Challenges and best practices to assist in addressing rhinoceros poaching and horn trafficking: How these could be reflected upon in the report on rhinoceroses prepared in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17) for the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Prepared under contract from the CITES Secretariat by the IUCN Species Survival Commission (IUCN SSC) African and Asian Rhino Specialist Groups.

The Challenges and best practices to assist in addressing rhinoceros poaching and horn trafficking: How these could be reflected upon in the report on rhinoceroses prepared in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17) for the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is freely available at www.cites.org. Users may download, reuse, reprint, distribute, copy text and data and translate the content, provided that the original source is credited and that the logo of CITES is not used.

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¹ IUCN SSC African Rhino Specialist Group (AfRSG), ² IUCN SSC Asian Rhino Specialist Group (AsRSG)
Executive Summary

1. At its 18th meeting the Conference of the Parties to CITES adopted Decision 18.115 on Rhinoceroses (Rhinocerotidae spp.) as follows: “The Secretariat shall, in consultation with interested Parties and the African and Asian Rhino Specialist Groups of the Species Survival Commission of the International Union for Conservation of Nature (IUCN/SSC) and TRAFFIC, explore options to reflect on challenges and best practices to assist in addressing rhinoceros poaching and rhinoceros horn trafficking in the report prepared for the Conference of the Parties in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17) and prepare recommendations for consideration by the Standing Committee, at SC74”.

2. The Secretariat subsequently contracted the International Union for Conservation of Nature (IUCN) to support this work. A consultation process was initiated, and as a first step in the process, the African Rhino Specialist Group (AfRSG) and Asian Rhino Specialist Group (AsRSG) conducted a survey focusing on rhinoceros (rhino) range States and other specialists in addressing rhino poaching and trafficking within the specialist groups.

3. This initial survey has been concluded, and in consultation with the CITES Secretariat it was agreed to conduct further surveys engaging CITES Management Authorities in range and consumer States as well as other interested Parties. The results of these further surveys will be incorporated in the report to the Conference of the Parties in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17), to further reflect on challenges and best practices to assist in addressing rhino poaching and rhino horn trafficking in the report.

4. The initial survey solicited examples of key challenges and best practices associated with poaching (i.e. the killing of rhinos) and trafficking (i.e. the illegal trade in rhino products).

5. Specialist Group representatives for Asian (66.7% of three) and African (75.0% of 12) range States responded representing 99.9% of White and 99.9% of Black Rhinos in Africa, as well as 82% Greater One-horned, 100% Javan and 100% Sumatran rhinos in Asia.

6. The most commonly referenced poaching challenges \( (n = 77) \) included general law enforcement, communities and governance, as well as trade and financial sustainability. However anti-poaching initiative examples \( (n = 66) \) were, compared to poaching challenges, disproportionately focused on law enforcement. These included animal and habitat security, the use of technological tools (e.g. drones) that enhance enforcement by rangers and the investigation of small crimes. Respondents deemed that only 53.4% of anti-poaching initiatives were successful.

7. For trafficking challenges \( (n = 46) \), general law enforcement, law enforcement that targets criminal networks and syndicates, and collaborative cooperation between different law enforcement agencies within and between range States were reported at similar frequencies. Compared to trafficking challenges, there was a disproportionate lack of initiatives addressing collaborating cooperation, socio-economical, and some law enforcement challenges. Respondents deemed 45.7% of initiatives aimed at curbing trafficking as successful.

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8. The poaching and trafficking examples were consistent with previously reported and peer-reviewed published reflections that included aspects such as the need for improved integrity and reduced incentives for corruption as well as other enabling aspects including political support and financial sustainability. Some new insights, however, emerged. For instance, examples highlighted the benefits of true co-management, accountability, responsibility and participation in decision-making by local communities. Additionally, deployment of dedicated and focused task teams illustrated improved successes in apprehension, prosecution and convictions.

9. The various inputs provided by survey respondents and reflections from previous work allowed the identification of 12 key poaching and trafficking challenges and 29 key responses. These are preliminary results pending augmentation from additional survey data and consultation with CITES Parties.
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Initiative</th>
</tr>
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<tbody>
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<td>2. Effective investigations, intelligence gathering and sharing</td>
<td>Improve awareness and implementation of existing transnational forensic sampling and data sharing initiatives. Develop and/or enhance existing national and regional coordination of information associated with rhino crimes. Develop and enhance the use of technology including facilitating legislative changes.</td>
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<td>8. Adequate local community support</td>
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<tr>
<td>9. Political will and support</td>
<td>Use the existing political multi-lateral arrangements to place rhino conservation and the contribution to the wellbeing of people on the agenda. Facilitate multi-lateral engagements between Asian countries and African range States on environmental risks and opportunities.</td>
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<tr>
<td>10. Adequate communication and messaging</td>
<td>Develop guidelines for the establishment of appropriate communication strategies and implementation thereof for rhino range States and consumer countries aimed at range of stakeholders that has varied impacts on the achievement of rhino conservation initiatives.</td>
</tr>
<tr>
<td>11. Appropriate conservation capacity</td>
<td>Facilitate and encourage re-aligning and providing resources for enhancing rangers’ as well as other officials’ responsibilities towards the full spectrum of conservation activities.</td>
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<tr>
<td>12. Funding sustainability</td>
<td>Develop and implement diverse funding mechanisms that embrace the broad spectrum of threats to biodiversity values as well as benefits from biodiversity values associated with rhinos.</td>
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1. Introduction

The world’s rhinoceroses (rhinos) remain at peril. During the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) CoP18 meeting, specialists reported that African rhinos comprising two white and three black rhino subspecies declined from an estimated 26,165 individuals in 2012 to 23,562 individuals in 2017. By 2017, specialists noted a minimum of 3,693 Asian rhinos comprising the one-horned, Javan and two subspecies of Sumatran rhinos. Of concern is that rhino populations in key range States experienced further declines since CoP18. For instance, South Africa, which remains the primary contributor to African rhinos, reported 14,410 white rhinos and 1,900 black rhinos in 2020, which represents 7.7% and 7.1% declines respectively, compared to the 15,625 white and 2,046 black rhinos reported for 2017.

Although various factors such as biology, environmental conditions and global environmental change drivers like climate influence rhino population dynamics, illegal harvesting remains the key determinant of declining global rhino trends. Recognizing the challenges posed by poaching and rhino horn trafficking CITES Parties adopted Decision 18.115 at CoP18: “The Secretariat shall, in consultation with interested Parties and the African and Asian Rhino Specialist Groups of the Species Survival Commission of the International Union for Conservation of Nature (IUCN/SSC) and TRAFFIC, explore options to reflect on challenges and best practices to assist in addressing rhinoceros poaching and rhinoceros horn trafficking in the report prepared for the Conference of the Parties in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17) and prepare recommendations for consideration by the Standing Committee, at SC74”. The IUCN SSC’s African Rhino Specialist Group (AfRSG) and Asian Rhino Specialist Group (AsRSG) prepared this report with contributions from TRAFFIC and support of the CITES Secretariat.

Poaching is the unlawful taking of wild animals including the illegal acts of catching or killing a rhino without a license or permission or hunting in protected areas, which are often for obtaining valuable parts, specifically horns. Trafficking “involves the illegal trade, smuggling, poaching, capture, or collection of endangered species, protected wildlife, derivatives or products thereof.” Poaching is thus one element of wildlife trafficking, and for the purpose of this report, we focus on trafficking of rhino horns their derivatives and products.

In this report, we summarize results of survey responses, while briefly discussing comparative supporting information from other sources to highlight responses to various existing and emerging challenges. The report to CoP19 in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17), will include additional responses to the survey from CITES Management Authorities from range and consumer States and other interested CITES Parties, the latter identified with the help of the CITES Secretariat.

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Secretariat, and with results from a consultative session with range States at an upcoming meeting of the AfRSG scheduled to take place in early 2022.

2. Methods

Members of the AfRSG (12 range States of Botswana, Chad, eSwatini, Kenya, Malawi, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda and Zambia) and AsRSG (3 range States of India, Indonesia and Nepal) received a survey questionnaire on 16 October 2021 (Appendix 1). Surveys were also sent to other members of the AfRSG and AsRSG that comprised specialist scientists, policy makers, non-government supporters, and experts within TRAFFIC.

The questionnaire asked respondents to provide reflections on successes and failures relating to rhino poaching and trafficking, perspectives on the reasons for these outcomes, and insights on what kind of changes respondents would consider, if any (Appendix 1). Respondents were also asked to provide examples of five key challenges they perceive as the most threatening to achieve the objectives of rhino conservation as they relate to poaching and trafficking. Additionally, respondents were asked to list key initiatives that could address the identified challenges associated with combating poaching and trafficking and what the likely success or failure would be.

Examples of initiatives as well as challenges provided by respondents can contain many different tactics, activities and interventions \( n = 46 \); Appendix 2). The input provided by respondents was used to identify which of the 46 tactics, activities and interventions a specific example corresponded to (Appendices 3-6 for detailed assignment to each survey response), and are presented for the four thematic questions \( i.e. \) poaching challenges, anti-poaching initiatives, trafficking challenges, and initiatives to curb trafficking). Frequencies are differentiated between responses from range State representatives and other respondents \( i.e., \) experts who are members of the specialist groups or from TRAFFIC).

3. Results

Nine African \( (75.0\% ; \) Botswana, Chad, eSwatini, Mozambique, Namibia, Rwanda, South Africa, Tanzania and Zambia) rhino range States responded and provided extensive information within examples on various aspects associated with poaching and trafficking challenges and initiatives. For the AfRSG, eight additional responses were received from the members who are experts that do not serve as range State representatives. We also conducted in-person and email discussions with two additional members of the AfRSG. In total, input was received from 29.4\% of the 34 members of the AfRSG excluding those acting as range State representatives.

For the AsRSG, no input was received from the range State representatives. Two members that do not represent range States, however, provided insights for two of the three Asian range States (India and Indonesia). We received three responses from members of TRAFFIC. We also received input from three experts that were not members of the AfRSG or AsRSG, nor were they associated with TRAFFIC.
This report is therefore focused on rhino range States that are members of the AfRSG and the AsRSG, and the report to CoP19 in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17) will include additional information derived from consultation with range and consumer countries and other interested Parties as stated above.

3.1 Anti-poaching

Range State representatives listed 48 examples of challenges associated with curbing rhino poaching, while other representatives listed an additional 29 challenges (Fig. 2, Appendix 3). Generally law enforcement across the entire supply chain (an element within 12 examples), perspectives on conducting a legal trade \((n=12)\), community participation \((n=12)\), improving socio-economic opportunities for people \((n=11)\), enabling governance oversight \((n=12)\) and financial sustainability of initiatives \((n=14)\) were most frequently associated with anti-poaching challenges. Collaborative cooperation \((n=9)\) and appropriate staffing \((n=9)\), particularly at localities where rhinos live also emerged as notable challenges.

Respondents listed examples of challenges associated with enabling requirements such as dealing with corruption at various scales \((n=1)\), political will and support \((n=5)\). Seven examples flagged legislative support as a challenge, and one linked to inappropriate policies. These, together with the enabling governance oversight already highlighted, present an important reflection of requirements for improved political, legislative and policy support.

A second broad aspect of enabling challenges was working together through collaborative cooperation, communication and consultation including across States. For instance, some range States provided examples of challenges associated with specialized forensic capabilities that limits investigations, while others flagged challenges associated with transporting rhino samples collected from crime scenes across international borders because of international (CITES) regulations as key obstacles that impose on efficient investigations despite guiding processes initiated by CITES\(^6\).

The third broad aspect of enabling challenges associated with capacity in terms of establishing appropriate staffing at various levels across the supply chain. Four examples linked with staff integrity challenges, while five examples flagged inadequate equipment to achieve anti-poaching objectives as key challenges.

While there was a range of anti-poaching challenges relating to support across different scales (e.g. cooperation, capacity and sustainable financing), examples of key initiatives listed by respondents focused on protection and enforcement aspects, with few initiatives focusing on addressing the important enabling challenges (Fig. 2; Appendix 4). Respondents provided 66 examples (48 provided by range States, 18 by other respondents) of which 39 linked to a law enforcement element, mostly associated with tactics, activities and interventions at the places where rhinos live.

Figure 2. Frequencies of survey responses categorized into key elements contributing to and challenges and best practices (initiatives) in addressing rhino poaching. Frequencies represent examples provided by range State representatives (solid bars) and by other respondents (open bars).
Strengthening intelligence \((n = 21\) examples) was commonly cited followed by pursuing investigations \((n = 15)\), community participation \((n = 13)\) and the intensive monitoring and hence guarding of rhinos \((n = 11)\). Some examples included pro-active measures, such as intelligence-based investigations; and reactive measures and the transformation of the regular ranger corps into tactical anti-poaching forces.

Respondents provided 28 examples of partial success and 33 of complete success. Success factors tend to associate with enabling elements (such as political support, whole government involvement) inclusive of support at various scales, cooperation, adequate capacity and financial sustainability. Some law enforcement initiatives such as canine deployment, air surveillance and use of alternative technologies, including drones, continue even though respondents deemed success as partial, primarily because of inappropriate staffing and challenging financial sustainability. Initiatives that were more successful included an approach that integrated various government departments in proactive arrests of potential poachers as well as the arrests of kingpins in one example. Other examples highlighted the role of meaningful community participation in the co-development of tactics, activities and interventions resulting in substantial reduction in poaching incidences and the growth of rhino numbers. These highlight the importance of cooperative approaches at various scales of government and local people.

Of the total 63 examples (45 range State examples, 18 other examples) where respondents reflected on achievement of objectives, two failed. Poachers continued to kill rhinos despite the dehorning of nearly all of them in one example. Respondents, however, did not provide a reflection on why this failure took place. A second example highlighted that efficient guarding of rhinos could benefit from robust tracking devices.

The majority of respondents to the questionnaire provided recommendations for improvements. The proposed improvements, however, were informally adaptive\(^7\). Learning, however, could benefit from having a theory of change\(^8\) or mechanisms framework\(^9\) informing what the outcome or impact of an intervention could be. Few of the reflections indicated some formal theory of change, although initiatives often carry implicit assumptions. Even so, learning and reflections could benefit from informal and formal evaluations, reflected by some of the improvements suggested by respondents.

### 3.2 Trafficking

Range State representatives listed 25 challenges related to curbing trafficking, with 21 additional examples provide by other respondents (Fig. 3, Appendix 5). Respondents provided 12 examples that linked to collaborative cooperation including between agencies and States. This reflected on various aspects of exchanging information as well as conducting joint operations. The second group of challenges focussed on disrupting criminal networks \((n = 10\) examples), while nine examples included challenges associated with law enforcement. Challenges associated with international cooperation included unclear diplomatic channels, extradition processes,

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the processing of samples to extract DNA following seizures, and the sharing of information.

Issues around the legal trade of rhino horn emerged as challenges in nine examples. These included the status of rhino horn stockpiles within range States, and in particular, different perspectives on what effective policies for stockpile management could be. In addition, it was noted that stockpile reporting to CITES is not consistent.

Similar to poaching, most examples of initiatives to curb trafficking (n = 38; 25 range State examples, 13 other examples) related to law enforcement including gathering and sharing of intelligence (n = 10 examples), or trying to dismantle local and transnational trafficking networks (n = 12). Some examples focused on the assets itself through devaluing the benefit a poacher may receive by dehorning rhinos (n = 2), management of rhino stockpiles (n = 7), and several aspects associated with direct law enforcement activities (n = 2).

Apart from dismantling criminal networks through robust shared intelligence, examples of initiatives also included detection (n = 3), surveillance (n = 2) and investigation (n = 5) actions. Six examples had legislative initiatives to help address the threats posed to rhinos by criminal syndicates. For instance, one range State implemented legislation to regulate national legal rhino horn trade that also provide legal disincentives for illegal trade, while also publishing norms and standards for the marking of rhinos and rhino horn and for the hunting of rhinoceros for trophy purposes.

For those 35 examples where participants in the survey provided reflections on achieving objectives, two were unsuccessful, 17 had partial success, and 16 complete successes. Often, critical success factors would associate with appropriate cooperation. Another initiative that was given as an example was the unintended consequences of regulations; for example, the restrictions on exporting and importing of biological material under CITES and Convention on Biological Diversity regulations that imposed limits on submitting DNA samples for inclusion in the RhoDIS systems of DNA profiling from one country to another where the specialist DNA laboratory was located. CITES provided scientific exchange exemption and simplified procedures that could address this example.

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Figure 3. Frequencies of survey responses categorized into key elements contributing to and challenges and best practices (initiatives) in addressing rhino horn trafficking. Frequencies represent examples provided by range State representatives (solid bars) and by other respondents (open bars).
4. Synthesis of key challenges and initiatives

Many of the challenges and initiatives identified in this survey, were noted in previous work (e.g., reports, tool kits, published literature and specialist expertise). These included several workshops since 2000 – for example Giant’s Castle in South Africa, Nairobi in Kenya, and Dinokeng in South Africa – as well as specialist group meetings of the AFRSG as well as the AsRSG; challenges previously identified in the report to CoP18 in accordance with paragraph 7 of Resolution Conf. 9.14 (Rev. CoP17), and peer-reviewed literature.

Similar to this survey’s results, previous results focused mostly on challenges associated with inadequate law enforcement. The latter is a key element in several guidelines and best practice tools available to help address poaching and trafficking challenges. Other challenges that were consistent included ensuring financial sustainability to implement initiatives; difficulties in ensuring political will; a need for effective communication; ineffective regulatory and enforcement bodies; and corruption and non-supportive government policies. Addressing these challenges can improve anti-poaching responses as well as initiatives aimed at curbing trafficking.

Using the challenges and initiatives reported on in this survey as well as supportive information from previous works, a set of 12 challenges and 29 associated responses was identified. It is noted that some initiatives may address more than one challenge and in these cases the categorisation focused on the most prominent challenges that an initiative would address.

Challenge 1: Efficient provision of security to rhinos through anti-poaching responses

A key element is the integrity of rangers within sites where rhinos live. Ranger well-being challenges, such as adequate housing and relaxation, contributes to vulnerability to social pressures and exposure to exploitation by criminal syndicates. Adequate and appropriate equipment and resources are key elements, associated with training requirements that require improvements. In addition, access control, situational awareness and knowledge of rhinos are key success elements. A key element is an assumption that intensifying focus on poachers and perpetrators increase perceived risks for poachers. Insights highlight the additional need for capable guardians focusing on the rhino asset itself. An additional element is the unintended consequences of anti-poaching such as continued poaching threats fuelling a growth in the security industry. Five initiatives can address this challenge (Table 1).

16 Most recent
17 Most recent
Challenge 2: Effective investigations, intelligence gathering and sharing

Intelligence is at the heart of disrupting illegal supply chains, both at a local and transnational scale. Forensic information associated with crime scenes is not easily and timeously available partly because of only a few specialist facilities, and partly because of inadvertent consequences of CITES despite simplified procedures for exemption of scientific exchange\(^\text{19}\), as well as other international and veterinary regulations that restrict submission of samples to analytical facilities. In addition, within and between countries, inadequate cooperation in sharing information and forensic evidence hinders investigations and subsequent legal procedures. In some range States, the use of some technologies such as cell-phone tracking is limited. Often technology associated with detecting contraband at ports are lacking. Three initiatives can address this (Table 1).

Challenge 3: Adequate deterrence effect of prosecutions

Generally, the perception is that convictions and sentencing are too slow or inadequate to act as deterrents. This then translates to ineffectiveness of arrests, especially with lenient bail conditions. These perceptions embed in assumptions that arrests and legal sanctions through sentencing act as appropriate deterrents to participate in crime. This perception contrasts the insights from law enforcement extracted from other fields, which indicate that decentralizing law enforcement is a key element of effective crime prevention. Four initiatives can address this challenge (Table 1).

Challenge 4: Integrity at various levels across the illegal supply chain

Corruption plays out when individuals with compromised integrity use their positions or access to certain information or tools to achieve illegal gain for themselves or friends. Illegal supply chains typically have corruption playing out at various levels. Key challenges arise when corruption is systemic within government structures, as well as at local scales within sites where rhinos live in range States. A key element is the ability of criminal syndicates to adapt innovatively to new rules and regulations. Insights suggest that addressing systemic corruption requires providing amnesty and processes for corrupt officials to come clean without consequences, while also proactively building and enhancing the integrity of officials with swift consequences for compromised or corrupt officials. One initiative can address this challenge (Table 1).

Challenge 5: Understanding and responding to the dynamics of the consumer market

The purposes of use of rhino horn in consumer countries may change over time, along with key consumer States taking part in the illegal trade. Understanding market dynamics is a key aspect, and additional research is needed to better understand context-specific consumer motivations, in order to better target behaviour change interventions. Parts of the challenge might stem from the fact that relying on consumer surveys may provide biased data compared to actual behaviour, particularly when

\(^\text{19}\) https://cites.org/sites/default/files/eng/com/sc/73/E-SC73-20.pdf
associated with illegal commodities. Four initiatives can address this challenge (Table 1).

**Challenge 6: Contrasting conservation ideological expectations associated with trade in rhino horn**

Contrasting conservation ideologies dichotomize between animal welfare philosophies and owner rights on best approaches as it relates to legalizing trade. An ongoing debate involves the opening of international trade in the high value commodity of rhino horn to fund conservation and maintenance of population. Pro-traders argue further that legal trade will undercut the illegal supply chain, but those favouring trade bans argue that legal trade will sustain and not satisfy demand, and will thus stimulate continued poaching. Often these varying responses require strong governance ensuring safe and secure environments irrespective of initiative. A key unintended consequence is that these at times contentious discussions may distract focus from addressing other pressing challenges. One initiative can address this challenge (Table 1).

**Challenge 7: Appropriate influence on policies**

International agreements place great value on evidence-based decisions. Often, in the face of incomplete information, opinions held by influencers that have limited mandates or responsibility for the rhino assets dictate lobbied decisions. In addition, stakeholders that live with the costs of rhino conservation have little if any influence on decision-making. Similarly, within some range States, consultation in the development of policies at times, marginalize principally interested and affected stakeholders. This can result in policies and decisions that do not have the approval or support of the principally affected stakeholders, particularly when decisions did not go through a rigorous evaluation of the potential consequences. An additional element is the lack of meaningful oversight in holding countries accountable. Two initiatives can address this challenge (Table 1).

**Challenge 8: Adequate local community support**

In many range States people living next to protected areas often carry the biggest costs of past and present conservation actions. These range from displacement from land used historically to ongoing conflict with wildlife. Ownership rights are key elements that result in local communities often feeling alienated from neighbouring protected areas. Engagements with local communities using a conservation lens typically are focusing on the desires of the conservation agencies, rather than a focus on a collective desired outcome. In addition, in some range States, areas where people live next to protected areas have major infrastructure and service delivery challenges, often a consequence of past and present social injustices. These conditions together with an absence of a diversity of economic opportunities, place local people at risk of exploitation by criminal syndicates for various purposes. Three initiatives can address this challenge (Table 1).
Challenge 9: Political will and support

In some range States and consumer countries, non-supportive policies, often the absence of policies, pose some limits on addressing a broad spectrum of challenges. One aspect is changing societal conditions that could lead to political conflict. This realized in some range States. In addition, unclear risks and opportunities associated with the increasing influence of Asian countries in African range States beyond the conservation realm. Two initiatives can address this challenge (Table 1).

Challenge 10: Adequate communication and messaging

Communication spans all areas of responses to poaching and trafficking challenges. Particularly challenging is media framing dynamics that play out with messages that stakeholders, whether in range States or consuming countries, finally hear and understand contrasting the intention of messaging. Such unintended media processes impact on cooperation between various entities and levels of governments. One initiative can address this challenge (Table 1).

Challenge 11: Appropriate conservation capacity

The impact of poaching on rhino populations resulted in many protected areas over-investing in anti-poaching initiatives. This often comes from redirecting existing conservation resources away from fire control, water management and species monitoring. In addition, increasingly governments decrease conservation funding while focusing on other societal priorities. One initiative can address this challenge (Table 1).

Challenge 12: Funding sustainability

Financial sustainability was a key element that range State representatives and other respondents re-iterated through the responses to the questionnaire. This aligns with concerns flagged in previous workshops associated with political conflict and civil war that could reduce revenue currently generated through tourism and directed to rhino conservation. The global government responses to the COVID-19 pandemic illustrated vulnerability of tourism-dependent conservation models. Most activities addressing challenges across the poaching and trafficking supply chain of rhino horn and other illegal products depends a great deal on donor funding models. In some range States funding also have a state tax basis, while many rely on income generated through the tourism industry. One initiative can address this challenge (Table 1).

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Table 1. A set of preliminary challenges and initiatives identified from survey responses and previous work (e.g., reports, tool kits, published literature and specialist expertise).

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| 3. Adequate deterrence effect of prosecution                              | - Develop and implement community policing strategies.  
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| 6. Contrasting conservation ideological expectations associated with trade in rhino horn | - Facilitate processes of discussions between rhino range States, consumer countries and global influential countries inclusive of non-government organizations and across stakeholders by using combinations of scenario setting techniques and expert methods such as Delphi techniques. |
| 7. Appropriate influence on policies                                      | - Develop and implement scenario planning including consequences of expected and unexpected outcomes on the wellbeing of people and species alike.  
- Facilitate and advocate for the development and implementation of meaningful participation by principally affected stakeholders as part of an inclusive approach to develop policies. |
| 8. Adequate local community support                                       | - Develop and implement meaningful consultation processes using adaptive planning techniques to achieve common socio-economic-ecological objectives for regions where people live next to protected areas.  
- Develop and implement co-ownership and responsibility with local people including decision-making and implementation of anti-poaching and curbing trafficking strategies.  
- Facilitate and advocate the development of local economies that includes enhanced infrastructure and services improving establishing many small businesses connected to each other and adding value to locally produced products. |
| 9. Political will and support                                            | - Use the existing political multi-lateral arrangements to place rhino conservation and the contribution to the well-being of people on the agenda.  
- Facilitate multi-lateral engagements between Asian countries and African range States on environmental risks and opportunities. |
| 10. Adequate communication and messaging                                  | - Develop guidelines for the establishment of appropriate communication strategies and implementation thereof for rhino range States and consumer countries aimed at range of stakeholders that has varied impacts on the achievement of rhino conservation initiatives. |
| 11. Appropriate conservation capacity                                     | - Facilitate and encourage re-aligning and providing resources for enhancing rangers’ as well as other officials’ responsibilities towards the full spectrum of conservation activities. |
| 12. Funding sustainability                                                | - Develop and implement diverse funding mechanisms that embrace the broad spectrum of threats to biodiversity values as well as benefits from biodiversity values associated with rhinos. |
Acknowledgements

We are grateful for contributions by AfRSG members Mike ‘tSas-Rolfe, Markus Hofmeyr, Friederike van Houwald, Jamie Gaymer, Tony Conway, Mick Reily (eSwatini Country Representative), Mmadi Reuben (Botswana Country Representative), Lucy Vigne, Raoul du Toit, Diana Marewangepo (Zimbabwe Country Representative), Tom Milliken, Piet Beytell (Namibia Representative), Carlos Pereira (Mozambique Representative), Richard Muvunyi (Rwanda Representative), Mpho Tjiane (South Africa Representative) and Philbert Ngoti (Tanzania Representative). Naftali Honig provided input for Chad. Naomi Doak (AfRSG) provided valuable insights associated with challenges in consumer states and responses to these. The report benefited from discussions with Jo Shaw (AfRSG). We are also grateful for contributions by AsRSG members Agus Priambudi and Amit Sharma.

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Appendix 1. The questionnaire provided to range State representatives and various specialists.

1. **Initiatives aimed at combatting rhino poaching**

<table>
<thead>
<tr>
<th>What was the initiative?</th>
<th>What was the objective?</th>
<th>Was the objective achieved?</th>
<th>If not, why not?</th>
<th>Key elements of success or failure.</th>
<th>What worked and what did not work?</th>
<th>If needed, what could be done differently?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on key ones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. **Initiatives aimed at combatting horn trafficking**

<table>
<thead>
<tr>
<th>What was the initiative?</th>
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<th>Was the objective achieved?</th>
<th>If not, why not?</th>
<th>Key elements of success or failure.</th>
<th>What worked and what did not work?</th>
<th>If needed, what could be done differently?</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. **Identification of key challenges affecting rhino poaching and ways to address those**

<table>
<thead>
<tr>
<th>What are up to five key challenges to address in terms of addressing poaching?</th>
<th>What are the best ways to address those challenges?</th>
<th>What is the chance that authorities can address those challenges in the short term i.e. the next three years?</th>
<th>What are the reasons that enhance or constrain the ability of rhino managers to address those challenges?</th>
<th>If successful, what would the impact be on rhino conservation outcomes?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Experience</td>
<td>Management data</td>
<td>Project Reports</td>
<td>Consultant or NGO Reports</td>
<td>Scientific Publications</td>
</tr>
</tbody>
</table>

4. **Identification of key challenges affecting rhino horn trafficking and ways to address those**

<table>
<thead>
<tr>
<th>What are up to five key challenges to address in terms of addressing horn trafficking?</th>
<th>What are the best ways to address those challenges?</th>
<th>What is the chance that authorities can address those challenges in the short term i.e. the next three years?</th>
<th>What are the reasons that enhance or constrain the ability of rhino managers to address those challenges?</th>
<th>If successful, what would the impact be on rhino conservation outcomes?</th>
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<tr>
<td>Personal Experience</td>
<td>Management data</td>
<td>Project Reports</td>
<td>Consultant or NGO Reports</td>
<td>Scientific Publications</td>
</tr>
</tbody>
</table>

5. **Optional information**

| Name: | |
| Focal area of involvement in rhinos: | |
| Additional notes and comments: | |
Appendix 2. Definition and interpretation of elements of tactics, activities and interventions used to categorize initiatives and challenges provided by range State representatives and other respondents.

<table>
<thead>
<tr>
<th>Element</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrest</td>
<td>The action of seizing someone by legal authority and taking him or her into custody.</td>
</tr>
<tr>
<td>Awareness</td>
<td>The action of raising knowledge or perception of a situation or fact.</td>
</tr>
<tr>
<td>Behaviour</td>
<td>The action seeking to changing people’s attitudes, beliefs and perceptions of social norms.</td>
</tr>
<tr>
<td>Collaborative Cooperation</td>
<td>The action of involving two or more parties working together towards the same end.</td>
</tr>
<tr>
<td>Communication</td>
<td>The action of imparting or exchanging of information by speaking, writing, or using some other medium.</td>
</tr>
<tr>
<td>Community</td>
<td>Reference to actions that influence or include a group of people living in the same place or have an aspect in common.</td>
</tr>
<tr>
<td>Consultation</td>
<td>The action or process of formally consulting or discussing a matter with interested and affected stakeholders.</td>
</tr>
<tr>
<td>Conviction</td>
<td>A formal declaration by a jury verdict or the decision of a judge in a court of law that someone is guilty of a criminal offence.</td>
</tr>
<tr>
<td>Corruption</td>
<td>The action of dishonest or fraudulent conduct by those in power, typically involving bribery.</td>
</tr>
<tr>
<td>Crime Scene</td>
<td>Activities at a location that associated with a committed crime holding physical evidence related to an investigation.</td>
</tr>
<tr>
<td>Dehorning</td>
<td>The action or process of removal of horns or the process of preventing their growth.</td>
</tr>
<tr>
<td>Demand</td>
<td>Activities that influence the total quantity needed across all consumers in a market for a given good.</td>
</tr>
<tr>
<td>Detection</td>
<td>The action or process of identifying the presence of something concealed.</td>
</tr>
<tr>
<td>Dog</td>
<td>Using a dog suitable by size, breeding, or training for useful work such as tracking and detection.</td>
</tr>
<tr>
<td>Equipment</td>
<td>Providing the necessary items for a particular purpose as well as the process of supplying someone or something with these.</td>
</tr>
<tr>
<td>Financial</td>
<td>The processes to enhance of maintain the finances of an organization or individual.</td>
</tr>
<tr>
<td>Firearm</td>
<td>An activity of confiscating any type of gun designed for any individual to readily carry and use.</td>
</tr>
<tr>
<td>Governance</td>
<td>The action or process of overseeing the control and direction of a State or an organization.</td>
</tr>
<tr>
<td>Guardian</td>
<td>The action of a person who protects or defends something typically through dedicated observation and monitoring.</td>
</tr>
<tr>
<td>Horse</td>
<td>The action of using a horse chiefly for labour such as ranger patrols or pulling carts.</td>
</tr>
<tr>
<td>Hunting</td>
<td>The practice of seeking, pursuing and capturing or killing wildlife or feral animals.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Reference to actions that influence the quality and process of achieving being honest and having strong moral principles.</td>
</tr>
<tr>
<td>Intelligence</td>
<td>The action and process of obtaining information concerning an enemy or possible enemy of an area or object.</td>
</tr>
<tr>
<td>Investigation</td>
<td>The action of investigating something or someone through a formal inquiry, systematic examination or research.</td>
</tr>
</tbody>
</table>
### Appendix 2. Continued.

<table>
<thead>
<tr>
<th>Element</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law Enforcement</td>
<td>The action of implementing the law by the agencies and employees responsible for public order and safety.</td>
</tr>
<tr>
<td>Legislative</td>
<td>The process of officials that have a mandate and power to make laws and establish policies.</td>
</tr>
<tr>
<td>Network</td>
<td>Actions that investigate and influence sets of connected people connected supporting the commission of illegal acts.</td>
</tr>
<tr>
<td>Operational</td>
<td>The action of engaging in, or connecting with execution of plans of an organization to achieve certain goals.</td>
</tr>
<tr>
<td>Planning</td>
<td>The process of deciding in advance what to do in future, how to and what is needed to achieve that.</td>
</tr>
<tr>
<td>Policies</td>
<td>Defining principles of action adopted or proposed by an organization or individual as the basis of decision-making.</td>
</tr>
<tr>
<td>Political</td>
<td>Activities relating to government or public affairs of a country that influence the intension or desire of officials.</td>
</tr>
<tr>
<td>Private</td>
<td>Actions that influence a community of people where persons of commercial companies own or control assets.</td>
</tr>
<tr>
<td>Prosecution</td>
<td>The action of instituting and conducting legal proceedings against someone in respect of a criminal charge.</td>
</tr>
<tr>
<td>Protection Zone</td>
<td>The action of focused and dedicated provision of predetermined levels of security in a well-defined area.</td>
</tr>
<tr>
<td>Sanction</td>
<td>Implementing threatening penalties, usually at the international scale, for disobeying a law or rule.</td>
</tr>
<tr>
<td>Seizure</td>
<td>The action and process of capturing someone or something using force such as illegal wildlife products.</td>
</tr>
<tr>
<td>Sentence</td>
<td>The action of punishment assigned to a defendant found guilty by a court, or fixed by law for a particular offence.</td>
</tr>
<tr>
<td>Socio-Economic</td>
<td>Activities relating to or concerned with the interaction of social and economic factors influencing the well-being of people.</td>
</tr>
<tr>
<td>Staffing</td>
<td>The action and process of providing an organization with appropriate staff.</td>
</tr>
<tr>
<td>Stockpile</td>
<td>The action of having an accumulated stock of goods held in reserve for use at a time of shortage or other emergency.</td>
</tr>
<tr>
<td>Supplementary Feeding</td>
<td>The action of providing additional feed containing energy, protein or vitamins and minerals.</td>
</tr>
<tr>
<td>Surveillance</td>
<td>The action of careful watching a person or place because of a crime that took place or may take place.</td>
</tr>
<tr>
<td>Technology</td>
<td>The practical use of science or knowledge to solve problems or invent useful tools to enhance key tasks.</td>
</tr>
<tr>
<td>Trade</td>
<td>The action of buying and selling goods and services as a legal commercial transaction.</td>
</tr>
<tr>
<td>Training</td>
<td>The action of teaching a person a particular skill or type of behaviour.</td>
</tr>
<tr>
<td>Translocation</td>
<td>The action and process of moving something from one place to another.</td>
</tr>
</tbody>
</table>
Appendix 3. Examples of challenges associated with addressing poaching and suggested responses provided by respondents. We identify an example as one provided by a range State representative (R) or a specialist (S). We also indicate the elements that an example contains that were used to tally frequencies in Fig. 2.

<table>
<thead>
<tr>
<th>R/S</th>
<th>Challenge</th>
<th>Potential Response</th>
<th>Success Potential</th>
<th>Success or Failure Factors</th>
<th>Impact on rhino conservation</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Attain community participation in rhino anti-poaching strategies from people living adjacent to rhino areas</td>
<td>Be efficient at addressing human-wildlife conflict for these communities.</td>
<td>Partially.</td>
<td>Financial constraints leading to resource limitation to meet customer expectation.</td>
<td>Community will take great interest in protecting the animals and report any suspicious activities.</td>
<td>Communities Socio-economic</td>
</tr>
<tr>
<td>R</td>
<td>Establishing effective cross border communication of law enforcement agencies</td>
<td>Initiate engagement at highest level (bi-national commission) since it involves sharing of security information</td>
<td>Good</td>
<td>Bi-National commissions are good for engagement, however there remains gaps in engaging meaningfully on such strategies. Engagement has to be improved.</td>
<td>Cross border sharing of information timely that will either deter poaching from happening or enhance evidence collection for successful prosecution.</td>
<td>Cooperation</td>
</tr>
<tr>
<td>R</td>
<td>Having Legislative Body and Judiciary that understand the importance of species conservation.</td>
<td>Workshop legislators particularly environment committee of cabinet and judiciary on rhino conservation issues. This should be done at regular intervals as there is turnover of individuals at that level after every elections.</td>
<td>Good</td>
<td>Conservationists can leverage on Cabinet minister of Environment, Natural Resources Conservation and Tourism.</td>
<td>More punitive legal instruments may be approved by legislature and the Judiciary will have a broad and balanced view in dealing with poaching cases as these more often than not do not have the kind of explicit evidence that one may demand in court.</td>
<td>Legislative</td>
</tr>
<tr>
<td>R</td>
<td>Lack of strong forensic capabilities</td>
<td>Develop strategic partnerships that can enhance the member state’s forensic capabilities.</td>
<td>Partially</td>
<td>These are done but never progress with the urgency required dealing with the crisis. New thinking, judiciary operate as independent arm of the constitution.</td>
<td>Successful prosecution of poaching cases.</td>
<td>Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Lack of strong forensic capabilities</td>
<td>Explore the possibilities of having regional/international courts that can deal with poaching or as a bare minimum explore mechanism with which evidence collected in one country can be used in courts of neighbour countries for purposes of successful prosecution.</td>
<td>Poor</td>
<td>New thinking, judiciary operate as independent arm of the constitution. Lobbying and initial discussion for such prospects may be started.</td>
<td>This may act as a deterrent for potential poachers. More likely to pick kingpins at a higher rate, the removal of kingpins will disrupt syndicate more compared to picking on field based poaching operatives.</td>
<td>Convictions</td>
</tr>
<tr>
<td>R</td>
<td>Loss of value of live animals</td>
<td>Allow true value of live animals to be realised as assets to owners. Strictly controlled legal horn trade must be considered</td>
<td>Not- animal rights movements have undue influence</td>
<td>Policies dictated by laws. Some countries subject to over regulation and bureaucratic smothering</td>
<td>Increase range expansion. Increase rhino numbers. Improve protection effort and spend. Increase investment in rhinos and their habitats</td>
<td>Financial</td>
</tr>
<tr>
<td>R</td>
<td>Risk vs reward. Equation in favour of criminals</td>
<td>Reverse the equation. Increase risk of arrest. Increase consequences of arrest. Mandatory custodial sentences. Conservative granting of bail only in exceptional circumstances. Speed up passage of court cases</td>
<td>Partially – if the corruptible opportunities can be resisted</td>
<td>Initiatives lie with higher authorities &amp; politicians</td>
<td>Fewer criminals in jail for longer periods. Less rhino poached. Less resources spent on already arrested accused. More resources spent on prevention of poaching and working on new cases. Increased efficiency all round</td>
<td>Arrests Convictions</td>
</tr>
<tr>
<td>R</td>
<td>Sustainable funding</td>
<td>Broad based, independent sources of funding including natural resource utilization</td>
<td>Not – in Government sector good- in private sector, if given enablement by Govt.</td>
<td>Bureaucracy hindrances. Political priorities other than wildlife</td>
<td>Self-sustainability would reduce undue influence by 3rd parties agendas and insidious government budget cuts</td>
<td>Financial</td>
</tr>
<tr>
<td>R</td>
<td>Science based crime investigation</td>
<td>Improve capacities, training and resource allocation</td>
<td>Limited</td>
<td>Inadequate manpower, adequate skills and resources</td>
<td>Laws and regulations would deter the criminals</td>
<td>Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Enforcement agencies working in silos or limited collaboration</td>
<td>Limited</td>
<td>System and policy issues</td>
<td>Poaching and illegal wildlife trade will be controlled</td>
<td>Cooperation</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Stakeholder and Community support</td>
<td>Medium</td>
<td>Motivation and resource issues</td>
<td>Holistic conservation with a larger impact</td>
<td>Communities Law Enforcement</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Improving ways of horn traffickers in packing the horn to transport</td>
<td>Continuously standardising the tools detecting horn in the sites.</td>
<td>The reasons enhancing the managers to address the challenges: 1. Developed collaborative actions to combat poaching and trafficking. 2. Intense communication among partners. 3. Sufficient provisions of tolls and funding for personnel of task force and field actions and law enforcement. The reasons constraining the managers to address the challenges: 1. Lack of understanding on negative impacts of rhino extinction and increased horn trafficking. 2. Less supports from local community, local leaders and government to fight poaching and trafficking; 3. Minimum sanction and punishment to poachers and traffickers.</td>
<td>Increased population and reproduction, contributing its healthier forest habitat and environment. Happy public with much respect to the task force of anti-poaching and trafficking, and the government gain more credit from public. Good governance in rhino conservation and forest protection. A new world on human life with much respect and supporting interaction with wild creatures in their limited space of our living planet</td>
<td>Detection</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>There might be any tool used by traffickers to stop the tools detecting things in and out the airport and ports.</td>
<td>Taking suspicious monitoring to any persons and passenger with precautionary and free prior informed concern.</td>
<td>Sharing views and records from policy makers and local leaders and these are sources of policy briefs made and published (share to public).</td>
<td>Increased population and reproduction, contributing its healthier forest habitat and environment. Happy public with much respect to the task force of anti-poaching and trafficking, and the government gain more credit from public. Good governance in rhino conservation and forest protection. A new world on human life with much respect and supporting interaction with wild creatures in their limited space of our living planet</td>
<td>Detection Surveillance</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Hidden communication and illegal cooperation between the traffickers and workers to pass horn transported.</td>
<td>Provision of incentive to persons who work for combatting (task force), and awards to personnel who do extraordinary tasks.</td>
<td>Involvement of IT experts to refine existing tools of detection to any potential poacher and horn trafficked.</td>
<td>Increased population and reproduction, contributing its healthier forest habitat and environment. Happy public with much respect to the task force of anti-poaching and trafficking, and the government gain more credit from public. Good governance in rhino conservation and forest protection. A new world on human life with much respect and supporting interaction with wild creatures in their limited space of our living planet</td>
<td>Detection Technology</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Little cooperative and collaborative actions to combat poaching and trafficking.</strong></td>
<td><strong>Frequent communication at any time of the detection tool working, if needed by putting a real time camera which can be monitored by key stake holders of combating horn poaching and trafficking, and periodic meeting and share information of tasks implemented.</strong></td>
<td>Government support additional budget for implementation of above no. 1, 2 and 3.</td>
<td>The reasons enhancing the managers to address the challenges: 1. Developed collaborative actions to combat poaching and trafficking. 2. Intense communication among partners. 3. Sufficient provisions of tolls and funding for personnel of task force and field actions and law enforcement. The reasons constraining the managers to address the challenges: 1. Lack of understanding on negative impacts of rhino extinction and increased horn trafficking. 2. Less supports from local community, local leaders and government to fight poaching and trafficking; 3. Minimum sanction and punishment to poachers and traffickers.</td>
<td>Increased population and reproduction, contributing its healthier forest habitat and environment. Happy public with much respect and supporting interaction with wild creatures in their limited space of our living planet.</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Relative small punishment worn to horns poacher and traffickers.</strong></td>
<td><strong>Issuing more punishment to horn poacher and trafficker by government.</strong></td>
<td>Taking initiative in form of discussion on law enforcement to combat rhino poaching and horn trafficking.</td>
<td>The reasons enhancing the managers to address the challenges: 1. Developed collaborative actions to combat poaching and trafficking. 2. Intense communication among partners. 3. Sufficient provisions of tolls and funding for personnel of task force and field actions and law enforcement. The reasons constraining the managers to address the challenges: 1. Lack of understanding on negative impacts of rhino extinction and increased horn trafficking. 2. Less supports from local community, local leaders and government to fight poaching and trafficking; 3. Minimum sanction and punishment to poachers and traffickers.</td>
<td>Increased population and reproduction, contributing its healthier forest habitat and environment. Happy public with much respect and supporting interaction with wild creatures in their limited space of our living planet.</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Lack of rangers dedicated to counter poaching outside the concessions or active and viable Environmental police (existing but not effective).</strong></td>
<td><strong>Reform and training of the environmental police.</strong></td>
<td>Not</td>
<td>Lack of a dedicated wildlife crime unit to address and follow up hotspots of poaching and trafficking</td>
<td>More rhinos alive</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Improved intelligence Improved communication between countries.</strong></td>
<td><strong>Political commitment</strong></td>
<td>Good</td>
<td>Many other challenges to attend</td>
<td>Law Enforcement Staffing</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Rapid response to incursion and incidents.</strong></td>
<td><strong>Have a fund dedicated to this objective specially in the countries source of poachers</strong></td>
<td>Good</td>
<td>Lack of funds</td>
<td>Better counter poaching response</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Severe Budgetary constraints due to the country’s economy recession.</strong></td>
<td><strong>Source alternative, sustainable funding</strong></td>
<td>Partially</td>
<td>Limited financial resources received from Government. Must rely on sustainable donor funding.</td>
<td>Improved management and protection of populations</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Bail granted to poaching suspects.</strong></td>
<td><strong>Establish a dedicated wildlife crime prosecution court to alleviate the pressure on current court roll.</strong></td>
<td>Partially</td>
<td>Slow prosecutions and a over loaded court roll results in suspects receiving bail which constrains rhino managers.</td>
<td>Denial of bail would keep suspects in jail. Suspects granted bail has improved knowledge on wildlife law enforcement which increases their ability to poach in future.</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Internal involvement.</strong></td>
<td><strong>Infiltrate syndicates to identify involved. Conduct polygraph tests to identify suspect individuals</strong></td>
<td>Partially</td>
<td>Polygraph tests are not allowed for government officials in the country. Polygraph test can however be applied for NGO’s or private properties.</td>
<td>Reduced poaching due to limited confidential information being shared.</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Illegal Firearms and ammunition</td>
<td>Reinforce the firearms and ammunition law.</td>
<td>Good</td>
<td>Need cooperation from national police forces to reinforce the law and apply stricter control on the purchase of firearms and ammunition</td>
<td>It would reduce the availability of illegal firearms and ammunitions and provide better record keeping.</td>
<td>Firearms</td>
</tr>
<tr>
<td>R</td>
<td>Staff capacity</td>
<td>Appoint more personnel, and train them appropriately</td>
<td>Partially</td>
<td>State finances needed for appointment of official personnel. Donor funding is an option for training.</td>
<td>Improved management and protection of populations</td>
<td>Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Lack of equipment for monitoring and protection of the rhino species</td>
<td>Improving the rhino monitoring system by ensuring provision of equipment.</td>
<td>Partially</td>
<td>Lack of resources for resource protection and limited financial capacity.</td>
<td>Population growth and re-stocking of other National parks and Game management areas.</td>
<td>Guardian</td>
</tr>
<tr>
<td>R</td>
<td>The demand for the rhino horn</td>
<td>Derating the horn by reducing the market price</td>
<td>Partially</td>
<td>Lack of effective policies</td>
<td>Reduction in illegal trafficking of rhino horn.</td>
<td>Demand Policies</td>
</tr>
<tr>
<td>R</td>
<td>Inefficiency manpower to conduct law enforcement operations</td>
<td>To train more officers to boost manpower levels to curb the vice.</td>
<td>Partially</td>
<td>Lack of capacity building within the protected areas.</td>
<td>Proper management, protection, conservation and monitoring of the rhino species.</td>
<td>Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Lack of transport for mobility during law enforcement activities</td>
<td>Provision of transport so that law enforcement activities and monitoring are spearheaded on daily basis.</td>
<td>Partially</td>
<td>Limited Resources</td>
<td>Rhinos well protected and the numbers will increase</td>
<td>Equipment</td>
</tr>
<tr>
<td>R</td>
<td>Loss of habitat leading to movements in search for food hence getting exposed to poaching.</td>
<td>Effective supplementary feeding to be enhanced so that animals are not exposed to threat.</td>
<td>Partially</td>
<td>Lack of forage due to semi-arid area</td>
<td>Well contained area supporting the Rhinos</td>
<td>Supplementary Feeding</td>
</tr>
<tr>
<td>R</td>
<td>High Economic value of horns</td>
<td>Abolish the illegal market/ trade in horns</td>
<td>Good</td>
<td>Good leadership skills, -Passionate about conservation, Hardworking and innovative, - Linkages with other local and international organizations</td>
<td>A healthy population of rhino in the country</td>
<td>Demand</td>
</tr>
<tr>
<td>R</td>
<td>High Unemployment levels</td>
<td>Job creation</td>
<td>Good</td>
<td>Employing local people around the Protected Areas</td>
<td>When jobs are created results in less pressure on natural resources extraction</td>
<td>Communities Socio-economic</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate Funding for anti-poaching</td>
<td>Allocate adequate funding</td>
<td>Good</td>
<td>Prudent utilization of the scarce financial resources available</td>
<td>More money resonates into efficient and effective management thus; zero poaching and trade in rhino horn</td>
<td>Financial</td>
</tr>
<tr>
<td>R</td>
<td>Low staffing levels for law enforcement</td>
<td>Employ enough law enforcement staff</td>
<td>Good</td>
<td>Prudent utilization of the available human resource (staff)</td>
<td>Increased human resources intel, increased presence and coverage. Thus, no room for poaching activities</td>
<td>Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate equipment for law enforcement.</td>
<td>Procure law enforcement equipment</td>
<td>Good</td>
<td>Strategically allocation of equipment</td>
<td>Adequate and advanced equipment calls for timely detection and response to situations thus; enhances protection</td>
<td>Equipment</td>
</tr>
<tr>
<td>R</td>
<td>Demand for trophy by consumer nations.</td>
<td>Engage consumer nations</td>
<td>Good</td>
<td>There should be room to engage</td>
<td>Reduced demand for horn</td>
<td>Demand</td>
</tr>
<tr>
<td>R</td>
<td>Granting of bail on suspects.</td>
<td>Through a constitutional right, courts should seriously look into issues of bail</td>
<td>Good</td>
<td>There is need for lobbying with the courts</td>
<td>Reduced rhino poaching. Rhino population growth</td>
<td>Legislative</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate resources such as manpower, equipment etc.</td>
<td>Provide budgets that addresses the challenges</td>
<td>Partially</td>
<td>Effective patrols and ground coverage</td>
<td>Reduction in poaching, Population growth and new introductions</td>
<td>Equipment Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Lack of information sharing due to institutional mistrust among law enforcement agencies</td>
<td>Improve on information sharing</td>
<td>Partially</td>
<td>Improve on communication and reduce mistrust issues</td>
<td>Speedy sharing of information, Disruption of syndicates</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Patrolling borders</td>
<td>More patrols in crime hot spots</td>
<td>Partially</td>
<td>Deploy drones, Tracker dogs</td>
<td>More detection of criminals. Targeted deployment of anti-poaching teams</td>
<td>Operational</td>
</tr>
<tr>
<td>R</td>
<td>“Disrupt” illegal rhino horn supply chain and better control the supply systems.</td>
<td>Allow for a controlled horn trade</td>
<td>Partially -&gt; good. While the system setup is easy, the effect may take more than three years</td>
<td>Most private rhino managers are already “ready” to commence on trade, and can begin almost immediately once a control system (e.g. Blockchain) has been set up.</td>
<td>Less poaching pressure on wild populations.</td>
<td>Consultation Financial Governance Trade</td>
</tr>
</tbody>
</table>
| S | Description | Expected Outcome | Conditions/Interventions | Source
|---|---|---|---|---
| **S** | Bail conditions | Regard rhino poaching as a national economic crime with reduced bail opportunity | Good – if official/political will is developed, otherwise lack of official/political will. Trite references to “constitutional rights” to bail when in fact bail can be refused, especially since it can be shown that released poachers are likely to immediately return to poaching to generate income to pay bribes & legal fees. | Closure of major loophole that allows poachers on bail to benefit from inefficient judicial process that often means that their dockets get shelved. | Legislative
| **S** | Better collaboration between law-enforcement agencies | Have a structure that forces implementing officers and agents and judiciary to work more streamlined together. | Partially | Corruption, poorly functioning cross disciplinary functionality and systems. More rapid convictions acting as better deterrent for criminals to approach this system. | Cooperation
| **S** | Biological management enhancement and enabling environment | Allow law abiding and conservation minded property owners to have active and enabling support to protect and manage rhino | Partially | Poor and complex provincial and/or national permitting system and policy frameworks. If enabling and supportive policy and permitting environment exists more properties would have rhino. | Legislative
| **S** | Community relationships | Change the narrative from a philanthropic model to a partnership model | Good | It is difficult to achieve unanimous support from many people simultaneously and typically economic incentives are the tangible, short-term solution whilst we work to improve livelihoods, educate, eliminate abject poverty etc. | Communities
| **S** | Consumer demand | Education, Sensitization, Social Sciences, | Partial | Geography, individuals strengths and skill-sets, financial | Socio-economic
| **S** | Corruption | Develop Key Performance Indicators for law-enforcement effort – hold officials nationally and regionally accountable by reference to these (e.g. success of arrests/prosecutions). Undertake stringent court-case monitoring | Partially |
| | | | | KPIs need to be regionally standardized and regularly reviewed e.g. through SADC LEAP Programme and through CITES reporting by countries that are required to report on their rhino conservation efforts. | Integrity
| **S** | Corruption | The UN itself does not have this answer! | NOT |
| | | | | Human nature-greed. Wheels within wheels regarding government politics and low priority of non-vote. | Integrity
| **S** | Development of a trading “platform” like e.g. Blockchain to form the foundation of controlled horn trade | For one range State, allow the COI and an expert panel of computer scientists, law enforcement to develop a system | Good | Emotions amongst non-range States based members of CITES prevents it from even being discussed and acknowledged as a “tool”, despite 30yrs of decline under the current system. Lack of positivism and optimism, fear of making decisions. | Financial Governance Trade
| | | | | It would most likely reduce the pressure on wild rhino populations. | Governance Socio-economic Trade
| **S** | Economic | Spread risk through a more diversified business model | Good | Global economic influences, Policy changes (e.g. Covid travel restrictions), Capital investment requirements. | Financial
| | | | | Economic resources are required to responsibly conserve rhinos. The more resources available the higher the risk one can impose on poachers. |
| **S** | Ensuring benefit from conserving rhinos are felt in IPLC in range area. | Allow IPLC sustainable “user and management” rights according to the UNDRIP and SDGs | Not -> partially. IPLC are financially and knowledge disadvantaged and need support to acquire, manage and use rhinos sustainably. | Potentially more private small-holders anchored in IPLC acting as deterrents/buffers to wild rhino populations. | Governance Socio-economic Trade
| | | | | Currently, hardly any IPLC has the capacity to do this. | Governance Trade Legislative
| **S** | Ensuring that the value of live rhinos are higher than that of dead rhinos | Allow for a controlled horn trade | Good. The local authorities are their own decision makers. The CITES rules are clear for F2 generations, captive breed criteria etc. | It is ALSO a human right under the UNDRIP as well as a provision in the SDG, so there are no real legal obstacles preventing this from happening. | Financial Governance Trade Legislative
| | | | | Most of the horns will be supplied by private breeders and the poaching pressure will decrease on wild stock. | Governance Trade
| **S** | Intelligence led pre-emptive interventions | Have dedicated intelligence unit nationally and linked in regionally to transmit and package actionable intelligence for implementing agents to work on | Partially | Corruption and political resistance to develop such a dedicated unit. More pre-emptive interventions than having to chase criminals after a rhino crime has been committed | Intelligence Political
<table>
<thead>
<tr>
<th>S</th>
<th>Make rhino relevant to society</th>
<th>Better narrative more propel centric approach</th>
<th>Not</th>
<th>Political agenda not aligned with nature based solutions/ corruption</th>
<th>Communities and civil society will not allow criminals to organise themselves to kill rhino</th>
<th>Political Socio-economic Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>National &amp; regional coordination</td>
<td>Ensure that SADC LEAP is upgraded into a more powerful regional structure that ensures better collaboration, with effective use of existing SADC protocols</td>
<td>Good – if political will can be developed</td>
<td>Political factors – low priority given to regional collaboration. Too much officiousness on the part of Government officials being unwilling to collaborate with NGOs, even under MoUs</td>
<td>Enable disruption of syndicates for individual poachers who operate cross border</td>
<td>Cooperation</td>
</tr>
<tr>
<td>S</td>
<td>Persistent demand for rhino horn in consumer markets upholding the illegal market price, which in turn provides the incentive for the illegal trade – and therefore poaching – to continue.</td>
<td>Direct engagement with consumers of rhino horn products to include them as part of a collaborative solution</td>
<td>Not unless a change of approach is agreed upon and adopted</td>
<td>This is largely beyond the reach of rhino managers and will depend on the initiatives of key governments (through their relevant agencies) and NGO players working together constructively (and agreeing to modify their current approach toward consumers, which tends to be more prescriptive)</td>
<td>Likely to have a positive effect on reducing illegal trade and therefore poaching over time; this in turn would enable recovery of rhino populations in larger areas (e.g., Kruger National Park)</td>
<td>Demand</td>
</tr>
<tr>
<td>S</td>
<td>Political will</td>
<td>Develop relationships, proactive media, international political pressure</td>
<td>Good</td>
<td>Corruption, Political agendas</td>
<td>Actionable intelligence led mitigation measures. The high level dealers must be apprehended and prosecuted to stem the flow of money</td>
<td>Political</td>
</tr>
<tr>
<td>S</td>
<td>Prosecution and conviction of traders/traffickers INCLUDING foreign diplomats involved in it</td>
<td>Enforce the local national laws</td>
<td>Good. The laws are clear. There are lots of evidence. Politics only prevents it from taking place.</td>
<td>Political/financial pressure from demand countries are larger than support</td>
<td>Disrupts and deter illegal poaching syndicates operations — will result in less illegally poached rhinos</td>
<td>Convictions, Prosecutions</td>
</tr>
<tr>
<td>S</td>
<td>Public private partnerships</td>
<td>Enabling and conducive public and private partnership approaches to rhino management and protection</td>
<td>Partially</td>
<td>Distrust between private public intuitions is extreme and often work at polarised ends of each other rather than together</td>
<td>Private sector are far more able to adjust and support complex problem solving and having an enabling trusting relationship with each other will fast track rhino recovery</td>
<td>Cooperation</td>
</tr>
<tr>
<td>S</td>
<td>Ranger Motivation</td>
<td>Training, increased salaries, financial education, education support, improved living and working conditions, healthcare, increased attention and gratitude, legal support, counselling</td>
<td>Partial</td>
<td>Without significant financial education many rangers use higher basic salaries as collateral for loans from draconian banking systems and loan sharks with high interest. Soon they end up unable to pay debt and are more likely to align themselves with poaching cartels thus undermining security structures in place.</td>
<td>In one range State, we estimate that &gt;90% of rhino poaching has inside involvement. These “might” be disgruntled employees or those in financial debt with no seeming way to rectify the problem. An endowment should be considered to bail out such instances.</td>
<td>Staffing</td>
</tr>
<tr>
<td>S</td>
<td>Scene-of-crime &amp; forensic investigations</td>
<td>Identify &amp; develop national &amp; regional centres of excellence for 1.) Training law enforcement staff in SCI process relevant to national laws, 2.) undertaking forensic analyses (e.g. ballistics, DNA)</td>
<td>Good – if official/political will is developed</td>
<td>Lack of official/political will. Spurious arguments about chain-of-evidence issues. Red tape in exporting samples for analysis</td>
<td>Stronger prosecution cases would deter poachers, who currently benefit from poor presentation of evidence against them in courts</td>
<td>Investigations</td>
</tr>
<tr>
<td>S</td>
<td>Sensible policy toward rhino horn stockpile management, with full cooperation of all private stockpile holders</td>
<td>Create incentives for holders of private stockpiles to cooperate with other parties</td>
<td>This very much depends on the willingness and ability of government agencies to engage effectively (with positive support from NGOs)</td>
<td>As above, this is not in the hands of rhino managers directly, who can only do so much to secure stockpiles of harvested horn</td>
<td>Securing cooperation with holders of private stockpiles would enable more inclusive forging of a solution to the illegal trade and poaching problem, ultimately to the benefit of rhino populations</td>
<td>Consultation, Legislative</td>
</tr>
<tr>
<td>S</td>
<td>Strategic national planning</td>
<td>Develop National Rhino Strategy that includes requirements for annual reviews of KPIs</td>
<td>Good – if official/political will is developed</td>
<td>Lack of official/political will</td>
<td>Ensure that rhinos are managed better to achieve optimum population growth</td>
<td>Planning</td>
</tr>
<tr>
<td>S</td>
<td>To develop Standard Operating Procedures (SOPs) and Key Performance Indicators (KPIs) that staff can be held accountable. SOP’s to highlight aspects of “best practice” and well established “norms and standards”.</td>
<td>Establish a culture of accountability and draft a Strategy and SOP’s that are Executive-approved to ensure compliance is mandatory.</td>
<td>Good – if implemented at an operational level</td>
<td>Sourcing the right people that are “field-experienced” to draft the SOP’s is essential.</td>
<td>Huge positive impact on performance, especially with new staff entering the service. Levels of competence is enhanced enormously and accountability measures are simply administered through a disciplinary process if required</td>
<td>Operations</td>
</tr>
<tr>
<td>S</td>
<td>To ensure operational staffing levels are at the appropriate densities (Sq. kms per FR), with appropriate training (law enforcement and monitoring of rhino and effort)</td>
<td>Government needs to realise that protecting the environment and species is critically important or face localised extinctions. Political will is key.</td>
<td>No looking good with the call for Government to downsizes its staffing levels in many instances in the civil service.</td>
<td>Not having the required staffing levels seriously effects patrol ground coverage (in the main), which allows poachers easier access. Risk/reward formula favours poachers if reserves don’t have the required manpower resources to ensure early detection and interception</td>
<td>Adequate staffing levels has demonstrated a reduction of rhino poached in any given area</td>
<td>Security</td>
</tr>
<tr>
<td>S</td>
<td>To establish an appropriate intelligence capacity with “leading edge” software and database managed by a skilled person familiar with effective analysis to provide conservation managers with proactive information.</td>
<td>Talent spotting within the current staff establishment coupled with appropriate training from SAPS and SSA to manage handlers and informers. Outsourcing of this function has also proved effective</td>
<td>Partially – budget dependant.</td>
<td>Inadequate budget for staffing and equipment and the inability to pay informers and handlers is an issue</td>
<td>Intelligence and the establishment of an effective informer network are key. Remaining within the bounds of the law in this domain is crucial.</td>
<td>Intelligence Networks</td>
</tr>
<tr>
<td>S</td>
<td>To provide adequate budget for anti-poaching operations, including staff allowances such as S&amp;T and overtime pay to ensure patrol-time in the field is maximised.</td>
<td>Government and NGOs to provide adequate funding.</td>
<td>Not looking good – government funding seriously compromised and NGO funding over-stretched.</td>
<td>Budget and manpower related constraints. COVID and its negative effect on tourism revenue streams have severely affected operations.</td>
<td>Providing adequate budget would help considerably and improve staff morale which in itself enhances motivation, commitment, effectiveness and preparedness. In many instances NGO funding has been a game-changer.</td>
<td>Financial</td>
</tr>
<tr>
<td>S</td>
<td>To provide adequate vehicles, aircraft, helicopters and equipment</td>
<td>Provide a suitable and appropriate budget to purchase, run and maintain all equipment</td>
<td>Partially – relied heavily on NGO funding</td>
<td>Budget constraints</td>
<td>It would improve the Managers effectiveness immensely.</td>
<td>Equipment</td>
</tr>
<tr>
<td>S</td>
<td>Lack of meaningful CITES oversight in holding countries accountable.</td>
<td>CITES decisions have mandated reporting of rhino horn seizures and stockpiles and the development of stockpile management systems as important first steps. However, failure to engage on these requirements does not result in any significant oversight pushback on offending countries. A follow-on punitive process needs to be clearly articulated and supported by CITES decision makers and enforcers.</td>
<td>If there is forceful leadership from the CITES Secretariat and the Standing Committee to support rhino conservation it may be possible to mark progress, but the record so far is less than encouraging. To date, at critical junctions, the Parties and the Secretariat has stepped back from holding offenders accountable in a meaningful way. It is worth noting that the same key countries have repeatedly emerged in successive reports as heavily implicated in illegal rhino horn trade.</td>
<td>Governments of many key countries never feel the &quot;heat&quot; for poor law enforcement and policy making, much less instances of internal corruption and complicity in the illegal rhino horn trade. For example, missions to one consumer State by the CITES Secretariat have mollycoddled the state of inertia and seemingly whitewashed clear instances of bad behaviour.</td>
<td>Progress requires the development of a culture of strict accountability, which is generally lacking within the CITES arena.</td>
<td>Stockpiles Trade Law Enforcement Governance</td>
</tr>
<tr>
<td>R</td>
<td>Cross-boundary challenges with poachers entering area from another country.</td>
<td>Continued law enforcement activities along the international boundary. Future, cross-country cooperation to address challenges.</td>
<td>Good-partially. Operating cross-border has numerous challenges. Law enforcement activities will continue.</td>
<td>Cross-border cooperation between governments is challenging.</td>
<td>Further securing the international boundary would maintain zero rhinos lost to poaching in Akagera.</td>
<td>Law Enforcement Cooperation</td>
</tr>
<tr>
<td>R</td>
<td>Continued poaching for bush meat in park that may have implications for rhino security including snare bycatch and opportunistic rhino poaching.</td>
<td>Continued law enforcement activities in park coupled with community awareness programs and enterprises are underway. Law enforcement activities will continue.</td>
<td>Good. Many community awareness programs and enterprises are underway.</td>
<td>Community relations are always challenging but the park officials have worked hard to build trust and cooperation with adjacent communities. Understanding the true drivers of bush meat poaching is a challenges.</td>
<td>Eliminating snaring and bush meat poaching would maintain zero rhinos lost to poaching in the park.</td>
<td>Law Enforcement Communities Awareness</td>
</tr>
<tr>
<td>R</td>
<td>Lack of timely information on the approach of foreign, big-game poacher</td>
<td>A good intelligence network</td>
<td>Good</td>
<td>A revised and enhanced intelligence strategy is being developed in conjunction with neighbouring AP projects.</td>
<td>If the approach of poachers of rhinos (which in this area we expect to be mostly foreigners) is known well before they reach the protected area, protection forces from both the park and the government can be mobilized before the poachers even get in the park, ensuring the security of the animals</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Corruption</td>
<td>Building strong relations with the local judiciary and Ministry of the Environment</td>
<td>Good</td>
<td>On average, good relationship are already in place.</td>
<td>If a strong judicial process was in place it would act as a definite deterrent.</td>
<td>Corruption</td>
</tr>
<tr>
<td>----</td>
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<td>--------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate budget for rhino conservation</td>
<td>To continue persuading Government to increase budget for rhino conservation. Get partners and stakeholders (including tourists) to contribute for rhino management. To start rhino tourism in the rhino IPZs and sanctuaries. To encourage private sector to contribute for rhino conservation</td>
<td>Partially</td>
<td>In the period 2019 to date COVID-19 is the main reason. This made Government (including wildlife authorities), donors and stakeholders unable to make funds available for rhino conservation</td>
<td>Improved security of the rhinos. Motivated rhino staff. Improved capacity in terms of equipment and rhino monitoring technologies. Improved infrastructure (observation posts, drifts, bridges, ranger posts, mobile posts)</td>
<td>Financial</td>
</tr>
<tr>
<td>R</td>
<td>Lack of appropriate and working rhino monitoring technologies</td>
<td>Get donors and interested stakeholders to fund research and development of monitoring technologies that are durable with longer lifespan</td>
<td>Partially</td>
<td>Lack of funding</td>
<td>Improved monitoring and security of the rhino in the IPZs leading to increased populations</td>
<td>Guardian Technology</td>
</tr>
<tr>
<td>R</td>
<td>Black rhino dispersal behaviour</td>
<td>To confine the animals in the sanctuary. Get an appropriate and working monitoring technologies (e.g. LoRa sensors) that are durable and have longer lifespan</td>
<td>Partially</td>
<td>Lack of funding</td>
<td>Improved security and monitoring of the rhinos that would lead to increased populations</td>
<td>Guardian Technology</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate manpower</td>
<td>To continue requesting Government to employ required staff. To acquire cutting-edge technologies for security and monitoring of parks and populations</td>
<td>Partially</td>
<td>Lack of funding</td>
<td>Improved efficiency. Motivated rhino staff. Directly improved monitoring and security of rhino populations</td>
<td>Staffing Technology</td>
</tr>
</tbody>
</table>
## Appendix 4. Examples of anti-poaching initiatives provided by range State representatives and other respondents. We identify an example as one provided by a range State representative (R) or a specialist (S). We also indicate the elements that an example contains that were used to tally frequencies in Fig. 2.

<table>
<thead>
<tr>
<th>R/S</th>
<th>Practice</th>
<th>Objectives</th>
<th>Achievement</th>
<th>Success factors</th>
<th>Failure risks</th>
<th>Improvements</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Dehorning of rhinos in non-fenced areas</td>
<td>To deter poachers from shooting the rhinos</td>
<td>The objective was not achieved. Over 90% of the population dehorned.</td>
<td>Failure. Poachers continued to shoot the dehorned animals. The objective failed to produce the desired outcome.</td>
<td>Due to dense vegetation and water situation in the habitat tracking most rhinos by spoores was not so effective and efficient. Intensified patrols coupled with surge in poaching disturbed animals especially black rhinos and the animals responded by dispersing from area demarcated as intensive patrol zone further getting more exposed to poaching risk.</td>
<td>Deploy monitoring devices (ideally VHF devices) in majority of the animals (~70%) before intensifying the patrols. Use of technology to augment and synchronise the human effort on the ground.</td>
<td>Dehorning</td>
</tr>
<tr>
<td>R</td>
<td>Intensify anti-poaching patrols. Foot patrols and aerial patrol effort significantly increased in non-fenced areas</td>
<td>Have regular frequent sighting of all known animals in the area. Improve the efficiency of carcass detection and pick carcasses of poached rhinos shortly thereafter.</td>
<td>Yes: Animals accounted for more regularly. Yes the patrol teams started picking 3 to 4 days old carcasses (and in some circumstances hours) as opposed to previously where a few weeks old carcasses were picked with little evidence</td>
<td>Success. Animals accounted for, carcasses picked early and poachers followed with success in some cases. Poachers encounter prior to committing crime in some cases.</td>
<td></td>
<td>Guardian Law Enforcement Technology</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Removal of select breeding animals to fenced area</td>
<td>Secure a breeding population and improve breeding rate</td>
<td>Yes: No losses since moving animals into fenced areas, however threats continue to increase.</td>
<td>Animal in a secure reasonable sized area of suitable habitat for population growth.</td>
<td></td>
<td>Better sustainable funding needs to be in place to encourage long term commitment to maintaining recruited positions. Tourism collapsed in face of COVID and unrest.</td>
<td>Protection Zones</td>
</tr>
<tr>
<td>R</td>
<td>Increase ranger force through tougher military type selection by 60% and 30% on the 2 rhino parks</td>
<td>Better rhino monitoring and ground cover. Increase rhino range</td>
<td>Yes</td>
<td>Resources committed to the exercise and training put in place as best COVID restrictions allowed.</td>
<td>COVID restrictions have impacted very heavily on financial liquidity. Austerity measures have had to be implemented.</td>
<td>Better sustainable funding needs to be in place to encourage long term commitment to maintaining recruited positions. Tourism collapsed in face of COVID and unrest.</td>
<td>Integrity Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Public offer of rewards for verified information which lends to prevention of rhino poaching/arrest of rhino poachers</td>
<td>Stop poaching attempts before losing rhinos / solve poaching incidents swiftly and conclusively</td>
<td>Yes</td>
<td>Operations done jointly with police and strong prosecution follow up</td>
<td>Hoaxes and set ups have to be filtered</td>
<td>Increase amount offered as rewards</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Working out protection efforts with locals</td>
<td>participation</td>
<td>Supports</td>
<td>Less engagement due to lacks of commitments and initiative from government, there is interferences from outside</td>
<td>Consultation public, dialogs,</td>
<td>Continue to do field patrol with locals</td>
<td>Communities Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Publish a policy brief</td>
<td>To have insights from key policy makers and local leaders</td>
<td>Understanding and supports</td>
<td>If not, it needs consultations and share information. If so, effective communication and strengthen supports for others</td>
<td>Consultation and share information can be worked. Time availability to have insight, opinions and supports for real actions</td>
<td>Publish all visits and consultations</td>
<td>Legislative</td>
</tr>
<tr>
<td>R</td>
<td>Real time monitoring at sites of habitat and rhino population/home range</td>
<td>Knowing rhino moves and other potential threats at any direct time. Check it out and directly enforce to any signs of poaching at place</td>
<td>Knowing directly the moves of rhinos, safe from any disturbance and potential threats</td>
<td>Field images and data directly known by others, which would come to poachers, These should be on the right hands of the authority</td>
<td>Setting tools at some sites can be worked out, and on line field information. Leaking information which come to others which used to poach</td>
<td>This must be implemented by certain persons/VIP secretly.</td>
<td>Guardian</td>
</tr>
<tr>
<td>R</td>
<td>Wildlife Forensics</td>
<td>Improve crime investigations; Use DNA to match a criminal / seizure to a crime scene / rhino</td>
<td>Partial as it is an ongoing process</td>
<td>In country it is not easy to create a database for all the rhinos from tissue / blood as it is primarily opportunistic. Dung based sampling has been adopted to prepare the DNA database which also is time consuming and laborious. Secured and adequate funding</td>
<td>The approach has helped investigate rhino crime cases in country. The investigation procedure has been improved by introducing a SoP and also a training module for field staff. The field staff gets changed quite often and new staff needs to be trained at short intervals.</td>
<td>Dedicated team / division for crime investigation should be created with permanent manpower along with provision for promotion / incentive / etc.</td>
<td>Investigations</td>
</tr>
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<tr>
<td>R</td>
<td>Engaging with communities</td>
<td>Obtaining support for the communities towards conservation and in protection works</td>
<td>Partial</td>
<td>There needs to be a clear system for engagement as well as space should be provided to the communities to decide and contribute towards conservation. There should be a system of recognition and incentivising the good and punishing the bad by the community institutions</td>
<td>The approach works only if efforts are sustained.</td>
<td>There should be an institutional approach instead of need based.</td>
<td>Communities Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of the Anti-poaching Coordination Operations centre</td>
<td>Rapid response in support to counter poaching and incursions in the GLC. Investigations based on intelligence and handing over to prosecutors poachers detained, opening dockets and follow up. Sharing of information. Operates inside concessions when requested but mostly outside.</td>
<td>Yes partially</td>
<td>Small unit of 12 man (active 6) lack of good mobility. Lack of funds. Uncertainty. Weak Intelligence</td>
<td>Coordination with Private concessions and court cases. Few poachers detained when compared with data on incursions into park.</td>
<td>Bigger unit with at least 24 man (12 active any time) 1 more vehicle and at least 3 motorbikes.</td>
<td>Law Enforcement Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Dehorning of rhinos</td>
<td>Dehorn any rhino that appear inside the concessions to discourage poaching. Involvement of Community leaders in the initial dehorning.</td>
<td>Yes. No rhinos killed in 2021.</td>
<td>Communities were informed rhinos don’t have horns. Cooperation of private concessionaires</td>
<td>Coordination with private concessions.</td>
<td>None</td>
<td>Dehorning Communities</td>
</tr>
<tr>
<td>R</td>
<td>Develop a National Strategy on Wildlife Protection and Law Enforcement</td>
<td>To establish within the country, and within the framework of national laws, common approaches to the protection and conservation of wildlife and to ensure the effective enforcement of laws governing wildlife resources</td>
<td>Partially. Due to this being a 5 year strategy, objectives for Year 2 to 5 within the strategy are still to be rolled out and implemented</td>
<td>Most targets for Year 1 outlined in the action plan of the strategy have been achieved</td>
<td>Increased human capacity, improved data capture, investigations &amp; intelligence, prosecutions, reporting, stakeholder coordination, established K9 Unit, implemented Conservation fee for sustainable financing, approved species management plans, established pangolin working group. Wildlife and Protected Areas Management Bill still to be endorsed by Cabinet</td>
<td>Faster roll out of steps to combat wildlife crime</td>
<td>Law Enforcement Investigations Intelligence Prosecutions</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of the Wildlife Protection Services (WPS) Sub-Division within the Directorate of Wildlife and National Parks (including the Intelligence and Investigations Unit (IIU) under the WPS)</td>
<td>Establish a sub-division within the Directorate of Wildlife and National Parks dedicated to anti-poaching, law enforcement and investigations and intelligence work</td>
<td>Partially. The IIU was established and positions filled, however, very few of the regional WPS positions have been filled</td>
<td>Appointments are slow due to cumbersome approval processes and financial constraints</td>
<td>WPS staff recruitment process not ideal</td>
<td>Ensure that recruitments are done in an efficient manner</td>
<td>Intelligence Investigations Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of the Training School</td>
<td>Establish a training school for personnel</td>
<td>Yes</td>
<td>School established and training taking place</td>
<td>Training can be increased but budget constraints are a limiting factor. Funding needed for general maintenance costs of school.</td>
<td>A maintenance budget for the school is essential.</td>
<td>Staffing Training</td>
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<tr>
<td>R</td>
<td>Training of MEFT and stakeholder personnel</td>
<td>Train as many people in law enforcement and wildlife crime related topics</td>
<td>Partially. Training is ongoing.</td>
<td>Training is ongoing. Training: law enforcement, Scene of Crime, Prosecutor training</td>
<td>Financial resources are delaying training program</td>
<td>Law Enforcement Prosecutions Crime Scens</td>
<td>Equipment Law Enforcement Technology Dogs Horses</td>
</tr>
<tr>
<td>R</td>
<td>Establish specialised units and purchase Squirrel B3 helicopter</td>
<td>Squirrel B3 helicopter purchased to increase aerial patrol capabilities and assist with security operations. K9 Units developed for a National Park and North West, for the North East and for the Central regions. Horse Unit developed for a National Park</td>
<td>Partially. Squirrel B3 helicopter purchased and operational. K9 Unit for a National Park developed. Second Unit for North East currently being trained. Third K9 unit to be developed in 2 years time. Horse Unit in planning phase.</td>
<td>Squirrel B3 Helicopter has increased aerial presence in most of the rhino poaching areas and assisted with carcase detection rates. ENP K9 unit has had a lot of success in and around a national park, especially during road blocks and the confiscation of illegal firearms.</td>
<td>Carcass detection has increased tenfold due to the MEFT Helicopter. K9 Unit has served as a deterrent in and around ENP. The sustainability of both incentives are a problem. Currently reliant on donor funding.</td>
<td>Law Enforcement Technology Surveillance Technology Surveillance Law Enforcement Technology Dogs Horses</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>National Dehoring Program</td>
<td>To dehorn all the smaller rhino populations Nationally every second year, with the exception of one national park, to take away incentive and to audit populations</td>
<td>Yes</td>
<td>Program ongoing since 2014 when cabinet approved National dehorning. Populations that were targeted by poaching have seen a significant drop after dehoring took place.</td>
<td>Dehoring effective on small populations in combination with good intelligence and boots on the ground. Less effective in larger populations or populations with 50+ animals. Need to at least dehorn 80% of a population to be effective. Financially costly, especially if trying to dehorn every population every 2 years. Time consuming.</td>
<td>Increase staff capacity to tackle the large numbers of rhino currently in the program. The range State typically dehorn 200 – 300 rhino annually under government but need to push this number up to at least 400.</td>
<td>Dehoring Technology</td>
</tr>
<tr>
<td>R</td>
<td>Dehoring</td>
<td>This was an initiative meant to combat horn trafficking by cutting the rhino horn</td>
<td>Yes</td>
<td>No poaching was done during this period hence resulting with no horn trafficking.</td>
<td>Dehoring worked</td>
<td>Use of drones for monitoring and surveillance to combat horn trafficking.</td>
<td>Dehoring Technology</td>
</tr>
<tr>
<td>R</td>
<td>Implants</td>
<td>For monitoring purposes especially the movements of the species.</td>
<td>Yes</td>
<td>Because animals were easily tracked, monitored and located without challenges.</td>
<td>Implants worked</td>
<td>Fencing part of the park for rhinos only coupled with provision of CCTV cameras for surveillance purposes.</td>
<td>Technology Surveillance</td>
</tr>
<tr>
<td>R</td>
<td>24/7 Surveillance and monitoring</td>
<td>For monitoring purposes as one way of combating horn trafficking</td>
<td>Yes and the initiative is still in use</td>
<td>Because it is a 24/7 monitoring and surveillance as such no any threat to rhino poaching for horn</td>
<td>The initiative is still working</td>
<td>Increase the fuel allocation for patrols along the park fence boundary and also use of airspace during the day.</td>
<td>Surveillance</td>
</tr>
<tr>
<td>R</td>
<td>Putting up a sanctuary with pickets around</td>
<td>To put the rhino in an enclosure</td>
<td>Yes</td>
<td>-Number of rhino increased, -No poached rhino recorded, -Easy monitoring around the sanctuary</td>
<td>The initiative worked well</td>
<td>Use of drones for monitoring purposes</td>
<td>Protection Zone Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Recruitment of more youthful staff</td>
<td>To increase manpower</td>
<td>Yes</td>
<td>-Number of rhino increased, -Patrol coverage increased in and around the sanctuary</td>
<td>The initiative worked well</td>
<td>More staff is the best, just need to increase the number of staff</td>
<td>Staffing</td>
</tr>
<tr>
<td>R</td>
<td>Investing in Intelligence and Investigations Unit</td>
<td>To increase surveillance in the community</td>
<td>Yes</td>
<td>-Timely counter suspects before killing/trading, increased informer network</td>
<td>The initiative worked well</td>
<td>Enhancement of cross boarder operations</td>
<td>Intelligence Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Putting sensors and trackers on the Rhino horns</td>
<td>To monitor movements/distribution of rhinos</td>
<td>Yes</td>
<td>-Position/location of rhinos traced</td>
<td>The initiative worked well</td>
<td>Nothing</td>
<td>Guardian Technology</td>
</tr>
<tr>
<td>R</td>
<td>Awareness Campaigns and media coverage of court cases</td>
<td>Educate communities on the negative impact of poaching. Name and shame arrested poachers through media coverage</td>
<td>Yes</td>
<td>Members of the public volunteer information through the use of hotlines</td>
<td>a. More information on poacher movement is passed</td>
<td>More funds for informer rewards and recruitment through donor support.</td>
<td>Awareness</td>
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<tr>
<td>R</td>
<td>Coming up with Intensive Protective Zones and secure Conservancies</td>
<td>Moving rhinos into the well protected areas.</td>
<td>Yes</td>
<td>Improved protection Poachers fail to easily penetrate protected zones</td>
<td>De-horning as poachers target even dehorned individual</td>
<td>Engage consumer nations so that they create measures to reduce demand</td>
<td>Translocation</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of Multi-Stakeholders crack teams focussing on intelligence-led operations</td>
<td>Attend incursions, follow-ups of poachers and disruption of their activities.</td>
<td>Yes</td>
<td>Most of the known profiled poachers arrested. A lot of illegal firearms were removed from circulation thereby reducing illegal activities.</td>
<td>The operations are ongoing and proving to be effective</td>
<td>Donor support on such operations is key considering the high costs involved.</td>
<td>Intelligence Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Infiltration of rhino poaching syndicates.</td>
<td>To obtain pro-active intelligence on their operations.</td>
<td>Partially.</td>
<td>It worked as corrupted employees where rooted out before any damage and insider jobs could be done. The main challenge is that these tests are expensive and thus only well-funded conservancy have the capacity whereas most rhino areas cannot afford or sustain such tests.</td>
<td>Arrest were made before losses were made but outside the conservancy but it was difficult to prove the intention of poaching rhinos in the absence of evidence.</td>
<td>There is need to improve on intelligence so as to secure deterrent convictions even if the rhino poachers are arrested outside the conservancy/park</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Integrity test on people working with rhinos.</td>
<td>To determine who was abating rhino poaching from within.</td>
<td>Yes the objective was achieved.</td>
<td>Employees conniving with rhino poachers were identified through integrity test. They were discharged.</td>
<td>Employees conniving with rhino poachers were identified through integrity test. They were discharged.</td>
<td>Passing Integrity test should be a pre requisite before engagement and should be an ongoing excessive.</td>
<td>Integrity</td>
</tr>
<tr>
<td>R</td>
<td>Rhino ear notching and dehoming exercises.</td>
<td>To identify all rhinos in an area via their unique ID number. To reduce the incentive to poach by reducing available horn for sell in an effort to deter poaching.</td>
<td>Partially</td>
<td>Rhino ops are expensive and covid-19 affected funds available in most rhino areas as such the ops where not done as scheduled in most areas in the past 2 years. Previously disturbed areas make location of rhino difficult and the risk high of more disturbance as far as rhino immobilising ops are concerned such as in one national park.</td>
<td>Ear notching has worked as it allows for rhino monitors to account for all rhino in an area and sweeps are done to locate rhino not accounted for. Dehoming has partially worked as some poachers may still poach a dehorned rhino to get whatever horn is available.</td>
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<td>Guardian Dehoming</td>
</tr>
<tr>
<td>R</td>
<td>Trained and eager rhino monitors and strategic anti-poaching teams</td>
<td>Rhino specific patrols and up to date rhino status and population data</td>
<td>Yes</td>
<td>A National rhino monitoring training is ongoing for all rangers in rhino areas and our rangers are all paramilitary trained. However with the establishment of new rhino areas and staff turn-over new teams should be continuously trained</td>
<td>Strategic rhino centred patrols proved very effective as poaching was greatly reduced</td>
<td>Fully equipped rhino monitors</td>
<td>Guardian</td>
</tr>
<tr>
<td>S</td>
<td>Improving public/ private/ community relationships</td>
<td>To ensure that all stakeholders have similar capacity and resources so that weakest links are not targeted</td>
<td>Partially</td>
<td>Relationships are something that need continued work as individuals change etc.</td>
<td>The Association of Private and Community Land Rhino Sanctuaries (APLRS) is a formally recognised association facilitating the interface between private and community with government stakeholders in matters rhino.</td>
<td>The APLRS now has an administrator working with the rhino program office to facilitate implementation of the national Rhino Action Plan (the strategy).</td>
<td>Communities Private</td>
</tr>
<tr>
<td>S</td>
<td>Optimizing asset base</td>
<td>To achieve the most effective combination of resources within financial parameters for unique geo, socially, politically determined parameters</td>
<td>Partially</td>
<td>The environment is consistently changing and the threat evolves</td>
<td>A combination of intel, fences, technological advancements, armed security, canine units, aerial assets AND community relationship building has resulted in zero poaching in 6+ years and zero rhino poaching in one range State in 2020</td>
<td>Includes identified security actions.</td>
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<td>S</td>
<td>Regional community scout program</td>
<td>Community ownership of rhino to the point of knowing each individual and community guardianship towards rhino</td>
<td>Partially – some poaching did take place in 2021</td>
<td>Outside poachers managed to influence local inhabitants so complete unity on rhino protection not yet achieved</td>
<td>Community pride and sense of ownership key to obtaining intelligence and support</td>
<td>Understanding better the infiltration of criminal elements in an otherwise coherent community approaches</td>
<td></td>
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<tr>
<td>S</td>
<td>Integrated law enforcement efforts with stake-holders (including local communities).</td>
<td>To gain understanding and awareness, commitment and cooperative actions.</td>
<td>Supports from each others of partners, well prepared actions and supported actions.</td>
<td>If not, there will be no collaborative in actions and no supports gained from some of others (including local communities).</td>
<td>It can be worked through communication in some ways, making collective understandings, commitments and actions. Contributions from each partners would not be the same due to differences in ability and resources, but monitoring in preparations, implementation and share of results of the action would be consistent implemented.</td>
<td>Sharing information on negative impacts from poaching, and the extinction of rhinos. Having words from policy makers and local leaders for a policy brief of importance of combatting rhino poaching, apart from obtaining commitments through official letters from local government, local leaders and central government.</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Development of Intelligence network(s)</td>
<td>To receive proactive information about poaching conspiracies</td>
<td>Yes</td>
<td>Improved source handler capacity helps to filter information and ensure the integrity of intelligence. Inside involvement compromises strategies</td>
<td>We could outsource all intel’</td>
<td>Intelligence Law Enforcement</td>
<td></td>
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<tr>
<td>S</td>
<td>Experience in two range States – rhino guardianship</td>
<td>Regularly see rhino and have individual knowledge of black and white rhino population</td>
<td>Yes (no poaching in 2020/2021)</td>
<td>Regular presence and boundary integrity seem to be a deterrent for poachers to reach rhino</td>
<td>The efficiency of finding each rhino vs cost of active intelligence and proactively apprehending poachers</td>
<td>Guardian</td>
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<tr>
<td>Category</td>
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</tbody>
</table>
| Generic Rhino Security Programme/Strategy | Staffing, Deception testing, Leadership, Foot patrols, Monitoring (rhino & effort), Intelligence, Budget, Equipment, Infrastructure, Boundary integrity, Boundary fencing, Training, Technology, SAPS/SSA/NGO partnerships, Case management, Access control, Dehorning, Vet support. Noting that a law enforcement security programme is multidisciplinary and collectively contribute to a successful anti-poaching operation – there is no single “silver bullet”.

To provide effective protection to minimise rhino poaching mortalities from illegal hunting. (And this can be achieved through effective law enforcement, good intelligence, accurate monitoring, improved neighbour relations, diligent crime investigations and secure rhino horn stockpiles).

Partially effect in some areas and effective in some areas, especially small reserves with high patrol densities and all equipment and infrastructure provided, including aircraft, helicopters and effective boundary integrity/detection zones. Sadly, some areas experienced local extinctions due to inadequate budget and staffing. Rhino security is a very expensive business.

Budget and staffing levels constraints were an issue that affected the effectiveness of the anti-poaching operations. The importance of having an Anti-poaching Strategy cannot be over emphasised and this must be revised regularly as poachers get smarter.

It is important that all rhino reserves are provided with adequate staffing levels, which under the current level of threat is deemed to be a minimum of one field ranger per 10-12 square kilometres – that works and reduces rhino poaching significantly. (See notes below on pg8 on aspects that will determine patrol manpower densities).

Intelligence is key to a successful law enforcement programme. Deception testing is vital to avoid internal collusion. Dehorning is effective in small populations, provided the law enforcement operations were not relaxed.

Good leadership is key. Drones were not effective. Case prosecution management not great.

Supplying additional budget and staffing for field operations. Create more partnerships to assist with the anti-poaching strategy both in “kind and cash”. The court processes have not been kind to the conservation staff. Case processes are slow and repeat offenders are given bail, which is very demoralising to law enforcement staff. Some cases take years to be finalised and often end badly! There needs to be a refinement in the system that manages rhino poaching prosecutions timeously and effectively.

| Experience from range State | Small sanctuaries well patrolled with good leadership, competence and experience and usually with electric fences

Yes in most cases since the mid-1980s numbers in such areas have increased.

Large bush areas difficult to patrol generally failed, especially if intelligence and government support was weak, and poaching increased when there was collusion with staff or former staff.

Dedicated staff with strong leadership, intelligence, adequate anti-poaching equipment, experienced staff, and ideally smaller areas with electric fences are the easiest to secure, with support from the top. Large areas / poor patrolling and poor commitment / corrupt former staff and officials involved increased poaching.

Look at areas of success and emulate them, and learn about failures too, to find patterns that work and don’t work in all range States in Africa and Asia and according to the requirements of the area, i.e. avoiding silos and sharing techniques and knowledge.

| Legislative changes, higher penalties, judicial capacity building and sensitization, Scene of Crime Training, | To increase the risk to poachers, increase prosecutions and achieve higher penalties

Partially

The sensitivity of training too many people is sensitive matters with the risk that they “turn”.

1st & 2nd respondents on a crime scene training – need to know only worked well. The wildlife agency dedicated wildlife crime prosecutors are working well.

Our forensic capability needs to be improved

| Operation in conservation area from mid 1980s – early 1990s | Stop cross-border poaching of rhinos by gangs from range State

No – all rhinos remaining were poached

Density of anti-poaching staff too low. Lack of strategic planning in attempting to protect entire 10,000km² area. Impossibility of pursuing poachers into neighbouring range State.

Rescue of 300 black rhinos, translocated to other areas, of which about half survived

Concentration of anti-poaching effort in areas of high rhino density (Intensive Protection Zones) while selectively translocating rhinos from lower-density areas

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<tr>
<th>Dehorning</th>
<th>Law Enforcement</th>
<th>Staffing</th>
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<tr>
<td>Protection Zones</td>
<td>Law Enforcement</td>
<td></td>
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<tr>
<td>Legislative</td>
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<tr>
<td>S</td>
<td>Protection of rhinos in a conservation area</td>
<td>Protect and increase rhinos translocated from conservation area</td>
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<tr>
<td>S</td>
<td>Technological advancements</td>
<td>To utilize technological advancements to improve security efficiency, and increase the risk of poaching</td>
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<td>S</td>
<td>The acquisition of National Police Reserve (NPR) status in private and community rhino sanctuaries</td>
<td>To ensure that RPU’s are competently armed</td>
</tr>
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<td>S</td>
<td>Zoos worldwide are raising awareness through various means regarding the subject combatting rhino poaching.</td>
<td>Engage visitors to participate / fundraise for rhino conservation projects</td>
</tr>
<tr>
<td>S</td>
<td>Zoos worldwide are raising awareness through various means regarding the subject combatting rhino poaching.</td>
<td>Engage zoo to participate in rhino conservation projects</td>
</tr>
<tr>
<td>S</td>
<td>Zoos worldwide are raising awareness through various means regarding the subject combating rhino poaching.</td>
<td>Inform visitors by 1) Panels next to exhibits, 2) Keeper talks, 3) Exhibits next to enclosure, 4) Press releases, 5) Social media</td>
</tr>
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<td>Inform visitors by 1) Panels next to exhibits, 2) Keeper talks, 3) Exhibits next to enclosure, 4) Press releases, 5) Social media</td>
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<tr>
<td>S</td>
<td>Implementation of Rhino Task Team (RTT). It formalised some cooperation between specialised and hand-picked members from various ministries to investigate old and new rhino poaching cases.</td>
<td>In how far this is actually having an impact is difficult to assess but the issue of raising awareness is working in the sense that people are aware of the issue.</td>
</tr>
<tr>
<td>R</td>
<td>Dedicated Rhino tracking unit housed within the law enforcement department.</td>
<td>To monitor all rhinos to ensure health and security.</td>
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<tr>
<td>R</td>
<td>Increasing general law enforcement patrols both in coverage, diversity, and man-days.</td>
<td>To ensure the security of a national park and minimize illegal activities and losses to poaching, including rhinos.</td>
</tr>
<tr>
<td>R</td>
<td>Increase the use of technology to support general law enforcement activities and Rhino security specifically.</td>
<td>To support law enforcement and Rhino monitoring efforts by increasing situational awareness and efficiency of activities.</td>
</tr>
<tr>
<td>R</td>
<td>Due to the persistent threat posed by poaching, range State developed and implemented a holistic, integrated and multidimensional response, involving various government departments, including enforcement and intelligence agencies, customs, the National Prosecuting Authority and other stakeholders such as the private Rhino owners, the hunting industry and non-governmental organisations.</td>
<td>To combat Rhino poaching and to bring the rate of animals killed illegally down</td>
</tr>
</tbody>
</table>
Because these wildlife crimes are syndicated and organised, the illegal killing and illegal trade in rhino horn are considered a priority crime in the range State. A Priority Committee was established by an intelligence committee to investigate rhino related crimes and other agencies, has prioritised the investigation of rhino killings; and the Police Service included rhino security in the Rural Safety Plan. Through collaboration the number of arrests have increased (OPS Rhino which was implemented nationally).

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<thead>
<tr>
<th>R</th>
<th>To combat rhino poaching and to bring the rate of animals killed illegally down</th>
<th>Partially</th>
<th>Although different approaches were followed, poaching is still happening and illegal trade in rhino horn is continuing</th>
<th>There were pros and cons of the National Ops Rhino. Availability of budget, intelligence and enough manpower were the issues that made it work.</th>
<th>Combination of national and provincial SAPS deployment to provinces where rhino poaching and illegal trade of horns takes place</th>
<th>Investigations, Cooperation, Arrests</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Pro-active measures, including intelligence-based investigations; and reactive measures, including the transformation of the ranger corps to an anti-poaching force; canine deployment; air surveillance and use of alternative technologies, including drones, will therefore continue to be implemented and strengthened.</td>
<td>Partially</td>
<td>Shortage of manpower, intelligence and in some instances budget</td>
<td>More emphasis on intelligence and closer cooperation between different sectors involved in intelligence gathering and analysis</td>
<td>Staffing, Intelligence, Dogs, Technology, Investigations</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Continued bilateral engagements with neighbouring states as well as the transit and consumer states are an integral part of the response strategy. Some of these bilateral engagements reinforced mutual support and partnerships in among others, the fight against wildlife trafficking, but is not sufficient to address the ever evolving crime networks that have the</td>
<td>Partially</td>
<td>Not all countries have engaged with kept their promises of working with us – with other range State and neighbouring countries relationships grew and we are working hand in hand in the fight.</td>
<td>Having a person in the country of engagement whom to work with that will react when you he/she is contacted</td>
<td>Need nodal points for each country</td>
<td>Cooperation, Investigations, Law Enforcement, Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>National Fusion Centre, National Analysis Unit, National Environmental Crime Database</td>
<td>Centralised repository of environmental crime information (both incidents and arrests)</td>
<td>Fusion Centre Established, Analysis Unit Established, Database Established, Historical information migrated and consolidated, Current information routinely captured and analysed however would consider partially achieved.</td>
<td>Centralised system works well: Feedback and support to IO’s – case / court. Analysis on pressure, threat modus operandi. Focused Investigations – high value targets</td>
<td>Continue enhancing skills and internal capacity. Improved support to law enforcement teams</td>
<td>Cooperation Investigations Intelligence Arrests Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Remote tracking of the rhinos</td>
<td>Be able to follow remotely, night and day, the movement of the rhinos. On a quick schedule, this can give timely alerts for danger, injury or mortality.</td>
<td>We were unable to capture the rhino in the field, as they had no beacons (GPS or VHF) at the time. LoRa trackers, small and ideal for rhinos, are currently scares and difficult to buy.</td>
<td>VHF units in the rhino horns that helped tracking them down failed before expectations and we were unable to capture and substitute the units. Nonetheless, the fact that the trackers need to put more effort into following the tracks to find the rhinos, means that they are also covering more ground daily and more likely to find tracks of poachers, if there are any.</td>
<td>The capture to put in GPS trackers will be tried again as soon as the tracking units are available.</td>
<td>Technology Guardian</td>
</tr>
<tr>
<td>R</td>
<td>Daily monitoring of the rhinos in the reserve</td>
<td>Confirm daily the good health of the rhinos, monitor signs of poachers around the rhinos, able to carry out quick reactions in case of problems</td>
<td>Partially</td>
<td>While the trackers are in the field every day, they are not always able to locate the rhinos.</td>
<td>Change the VHF units in the rhinos more frequently, but this means more costs (vet and tracking units) and more stress for the animals.</td>
<td>Guardian</td>
</tr>
<tr>
<td>R</td>
<td>Have 24/7 protection around the rhinos to prevent any poaching</td>
<td>Protection of rhinos and to avoid any attempt of poaching.</td>
<td>Yes</td>
<td>We have good funding that allows us to have dedicated teams to monitor and protect the rhinos. These teams camp out in the rhino area to be at hand 24/7. The rhino population in our area seems, as of today, too small to attract the attention of organized poachers, which provides an added protection to the rhinos.</td>
<td>Teams are successfully tracking and protecting the rhinos as well as patrolling and controlling the area and home range of the rhinos. The chance to start small provides an easier start for the newly trained trackers and teams tasked to monitor and protect the rhinos. Their skills will be already high when the populations grows, and the poaching threat grows.</td>
<td>Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Have good intelligence gathering around the park to keep eyes on any potential poaching groups</td>
<td>Stop any rhino poaching activity before it even arrives in range.</td>
<td>Yes</td>
<td>Good relations with surrounding communities, who also have direct radio lines to inform us of any potential threat.</td>
<td></td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Dehorning</td>
<td>Remove the object that causes rhinos to be poached</td>
<td>Yes</td>
<td>Rhinos were dehorned upon translocation. This need to be regular.</td>
<td>Dehorning</td>
<td></td>
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</tr>
<tr>
<td>R</td>
<td>Anti-poaching patrols in the rhino protected areas</td>
<td>To arrest poachers entering in the rhino intensive protection zones and in the park generally</td>
<td>Yes</td>
<td>N/A</td>
<td>Key was foot patrols on hilly and in the riverine areas where poachers normally hide</td>
<td>Law Enforcement Arrests</td>
</tr>
<tr>
<td>R</td>
<td>Aerial patrols (fixed wing aircraft) in the rhino protected areas</td>
<td>To search for poachers and liaise with ground teams for arrests</td>
<td>Yes</td>
<td>N/A</td>
<td>Experienced spotter who know the areas well and the kind of aircraft (Husky) used during operations</td>
<td>Law Enforcement Surveillance</td>
</tr>
<tr>
<td>R</td>
<td>Intelligence support</td>
<td>Neutralize poaching syndicates in the villages and districts around rhino protected areas</td>
<td>Yes</td>
<td>N/A</td>
<td>Use of national task force/task coordinating groups including Police, Intelligence Service, Defence Force, Wildlife authorities’ intelligence staff</td>
<td>Intelligence</td>
</tr>
</tbody>
</table>
Appendix 5. Examples of challenges associated with addressing trafficking and suggested responses noted by site managers and authorities. We identify an example as one provided by a range State representative (R) or a specialist (S). We also indicate the elements that an example contains that were used to tally frequencies in Fig. 3.

<table>
<thead>
<tr>
<th>R/S</th>
<th>Challenge</th>
<th>Potential Response</th>
<th>Success Potential</th>
<th>Success or Failure Factors</th>
<th>Impact on rhino conservation</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Corruption</td>
<td>Follow the money. The UN itself does not have this answer!</td>
<td>NOT</td>
<td>Human nature- greed, Wheels within wheels regarding government politics and low priority of non-vote</td>
<td>Success!</td>
<td>Integrity, Intelligence, Networks</td>
</tr>
<tr>
<td>R</td>
<td>Enhance trans-national co-operation</td>
<td>Diplomatic channels. Process DNA of seizures. Sharing of information. Streamline the currently near impossible extradition processes with RSA</td>
<td>partially</td>
<td>Initiatives lie with higher authorities than rhino managers</td>
<td>Assist with prosecution of entire criminal chain – not just individuals or segments of the syndicates</td>
<td>Cooperation</td>
</tr>
<tr>
<td>R</td>
<td>Lack of investment intelligence gathering and port control detection aids</td>
<td>Assist relevant law enforcement agencies where possible. Increase intel component efficiency to infiltrate syndicates and corrupted officials</td>
<td>Good with political will, hopeless without!</td>
<td>Initiative lies with higher authorities than rhino managers</td>
<td>Increased efficiency of law enforcement effort – better targeting. Better investigated syndicated networks. Better discovery and seizure rates</td>
<td>Detection, Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Non specialised prosecutions</td>
<td>Allocate/develop specialist prosecutors in poaching, trafficking &amp; rhino related economic crimes</td>
<td>Good with political will, hopeless without!</td>
<td>Initiative lies with higher authorities than rhino managers</td>
<td>Smoother, quicker better prepared cases for court. Increase conviction rate. Increase risk vs reward equation.</td>
<td>Prosecutions</td>
</tr>
<tr>
<td>R</td>
<td>Risk vs reward. Equation in favour of criminals</td>
<td>Reverse the equation. Increase risk of arrest. Increase consequences of arrest. Mandatory custodial sentences. Conservative granting of bail only in exceptional circumstances. Speed up passage of court cases</td>
<td>Partially – if the compatible opportunities can be resisted</td>
<td>Initiatives lie with higher authorities &amp; politicians</td>
<td>Fewer criminals in jail for longer periods. Less rhino poached. Less resources spent on already arrested accused. More resources spent on prevention of poaching and working on new cases. Increased efficiency all round</td>
<td>Convictions, Sentences</td>
</tr>
<tr>
<td>R</td>
<td>More K9 units in the airports and ports.</td>
<td>Implant K9 units in the international airports and find a way to deal with trafficking in the ports (high volume)</td>
<td>Partially</td>
<td>Lack of funds</td>
<td>Improved surveillance and detection of trafficking</td>
<td>Law Enforcement, Financial</td>
</tr>
<tr>
<td>R</td>
<td>Lack of proactive attitude of the authorities in the consumer countries</td>
<td>Severe punishment of citizens of importing/consumer countries involved in trafficking</td>
<td>Partially</td>
<td>Lack of political will. Corruption</td>
<td>Less appetite for trafficking</td>
<td>Awareness, Sentences, Political, Corruption</td>
</tr>
<tr>
<td>R</td>
<td>Lack of International Collaboration</td>
<td>Engaging country neighbours to collaborate as well as TRAFFIC.</td>
<td>Partially</td>
<td>Constrains are currently experienced with one country. Majority of horns leave the country into a country where authorities do not collaborate. Similarly difficulty is experienced with another country’s authorities.</td>
<td>Syndicates operating out of Angola will be shut down</td>
<td>Collaboration</td>
</tr>
<tr>
<td>R</td>
<td>Difficulty in following the money once horns leave range State.</td>
<td>Collaboration with Angolan authorities, INTERPOL and TRAFFIC</td>
<td>Partially</td>
<td>On the ground poachers deal exclusively in cash. Once the products leave the country to Angola the currency is changed to US$ increasing the difficulty to follow the cash.</td>
<td>A health population of rhino in the country</td>
<td>Networks, Investigations, Collaboration</td>
</tr>
<tr>
<td>R</td>
<td>High Economic value of horns</td>
<td>Abolish the market/trade in horns through signed protocols</td>
<td>Good</td>
<td>-Good leadership skills, -Passionate about conservation, -Hardworking and innovative, -Linkages with other local and international organizations</td>
<td>A health population of rhino in the country</td>
<td>Trade</td>
</tr>
<tr>
<td>R</td>
<td>Porous borders</td>
<td>Increase security along the broader line</td>
<td>Partially</td>
<td>-Border lines are porous making it difficult to curb the scourge</td>
<td>Reduced cross broader trafficking of rhino horn, Increase inter agency collaboration</td>
<td>Law Enforcement, Collaboration</td>
</tr>
<tr>
<td>R</td>
<td>Inadequate Funding for anti-poaching</td>
<td>Allocate adequate funding</td>
<td>Good</td>
<td>-Prudent utilization of the scarce financial resources available</td>
<td>More money resonates into efficient and effective management thus; zero poaching and trade in rhino horn</td>
<td>Financing</td>
</tr>
<tr>
<td>R</td>
<td>Low numbers of IIU officers</td>
<td>Employ enough law enforcement staff</td>
<td>Good</td>
<td>-Prudent distribution of IIU staff</td>
<td>Increased IIU staff intel, increased presence and wide coverage. Thus, no room for trafficking</td>
<td>Staffing, Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Lack of advanced equipment</td>
<td>Procure law enforcement equipment</td>
<td>Good</td>
<td>Strategically allocation of equipment</td>
<td>Adequate and advanced equipment calls for timely detection and response to situations thus; enhances protection</td>
<td>Equipment</td>
</tr>
<tr>
<td>R</td>
<td>Lack of DNA profiling facilities</td>
<td>Establishment of DNA laboratories</td>
<td>Partially</td>
<td>Lack of funding</td>
<td>Successful convictions at courts, Detection on the origins of the horns.</td>
<td>Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Lack of scanners at ports of exit and entry</td>
<td>Installation of modern scanners</td>
<td>Partially</td>
<td>Lack of funding</td>
<td>Improves detection of contraband and more seizures done</td>
<td>Detection</td>
</tr>
<tr>
<td>R</td>
<td>Lack of capacity to carry out controlled deliveries to final destinations</td>
<td>a. Need of legislation which legalizes controlled deliveries, Need of suitable resources to carry out the operations e.g. mobility, communication, detectors.</td>
<td>Partially</td>
<td>Lack of legislation and suitable resources</td>
<td>More syndicate members will be identified leading to disruption of criminal gangs up to sponsors.</td>
<td>Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Poor sharing of databases on wildlife syndicates and movement of criminals.</td>
<td>Improved sharing of information among members</td>
<td>Not</td>
<td>Lack of collaboration on concerned member states. And ICT technology</td>
<td>Improved databases and monitoring of syndicate members.</td>
<td>Cooperation Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Problems of mutual legal assistance with some countries that carries extra-territorial investigations</td>
<td>Ratify mutual legal assistance on exchange and repatriation of exhibits.</td>
<td>Not</td>
<td>Legislation challenges allowing such operations.</td>
<td>Criminals will not have safe havens to hide. They will face criminal justice resulting in deterrent sentences given.</td>
<td>Cooperation Investigations</td>
</tr>
<tr>
<td>S</td>
<td>“Disrupt” illegal rhino horn supply-chain and better control the supply systems.</td>
<td>Allow for a controlled horn trade</td>
<td>Partially -&gt; good. While the system setup is easy, the effect may take more than three years</td>
<td>Most private rhino managers are already “ready” to commence on trade, and can begin almost immediately once a control system (e.g. Blockchain) has been set up.</td>
<td>Less poaching pressure on wild populations.</td>
<td>Networks</td>
</tr>
<tr>
<td>S</td>
<td>Corruption</td>
<td>?</td>
<td>Not</td>
<td>It is an entrenched mind-set</td>
<td>It would be immeasurably more difficult for cartels to traffic wildlife products.</td>
<td>Integrity</td>
</tr>
<tr>
<td>S</td>
<td>Demand in Asia remains high</td>
<td>Allow for controlled trade. Sanctions.</td>
<td>Good.</td>
<td>Global politics</td>
<td>It would most likely reduce the pressure on wild rhino populations.</td>
<td>Trade</td>
</tr>
<tr>
<td>S</td>
<td>Development of a trading “platform” like e.g. Blockchain to form the foundation of controlled horn trade</td>
<td>For on range State, allow the COI and an expert panel of computer scientists, law enforcement to develop a system</td>
<td>Good. There are 100s of similar trading platforms that can act as precedent and inspiration. There is no need to reinvent the wheel.</td>
<td>Emotions amongst mainly non-range State members of CITES prevents it from even being discussed and acknowledged as a “tool”, despite 30yrs of decline under the current system. Lack of positivism and optimism, fear of making decisions</td>
<td>It would most likely reduce the pressure on wild rhino populations.</td>
<td>Trade</td>
</tr>
<tr>
<td>S</td>
<td>Ensuring benefit from conserving rhinos are felt in IPLC in range area.</td>
<td>Allow IPLC sustainable ‘user and management’ rights according to the UNDRIP and SDGs</td>
<td>Not -&gt; partially. IPLC are financially and knowledge disadvantaged and need support to acquire, manage and use rhinos sustainably</td>
<td>Currently, hardly any IPLC has the capacity to do this.</td>
<td>Potentially more private small-holders anchored in IPLC acting as deterrents/buffers to wild rhino populations.</td>
<td>Communities</td>
</tr>
<tr>
<td>S</td>
<td>Ensuring benefit from conserving rhinos are felt in IPLC in range area.</td>
<td>Allow IPLC sustainable ‘user and management’ rights according to the UNDRIP and SDGs</td>
<td>Not -&gt; partially. IPLC are financially and knowledge disadvantaged and need support to acquire, manage and use rhinos sustainably</td>
<td>Currently, hardly any IPLC has the capacity to do this.</td>
<td>Potentially more private small-holders anchored in IPLC acting as deterrents/buffers to wild rhino populations.</td>
<td>Communities</td>
</tr>
<tr>
<td>S</td>
<td>Ensuring that the value of live rhinos are higher than that of dead rhinos</td>
<td>Allow for a controlled horn trade</td>
<td>Good. The local authorities are their own decision makers. The CITES rules are clear for F2 generations, captive breed criteria etc.</td>
<td>It is ALSO a human right under the UNDRIP as well as a provision in the SDG, so there are no real legal obstacles preventing this from happening.</td>
<td>Most of the hogs will be supplied by private breeders and the poaching pressure will decrease on wild stock. .</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>S</td>
<td>Ensuring that the value of live rhinos are higher than that of dead rhinos</td>
<td>Allow for a controlled horn trade</td>
<td>Good. The local authorities are their own decision makers. The CITES rules are clear for F2 generations, captive breed criteria etc.</td>
<td>The case is simple; Captive bred species in the F2 generations are considered and can be traded, as long as they are appropriately record/registered.</td>
<td>Most of the hogs will be supplied by private breeders and the poaching pressure will decrease on wild stock. .</td>
<td>Socio-economic</td>
</tr>
<tr>
<td>S</td>
<td>Follow-up on smuggling “mules” arrested with horn after flights from Africa via other flight hubs</td>
<td>Collaboration between law enforcement agencies in countries of horn origin and those where seizures are made</td>
<td>Good – if official/political will is developed</td>
<td>Inefficiency on the part of officials who fail on concerted efforts to trace horns back along every step of supply chain</td>
<td>More arrests of middlemen on the supply side</td>
<td>Cooperation</td>
</tr>
<tr>
<td>S</td>
<td>Not directly involved in this aspect. Better articulated by staff in TRAFFIC. Suffice the say, at a local level, random VCP’s in roads around a reserve/PA have seemingly been effective to constrain poacher movement.</td>
<td>Open up trade to reduce illegal demand.</td>
<td>Unlikely given the stand from CITES</td>
<td>Trade regulations</td>
<td>Trade would provide the much-needed revenue streams required to protect rhino populations.</td>
<td>Trade</td>
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<tr>
<td>S</td>
<td>Persistent demand for rhino horn in consumer markets uplifting the illegal market price, which in turn provides the incentive for trafficking to continue.</td>
<td>Direct engagement with consumers of rhino horn products to include them as part of a collaborative solution</td>
<td>Not unless a change of approach is agreed upon and adopted</td>
<td>This is largely beyond the reach of rhino managers and will depend on the initiatives of key governments (through their relevant agencies) and NGO players working together constructively (and agreeing to modify their current approach toward consumers, which tends to be more prescriptive)</td>
<td>Likely to have a positive effect on reducing illegal trade over time</td>
<td>Demand</td>
</tr>
<tr>
<td>S</td>
<td>Port authorities in many countries are not equipped to “discover” and confiscate shipments</td>
<td>Build capacity.</td>
<td>Not.</td>
<td>Global politics</td>
<td>Detection</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Port authorities in many countries are not equipped to “discover” and confiscate shipments</td>
<td>Provide financial support</td>
<td>Good</td>
<td>Global politics</td>
<td>Detection</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Private stockpiles in range State</td>
<td>Stringent auditing of stockpiles</td>
<td>Good – if official/political will is developed</td>
<td>Unwillingness of rhino producers to close loopholes that prevent laundering of horn onto black market</td>
<td>Reduced horn smuggling</td>
<td>Stockpiles</td>
</tr>
<tr>
<td>S</td>
<td>Processing of horns within Africa, for export as jewellery etc.</td>
<td>Very high penalties for processing horns in range States</td>
<td>Good – if official/political will is developed</td>
<td>Slow process of enacting legislation &amp; lack of political will to do so</td>
<td>Reduced horn smuggling</td>
<td>Prosecutions</td>
</tr>
<tr>
<td>S</td>
<td>Prosecution and conviction of traders/traffickers INCLUDING foreign diplomats involved in it</td>
<td>Enforce the local national laws</td>
<td>Good. The laws are clear. There are lots of evidence. Politics only prevents it from taking place.</td>
<td>Political/financial pressure from demand countries are larger than support.</td>
<td>Disrupts and deter illegal poaching syndicates operations – will result in less illegally poached rhinos</td>
<td>Prosecutions</td>
</tr>
<tr>
<td>S</td>
<td>Sensible policy toward rhino horn stockpile management, with full cooperation of all private stockpile holders</td>
<td>Create incentives for holders of private stockpiles to cooperate with other parties</td>
<td>This very much depends on the willingness and ability of government agencies to engage effectively (with positive support from NGOs)</td>
<td>As above, this is not in the hands of rhino managers directly, who can only do so much to secure stockpiles of harvested horn</td>
<td>Securing cooperation with holders of private stockpiles would enable more inclusive forging of a solution of the trafficking problem</td>
<td>Stockpiles</td>
</tr>
<tr>
<td>S</td>
<td>Weak surveillance of airports with regional or international flights</td>
<td>Install more scanning equipment and canine units</td>
<td>Good – if official/political will is developed</td>
<td>Lack of official/political will – in one range State, gold smuggling linked to senior officials/politicians means that surveillance measures are kept inadequate</td>
<td>More horn seizures</td>
<td>Detection</td>
</tr>
<tr>
<td>S</td>
<td>Working collaboratively to disrupt supply chain routes for rhino horn</td>
<td>Focused collaborative effort to pinch supply chains</td>
<td>Partially</td>
<td>Corruption and poor alignment of intelligence efforts regionally and internationally</td>
<td>If there was regionally and international alignment at disrupting the supply chains horn trade will have a massive impact in the supply side take off as the supply chain is most likely a few individuals so disrupting them can have a big impact on the ground</td>
<td>Cooperation Networks</td>
</tr>
<tr>
<td>S</td>
<td>Government corruption and complicity at both the individual and institutional level in source, transit and consumer countries stands as a major impediment to curbing illegal rhino horn trade.</td>
<td>Where evidence and credible intelligence suggests corruption, dogged investigation should become an unyielding imperative to piece together what actually transpired. International exposure and accountability is necessary to break the gridlock.</td>
<td>If left to their own devices, national authorities usually are incapable of effectively exposing and curbing corruption in their ranks even where honest individuals are in oversight positions. This is because it usually is very unclear how far the corruption extends and, more often than not, any heads above the parapet calling out malpractice</td>
<td>There is an entrenched reluctance to pursue corruption issues under the Convention. The default solution under CITES is to develop self-evaluation mechanisms as the key metric for assessing compliance issues. This essentially elevates self-interest and obfuscation as the primary values of decision-making. Corruption and complicity flourish in such an environment.</td>
<td>Success in exposing corruption AND holding guilty individuals accountable has been transformative in certain situations. Failure to do so usually allows corrupt practices to continue if not expand. This is a major issue where wildlife trade is concerned but always gets short shrift in terms of the kind of focused attention that really produces results.</td>
<td>Corruption Investigations</td>
</tr>
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<tr>
<td></td>
<td><strong>S</strong> Failure of governments to share seizure and stockpile data.</td>
<td>To make failure to report data a consequential non-compliance matter for offending nations who routinely shirk this CITES reporting obligation.</td>
<td>The ability to report data on seizures and stocks is wholly within the capabilities of every CITES Management Authority even in instances where other governmental bodies hold the primary data.</td>
<td>It is of concern that some countries believe that reporting such data implicates them in illegal wildlife trade so there is strategic reluctance to volunteer information.</td>
<td>The ability to monitor the trade would be greatly enhanced if key datasets were more robust. All systems are only as good as the data they receive. Failure to have a good dataset for analytical purposes leads to faulty conclusions that may not be supportive of good rhino conservation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> Syndicate / Network Dynamics</td>
<td>Law Enforcement agencies to be just as fluid and dynamic with regards to information sharing, not restricted to provincial boundaries and ensuring associated information sharing</td>
<td>Partial</td>
<td>Syndicates always changing and adapting modus operandi – managers and law enforcement need to adapt accordingly</td>
<td>Minimised poaching incidents, increased arrest and prosecution of high value targets</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> International cooperation between countries of origin of rhino products and consuming countries</td>
<td>Contact person and details in each country to contact when seizures are made or when intelligence need to share</td>
<td>Good</td>
<td>Little or no cooperation from countries where seizures are made</td>
<td>Much quicker turnaround time for DNA analysis and outcomes of possible court cases. Sharing of intelligence to arrest traffickers</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> Inadequate funding</td>
<td>To get donors and other stakeholders to extend their support for fighting rhino horn trade. To adequately involve private sector, communities and public in the fight against rhino horn trade</td>
<td>Partially</td>
<td>Overreliance on Government budget and traditional donors especially WWF and FZS</td>
<td>Enhanced rhino seizures resulting from improved law enforcement. Sustainable funding that will improve capacity of law enforcement staff to pursue trafficking network and syndicates</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> Inadequate equipment</td>
<td>Get private sector involved to support acquisition of major working equipment. Continue to persuade government to increase budget for protection of rhino populations</td>
<td>Partially</td>
<td>Low awareness of the private sector on rhino conservation</td>
<td>Motivated human capital (law enforcement staff) and improved efficiency in terms of rhino horn confiscations</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> Inadequate cross border collaboration</td>
<td>To revive the EAC RMG and adequately involve CEOs of the wildlife authorities of the member countries. Effectively involve top Government officers from the security organs (Police, TISS, TPDF, Immigration Department) in the cross border initiatives between two range States</td>
<td>Good</td>
<td>Rhino managers not involved in cross border meetings</td>
<td>Improved and sustained law enforcement efforts to combatting illegal rhino horn trade</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>R</strong> Inadequate capacity to determine genuine rhino horns</td>
<td>Short course to rhino and other law enforcement staff</td>
<td>Good</td>
<td>Lack of fund to conduct short courses for rhino and other law enforcement staff</td>
<td>Improved confiscations of genuine rhino horns in range State</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 6. Examples of initiatives aimed at curbing trafficking provided by range State representatives and other respondents. We identify an example as one provided by a range State representative (R) or a specialist (S). We also indicate the elements that an example contains that were used to tally frequencies in Fig. 3.

<table>
<thead>
<tr>
<th>R/S</th>
<th>Practice</th>
<th>Objectives</th>
<th>Achievement</th>
<th>Success factors</th>
<th>Failure risks</th>
<th>Improvements</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Target detection of rhino horn trafficking in the country.</td>
<td>Use of sniffer dogs to detect rhino horn.</td>
<td>Yes; Success in detection of trafficked rhino horn.</td>
<td>Apprehension with good evidence for prosecution.</td>
<td>Not so impactful in detecting the major horn outflow from the country as illegal border crossing appeared to be the major source.</td>
<td>Engagement with neighbour countries law enforcement for detection of illegal border crossing and apprehension</td>
<td>Detection Technology</td>
</tr>
<tr>
<td>R</td>
<td>Public offer of rewards for verified information which lends to prevention of rhino poaching/arrest of rhino poachers</td>
<td>Intercept trafficking. Create mistrust among syndicate members</td>
<td>partially</td>
<td>Debriefings suggest mistrust was achieved. Most info acted on resulted in arrests, but false horns were normally intercepted</td>
<td>Increase reward offered</td>
<td>Intelligence Networks</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Recruit informer base</td>
<td>Increase credible intelligence on poaching/trafficking groups</td>
<td>partially</td>
<td>Dependable payments of reward. Good communication with local informants. Confidentiality guaranteed. Respect handler/informer relationship</td>
<td>Info of groups operating from long distance e.g.: two range States, was scarce unless ground work prepared by groups locally.</td>
<td>Better info sharing and gathering from neighbouring countries, source, transit and destination countries</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Run counter intelligence among workforce to ensure corruption attempts are exposed AND acted upon.</td>
<td>Root out the enemy within – the most dangerous of all. Offer alternative legal income through access to rewards from exposing trafficking and poaching. Encourage disclosure of approaches by syndicates among staff (carrot &amp; stick approach)</td>
<td>yes</td>
<td>Act on info. Confidentiality guaranteed. Attractive payments for info even if not as lucrative as becoming involved in poaching</td>
<td>Increase rewards offered.</td>
<td>Integrity</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Engagement of and working with related stakeholders at airport and ports where a key sites transporting the horns.</td>
<td>To develop understanding, awareness and commitment in combating horn trafficking.</td>
<td>Integrated tasks and actions in combating horn trafficking at the sites; Implementing strict detection to horn trafficking in and out of the country. Solid cooperation and communication among related partners.</td>
<td>For success: Strick supervision to horn trafficking at the sites, communication on any handling of illegal trafficking investigated and prosecuted, continuing campaign on combating horn trafficking, openness to public on all horn traffickers who is sentenced and fine, feedback from public on efforts of the integrated task force and continue to refine the efforts.</td>
<td>Tasks can worked are campaigns, communication, collaborative actions, law enforcement,</td>
<td>Setting a real time in detecting anything of parts of wild animals especially on horn trafficked at the sites. Monitoring to all persons at the sites (airport and ports) and passengers at the entrance and applying strict detection to things carried and transported. To any suspicious things (which are related to parts of rhino horns), any person or passenger must be interrogated, investigated and prosecuted for law enforcement.</td>
<td>Detection Prosecution Awareness Investigation</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of K9 unit at International airport</td>
<td>Detect rhino horn in the luggage of international passenger</td>
<td>Yes partially</td>
<td>Occultation Methods improved by traffickers not enough dogs to cover cargo area and other international airports in the country</td>
<td>Obstruction of other authorities in the airport in the beginning but solved. The K9 unit have free access to all areas except tower.</td>
<td>Have at least more 4 dogs to cover the cargo area of the airport.</td>
<td>Law Enforcement</td>
</tr>
<tr>
<td>R</td>
<td>Sensitization and Training of prosecutors and judges</td>
<td>The sensitize and familiarize the prosecutors and judges with wildlife crime and the specific law</td>
<td>Yes, Partially</td>
<td>It is continuous work because of mobility of prosecutors and judges and new magistrates coming into the system.</td>
<td>It made a significant change in court cases</td>
<td>Create more training opportunities for the investigation police on crime scene and forensics in general.</td>
<td>Prosecutions Convictions</td>
</tr>
<tr>
<td>R</td>
<td>Establishment of rhino task team (RTT)</td>
<td>RTT is a formal cooperation between the Protected Resources Division of national police within the Ministry of Home Affairs, Immigration, Safety and Security and the Intelligence and Investigation Unit within the Ministry of Environment, Forestry and Tourism. RTT works within a framework to eradicate commercial poaching and trafficking of illegal game products.</td>
<td>Yes</td>
<td>Since the inception of RTT over 100 preemptive arrests have been made in some 30 cases of conspiracy to poach. A number of high-level kingpins have been arrested over the last 6 months, including international kingpins. Since the inception of RTT about 700 suspects were arrested in cases relating to high-value species. They have also developed a comprehensive Wildlife Crime Database for the range State.</td>
<td>Collaboration of multiple Government agencies have been the success. Operatives have been targeted by criminal syndicates and court cases made against them.</td>
<td>Budget is required to defend operatives against court cases brought against them by criminal syndicates.</td>
<td>Investigations, Arrests, Networks</td>
</tr>
<tr>
<td>R</td>
<td>Dehorning</td>
<td>This was an initiative meant to combat horn trafficking by cutting the rhino horn</td>
<td>Yes</td>
<td>No poaching was done during this period hence resulting with no horn trafficking.</td>
<td>Dehorning worked</td>
<td>Use of drones for monitoring and surveillance to combat horn trafficking.</td>
<td>Dehorning Technology</td>
</tr>
<tr>
<td>R</td>
<td>Implants</td>
<td>For monitoring purposes especially the movements of the species.</td>
<td>Yes</td>
<td>Because animals were easily tracked, monitored and located without challenges.</td>
<td>Implants worked</td>
<td>Fencing part of the park for rhinos only</td>
<td>Surveillance Technology</td>
</tr>
<tr>
<td>R</td>
<td>24/7 Surveillance and monitoring</td>
<td>For monitoring purposes as one way of combating horn trafficking</td>
<td>Yes and the initiative is still in use</td>
<td>Because it is a 24/7 monitoring and surveillance as such no any threat to rhino poaching for horn</td>
<td>The initiative is still working</td>
<td>Increase the fuel allocation for patrols along the park fence boundary and also use of airspace during the day.</td>
<td>Surveillance</td>
</tr>
<tr>
<td>R</td>
<td>Informer Network</td>
<td>To curb trading in rhino horn</td>
<td>Yes</td>
<td>Timely reception of intel, Number of suspects apprehended</td>
<td>In minor circumstances, unreliable informants, Informer network worked very well</td>
<td>All law security wings to be fully involved in wildlife crime prevention</td>
<td>Intelligence</td>
</tr>
<tr>
<td>R</td>
<td>Rapid Deployment Team/Canine Unit</td>
<td>To respond to emergency encounters</td>
<td>Yes</td>
<td>Increased Number of suspects, Backstopping</td>
<td>The initiative worked well, Quick intervention</td>
<td>The Rapid Deployment Teams to be located at area level unlike centralised at Regional level</td>
<td>Dogs</td>
</tr>
<tr>
<td>R</td>
<td>Surveillance</td>
<td>To know the syndicates and linkages involved</td>
<td>Yes</td>
<td>Some syndicates known and still under investigations</td>
<td>Possible trade routes identified, Syndicates known</td>
<td>Prioritise joint cross broader operations, Need for more advanced equipment to detect horns, Strengthened inter agency collaboration</td>
<td>Surveillance, Networks, Investigations</td>
</tr>
<tr>
<td>R</td>
<td>Deployment of Compliance Officers at exit and entry points</td>
<td>- To detect concealed contraband and proceeds. To detect permit fraud</td>
<td>Yes</td>
<td>A seizure of ground rhino horns were done successfully in 2018. 20.86kgs</td>
<td>Law enforcement officers arrested seven (7) member syndicate from one country</td>
<td>Improve communication with consumer nation and improve information sharing via INTERPOL</td>
<td>Detection</td>
</tr>
<tr>
<td>R</td>
<td>FITTING of transponders in a horn</td>
<td>Monitoring movements of Rhinos through horn implants.</td>
<td>Yes</td>
<td>A successful arrest was done when an aircraft was used to follow 68-75km horn from poaching scene to town</td>
<td>After recovers the suspect was arrested</td>
<td>Provision of modem horn implant and microchips</td>
<td>Networks Technology</td>
</tr>
<tr>
<td>R</td>
<td>Intelligence-led stop and searches on routes along or exiting habitats</td>
<td>To detect concealed contrabands</td>
<td>Yes</td>
<td>Successful follow-ups and shoot-outs occurred leading to the arrest and deaths of known poachers</td>
<td>Suspects were arrested</td>
<td>Improve on mobility and equipment</td>
<td>Intelligence Networks</td>
</tr>
<tr>
<td>S</td>
<td>Dehorning in conservancies</td>
<td>Reduce reward for poachers while maintaining risk for them to harvest horn stubs</td>
<td>Partially</td>
<td>Where anti-poaching effort was weak (insufficient manpower or organization) poachers would still harvest horns for low return, since risk was also low</td>
<td>Removing hundreds of kg of horn that would otherwise have entered black market.</td>
<td>More stringent, CITES supervised auditing of horn stockpiles to avoid leakages</td>
<td>Dehorning</td>
</tr>
<tr>
<td>S</td>
<td>EAZA engaging with the non-range States for policy formulation and guidance with regards to CITES, CBD etc.</td>
<td>To influence non-range States’ policies to reflect the real needs of conservation on the ground, as well as find workable solutions.</td>
<td>Too early to say</td>
<td></td>
<td></td>
<td>Legislative</td>
<td></td>
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<tr>
<td>S</td>
<td>Intelligence</td>
<td>To improve our response in case of rhino poaching</td>
<td>Partially</td>
<td>We haven’t had the opportunity to test it BUT some suspects have been apprehended in possession of rhino horns in on range State</td>
<td></td>
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<td>Intelligence</td>
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<td></td>
<td>Intelligence, science-based evidence and effective law enforcement</td>
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<td>S</td>
<td>To break the supply chain and prevent future trafficking by finding out about and keeping up to date information on the trade routes of the country/range State and the routes through entry port locations and to consumer countries and where/for what the horn is used and by who, trends and prices to help understand demand to combat the illegal trade in rhino products from all five species by improving law enforcement where most needed.</td>
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<td></td>
<td>In one range State we have a lull in poaching/trafficking having learned from past mistakes, but trafficking can still occur through the country, combined with other illegal products e.g. ivory, due to corruption and cartels at the border crossings and entry/exit points. In consumer countries the biggest market today is one named State and the cross border trade from specific region needs to be curtailed with international support against corrupt criminals involved, an objective still largely unmet.</td>
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<td></td>
<td>Poachers/traders use mobiles to communicate and take advantage of full moon nights and holidays to get rhino horn and out of sanctuaries and knowing such facts enables us and enforcement teams to work together to prevent poaching/trafficking. More border point checks are needed with dogs and greater transparency to hinder criminals and key is commitment from the top officials employing the best enforcement officers with cross border intelligence and judiciary for these cases with magistrates who act quickly and who are not bribed so that kingpins are sentenced appropriately with asset forfeiture (to reward informants and help conserve rhinos).</td>
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<td></td>
<td>Private/community sanctuaries working with Parks and Reserves with the support of the government at the highest levels, detection dogs at airports, a non-comptent judiciary is needed if high penalties are to be a deterrent, especially against the traffickers. Monitoring the consumer markets – both physical and online – to curtail illegal sales and focussing on traders threatening rhinos in Africa and Asia (with well-meaning western governments not being distracted by bans on authentic antiques that can be a red herring detracting funds and effort from the serious issues of protecting rhinos where most needed and where funds and support must be directed first and foremost with clear messaging to that effect).</td>
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<td></td>
<td>More kingpins sentenced effectively. When traffickers are caught with horns find out from them about the supply chain, prices paid for horn per kg, rather than just confiscating them with no data collected to help break the supply chain. More support and coordination from those countries with their nationals involved in trade is needed. Diplomatic bags to be checked by dogs. Work with the consumers who are the main users of rhino horn, not forgetting rich elite etc. One State has an ancient relationship with rhino products to understand without Western patronizing jargon that may backfire. We need full cooperation in wrong doing prevention/detection.</td>
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<td></td>
<td>Intelligence. Networks</td>
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<thead>
<tr>
<th>S</th>
<th>Forensic sampling &amp; DNA profiling</th>
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<tbody>
<tr>
<td></td>
<td>To add to regional reference collection for tracing horns seized on black market.</td>
</tr>
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<td>Limited export before restrictions became prohibitive.</td>
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<td></td>
<td>CITES-endorsed simplification of export measures (dealing also with restrictions arising from Convention on Biological Diversity regarding DNA exports).</td>
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<td></td>
<td>Networks</td>
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<thead>
<tr>
<th>S</th>
<th>Secure rhino horn stocks and ensure the management process thereof is safe, thorough and secure.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>To manage rhino horn from the field (natural death/ seizures) to a headquarters offsite for storage and safekeeping.</td>
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<tr>
<td></td>
<td>A well-documented Standard Operating Procedure (SOP) for the management and control of rhino horn was effective, including microchipping/DNA collection in terms of requirements of the Regulations.</td>
</tr>
<tr>
<td></td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Stocksiples</td>
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<thead>
<tr>
<th>S</th>
<th>Wild crime Prevention in range State</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Intelligence driven approach to pre-emptively catch poachers and apprehend criminals that have committed a rhino crime.</td>
</tr>
<tr>
<td></td>
<td>Good intelligence network, good team and expanding aspects regionally with information network working well together.</td>
</tr>
<tr>
<td></td>
<td>Funding remains a challenge and needs long-term funding going forward.</td>
</tr>
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<td></td>
<td>Intelligence</td>
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<thead>
<tr>
<th>S</th>
<th>Zoos worldwide are raising awareness through various means regarding the subject combating rhino poaching.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Engage visitors to participate / fundraise for rhino conservation projects.</td>
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<tr>
<td></td>
<td>Offen zoos have various focuses (different species / topics) therefore rhino poaching is not a sole focus and will not be talked about all the time… Good campaigns (like the EAZA Rhino Campaign in 2005 / 2006) have shown that the effort to focus for 1 – 2 years on a topic may reach much more people.</td>
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<td>Funding</td>
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<tr>
<th>S</th>
<th>Zoos worldwide are raising awareness through various means regarding the subject combating rhino poaching.</th>
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<tbody>
<tr>
<td></td>
<td>Engage zoos to participate in rhino conservation projects.</td>
</tr>
<tr>
<td></td>
<td>The active engagement NGOs (like SRI and IUCN) have been very useful in providing information to zoos and to facilitate partnerships between zoos and field projects. It is very important to have a personally very much encourage good cooperation between zoos / NGOs / IUCN and field partners. The better this works, the larger our credibility in helping to combat rhino poaching.</td>
</tr>
<tr>
<td></td>
<td>Funding</td>
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<tr>
<td>Country</td>
<td>Description</td>
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<td>S</td>
<td>Zoos worldwide are raising awareness through various means regarding the subject combatting rhino poaching.</td>
</tr>
<tr>
<td>S</td>
<td>Zoos worldwide are raising awareness through various means regarding the subject combatting rhino poaching.</td>
</tr>
<tr>
<td>S</td>
<td>Collecting data on rhino horn seizures, i.e. quantities of raw rhino horns or rhino horn products seized, trade routes used, nationalities of offenders, methods of transport and concealment, etc.</td>
</tr>
<tr>
<td>S</td>
<td>Collection of data on the status of rhino horn stockpiles on an annual basis to track accumulation and other issues</td>
</tr>
<tr>
<td>R</td>
<td>Training of detection dogs from the park’s K9 unit on rhino horn specifically.</td>
</tr>
<tr>
<td>R</td>
<td>Legislation to regulate legal rhino horn trade range State. Legislation to regulate illegal trade if TOPS is not adhered to – e.g. If you have no TOPS permits to possess/trade</td>
</tr>
<tr>
<td>R</td>
<td>In/sell/receive/dehorn etc.</td>
</tr>
<tr>
<td>R</td>
<td>A DNA analysis initiative – (taking of DNA samples from horns as per The norms and standards for the marking of rhinoceros and rhinoceros horn and for the hunting of rhinoceros for trophy hunting purposes.</td>
</tr>
<tr>
<td>R</td>
<td>Publishing norms and standards for the marking of rhinoceros and rhinoceros horn and for the hunting of rhinoceros for trophy hunting purposes.</td>
</tr>
<tr>
<td>R</td>
<td>National Fusion Centre, National Analysis Unit, National Environmental Crime Database</td>
</tr>
<tr>
<td>R</td>
<td>Keep the horns from the dehorned rhinos in a safe place.</td>
</tr>
<tr>
<td>R</td>
<td>Recurrent checks and official books kept on the items at risk of trafficking (ag. Ivory or rhino horns)</td>
</tr>
<tr>
<td>R</td>
<td>Intelligence support</td>
</tr>
</tbody>
</table>