, the park should implement a rigorous vetting process for potential buyers to ensure that all transactions align with its conservation mission and ethical standards. However, this may prove challenging in practice. Given the financial strength of hunting businesses compared to more conservation-oriented buyers such as other national parks, Kruger officials may be tempted to prioritize short-term revenue over sustainability objectives. This tendency reflects the *endowment effect*, where decision-makers overvalue existing income streams and resist changes that could yield greater future benefits.

The following plan is designed to support innovation and deliver sustained outcomes, while requiring ongoing adaptation based on feedback and performance signals.

Monetizing competencies

Since its creation, the park has developed world-class competencies in the fields of capture, translocation, anti-poaching, and disease prevention and control. Under the supervision of its services, the wildlife populations have remained stable or exhibited positive growth trends, rhino numbers continue to rise, and poaching rates are declining (WWF, 2019).

The park could export these skills to generate revenues through consultancy and intervention services, as well as training programs targeting local and global wildlife practitioners.

Showcasing the park

Another potential revenue stream could come from the entertainment industry. Kruger Park could follow New Zealand's lead and showcase its distinctive landscapes in cinemas. Since the filming of *The Lord of the Rings*, the number of tourists in New Zealand has increased by approximately 50%. At the same time, the expansion of the film industry boosted the country's wider economy by supporting the creation of related businesses (e.g. production studios) that continue to thrive today (Pinchefskey, 2012).

Entrepreneurship and local economic activity underpin livelihoods and long-term resilience. Creating a new cinema-related ecosystem near the park could generate substantial revenues while delivering enduring socioeconomic impacts. Any filming activity would need to preserve natural capital and comply with the park's strict environmental standards as set out in its permitting conditions.

Leveraging technology

The analysis highlights poaching as a critical challenge that must be mitigated without compromising ranger safety. Technological innovation could help achieve both objectives simultaneously. For instance, infrared sensors could detect unauthorized entry and facilitate interdiction. However, the social and environmental effects of such technologies should be explicitly factored into the decision to deploy them.

To engage local communities and generate enduring benefits, the park could organize a hackathon-style problem-solving initiative to identify context-appropriate anti-poaching solutions. A committee composed of wildlife experts, Kruger rangers, South African technology experts, and socially responsible investors could assess shortlisted projects and provide investment support for the selected proposal.

Raising awareness

Effective anti-poaching efforts require broader public support beyond ranger enforcement alone. Accordingly, the park should implement a national awareness program targeting younger populations, given their higher receptivity to environmental issues and their capacity to influence household attitudes.

Moreover, the park could create shared value by expanding employment opportunities in surrounding communities, thereby reducing economic dependence on poaching networks. In contexts of limited labour-market access, poaching is viewed as a primary source of income (Burleigh, 2017).

Increasing international entry fees

The international entry fee for adults is currently about 25 USD (SANParks, 2019), a negligible amount for visitors who have already spent several hundred dollars on airfare and accommodation. While tourists cannot be expected to self-impose higher payments, it is reasonable for them to contribute more directly to wildlife protection and anti-poaching initiatives. A modest fee increase would therefore align visitor contributions with the park's conservation goals while preserving demand.

For instance, a 20% increase in the international entry fee (to 30 USD) would be unlikely to materially reduce visitor volumes, particularly if the park clearly communicates the conservation rationale for this measure. At the same time, it could raise the park's income by approximately 2 million USD (Strickland, 2019).

Summary

The table below summarizes the key recommendations, along with the corresponding threats, opportunities, and capital dimensions they address.

| Recommendation | Threats & Opportunities Addressed | Capital Flows |
|-------------------------------------|-----------------------------------|---------------------------|
| Vetting potential buyers | T2, T4, T7, O2, O3 | From Financial to Natural |
| Monetizing competencies | T1, O1, O4 | From Human to Financial |
| Showcasing the park | T1, O1, O4, O7 | From Natural to Financial |
| Leveraging technology | T4, T6, O5, O6 | To Social and Natural |
| Raising awareness | T4, O2, O6 | To Social and Human |
| Increasing international entry fees | T1, O7 | From Social to Financial |

The following chart illustrates the expected residual risk profile after implementing these recommendations, with the highest-rated threats substantially reduced.

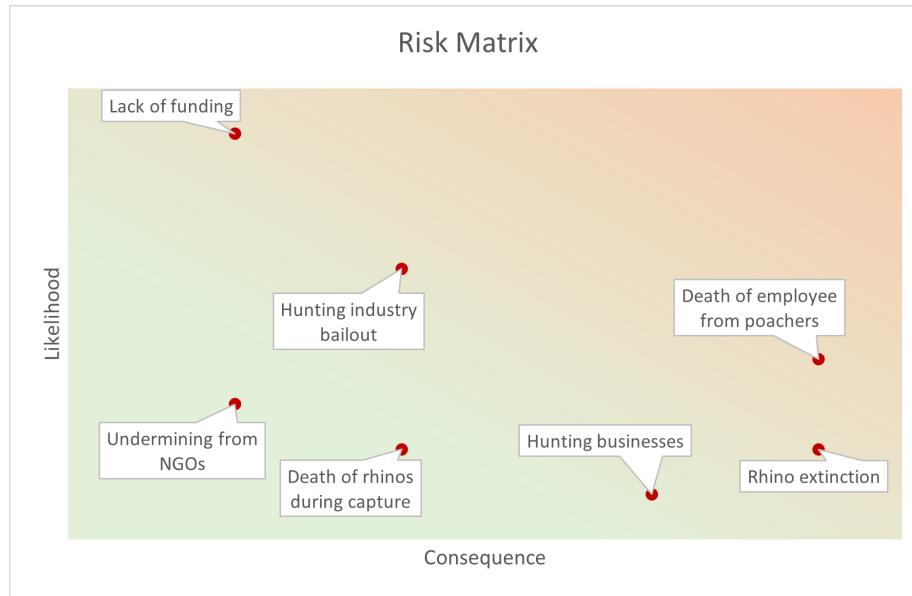


Figure 4: Residual Risk Matrix. Illustrative post-mitigation risk profile following implementation of the recommended measures.

Conclusion

Kruger National Park has responded to funding cuts by prioritizing short-term financial survival, often at the expense of its broader mission. To ensure long-term sustainability, the park must rebalance its focus across the four forms of capital: natural, human, social, and financial. Beyond securing revenue, its priorities should include strengthening anti-poaching efforts, improving ranger safety, and delivering tangible benefits to surrounding communities.

The proposed strategy addresses these dimensions by diversifying income sources while reinforcing conservation values. By monetizing expertise, leveraging technology, and engaging local stakeholders, Kruger Park can generate new streams of revenue that align with its environmental priorities. This integrated approach promotes both ecological resilience and social well-being, ensuring that financial independence reinforces, rather than undermines, the park's role as a global model for sustainable wildlife management.

Appendices

Appendix 1. Stakeholders of Kruger Park

| Type | Stakeholder | Influence | Impact | Notes |
|-----------------------|------------------------------|-----------|--------|---|
| Internal stakeholders | Kruger officials | High | High | - |
| Internal stakeholders | Veterinary Wildlife Services | High | High | They influence decisions on resource optimization and revenue generation for SANParks through sales |
| Internal stakeholders | Game Capture Unit | High | Low | - |
| Internal stakeholders | Environmental Crimes Unit | High | Medium | They determine how operational resources are allocated to anti-poaching efforts |
| Authorities | Government | Low | Medium | They have limited operational involvement; while their funding is important, it is not the park's sole source of income |
| Authorities | South African province | Medium | Low | They are responsible for enforcing hunting regulations but are understaffed |

| Type | Stakeholder | Influence | Impact | Notes |
|---|-------------------------------------|-----------|--------|--|
| Authorities | Local communities | High | Low | - |
| External concerned parties | NGO, activists and wildlife experts | High | Low | - |
| External concerned parties | South African people | High | Low | - |
| Commercial partners, consumers and buyers | Private parks | Low | Low | - |
| Commercial partners, consumers and buyers | Other national parks | Medium | Low | - |
| Commercial partners, consumers and buyers | Ranchers/Breeders | Low | Low | - |
| Commercial partners, consumers and buyers | Hunting businesses & Foreign buyers | Low | Medium | Their financial leverage can materially influence park decision-making |
| Commercial partners, consumers and buyers | Private tourism partners | High | Medium | They rent available parcels of land in the park |
| Commercial partners, consumers and buyers | Tourists | Medium | High | They are still the primary source of income for the park |

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