The Rhinoceros Horn Trade Ban:

Can Scenario Formulation help build Consensus amongst

highly polarised South African Stakeholders?

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Jane E. Wiltshire

Abstract

Many issues regarding wildlife trade are fiercely debated; often the various stakeholder groups have entrenched opposing positions which makes building consensus around the best solution/s extremely difficult. This is exacerbated in that stakeholders often come from entirely different disciplines and philosophical viewpoints.so that no common vocabulary or acceptable method of discussing the problem to reach a consensus exists. This study examines the use of a blend of two decision support methodologies, scenario formulation and a Delphi Study as part of a stakeholder analysis in building consensus in the debate on the legalisation of the international trade in rhino horn. The results gathered from the responses to two consecutive online questionnaires show the development of significant consensus over the process and performed far better in this regard than a traditional public debate. In addition, four decision scenarios – Fort Knox, Besieged, Arms Race and Golden Circle were crafted for wider use in public fora and a possible ‘Baptists and Bootlegger’ type of unwitting alliance between Animal Rights NGOs and Poachers, Middlemen and Criminal Syndicates was indicated.

Keywords: rhino, horn trade, consensus, scenario, Delphi, stakeholder analysis unwitting alliances

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1 Introduction

The Rhinoceros Horn Trade Ban: Can scenario formulation help build consensus amongst highly polarised South African stakeholders?

1.1 Purpose

The purpose of the study was to assess the efficacy of decision-support tools that have been used in politics and business in building consensus in the debate on the legalisation of the international rhinoceros (hereafter referred to as rhino) horn trade as (part of) a solution to the rhino poaching crisis in South Africa.

Decision-support tools that have been effective in other situations of strongly held, opposing views were assessed and the format judged to be most likely to increase consensus in the rhino horn trade ban/legalisation debate was decided on.

1.2 Problem

The rhino is a megaherbivore who is a keystone species on the African savannah. It had being killed illegally (poached) to supply demand for multiple market niches in many mainly far-eastern countries. The level of poaching was at an unsustainable level where rhino had gone extinct through much of its former African rangelands. Its numbers were declining in South Africa , one of the last bastions of the two species of African rhino still extant.

One of the issues most fiercely debated by rhino stakeholders was the efficacy of the continued ban or the legalisation of the international trade in rhino horn in terms of reducing poaching to below natural growth in rhino population so that wild populations could once more increase. Proponents and opponents of the legalisation of the

international rhino horn trade tended to come from differing standpoints and moral frameworks and so ‘talked past each other’. The debate had sometimes descended to heated ad hominin attacks, despite opposing sides sharing the same stated goal – the long-term well-being of the surviving African rhino species. This was not a conducive environment for making good decisions.

Several methods had been used to try to foster consensus among stakeholders included research, commissions of inquiry, public debate, articles, cartoons and infographics in traditional and social media. The continued fierce debate pointed to a lack of success of these methods in promoting consensus. No literature on the success of these methods in consensus building on the issue (or others closely similar) were found in the literature review. Consensus building techniques not previously used in this debate were therefore examined for suitability and tested on a representative sample of rhino stakeholders who were asked their opinion on the likely efficacy of the continued ban or legalisation in the international trade in rhino horn. This repeated canvassing of opinions enabled the level of consensus pre- and post-participation in the exercise to be gauged and compared for consensus building.

This study has canvassed South African stakeholders in the international rhino horn trade legalisation debate to examine two policy choices (continued ban of international trade in rhino horn and legalisation of this trade) and the possible futures that each could produce. These futures (or scenarios) were initially presented in an as neutral as possible manner to stakeholders who were asked to assess the potential impact on of each scenario on themselves and other stakeholders. The analysis has also highlighted the choices, decisions and likely consequences for the major stakeholder groups.

1.3 Research Question

Can decision support tools used in disciplines other than wildlife conservation contribute meaningfully to building consensus in the debate on the legalisation of the international rhino horn trade?

1.4 Sub-questions

1.4.1 Are scenario building and a Delphi Survey suitable decision support tools for building consensus amongst stakeholders?

1.4.2 Who are the principal groups of entities (stakeholder groups) affected by the trade ban?

1.4.3 How is each stakeholder group likely to fare under each scenario?

1.5 Background to the Research Problem

If South Africa, as the custodian of 80% of the world's rhino population, (R. Emslie, Knight, Mike, 2012) could reach sufficient internal consensus on whether the trade in rhino horn should be legalised or not, they could then take up their natural role as a leader in the debate on rhino horn trade legalisation instead of standing on the side-lines as they did at the last Conference of the Parties (CoP) — part of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the international body constituted in 1977 to regulate the international trade in endangered species to promote their long term survival.

2 Literature Review

2.1 Introduction

The international trade in rhino horn has been driven by demand for the horn in the Middle and Far East despite international trade in rhino horn (except for a few horns from legal

trophy hunts) having been declared illegal by a 1977 listing by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (hereafter abbreviated to CITES) on their Appendix II (species that may become extinct unless trade is closely controlled). The trade ban has meant that the demand for rhino horn was being satisfied largely by illegally harvested horn which generally involved the killing of the rhino (commonly referred to as poaching). This illegal trade has continued despite the ban (and has arguably increased) due to poor enforcement of the law and despite the efforts of behaviour modification campaigns in consumer nations, to reduce demand.

This unsustainable harvesting of rhino horns has contributed to the decline of populations in Southern Africa where rhino numbers had been growing from the early 1900's. The acceleration in poaching in southern African countries has led to the question of whether the ban on international trade in rhino horn should be maintained or whether law enforcement should be scaled up. The continuation or lifting of the ban has been a hotly debated issue, with incomplete information especially on demand and potential demand — should the trade be legalised. Timeframes in which action should be taken are also felt to be short as it has been variously estimated that within five to ten years rhinos would become extinct in the wild and the remaining few would be largely confined to highly fortified areas akin to zoos.

Because there is no the scope for small scale experimentation, and the proponents and opponents of a legalised international trade generally hold strong opposing views, this study investigated methods used in business and politics to develop and test a decision framework for consensus building amongst what are considered to be highly polarised South African stakeholder groups. The research methods were chosen to enable a more reasoned, even if still robust, debate and in so doing, to assist in clarifying the options, trade-offs and consequences for decision makers and stakeholders.

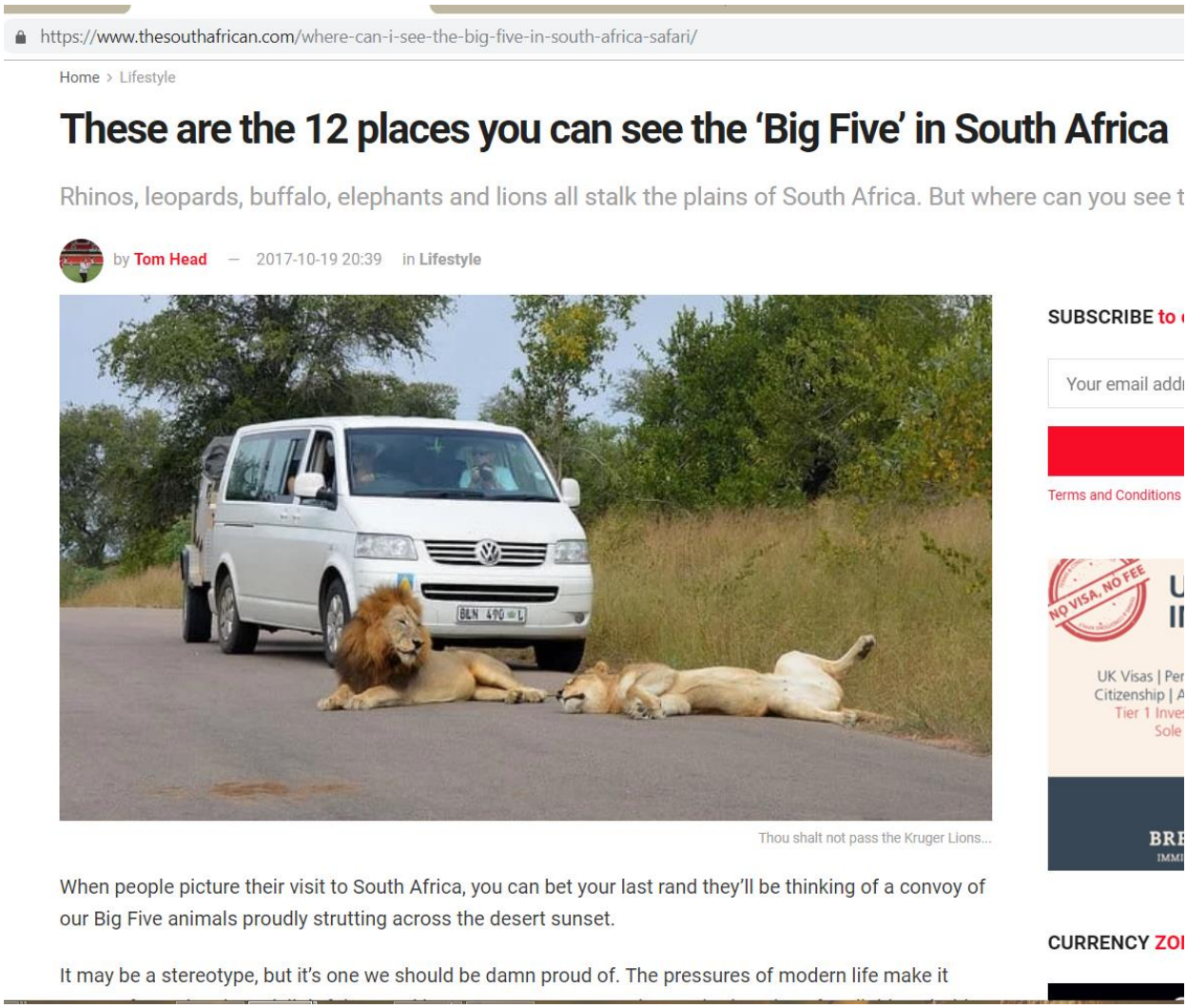
This literature review has been structured as a rational flow of the background logic with a chronological order, where appropriate, within each section.

2.2 Background - Why is the Legalisation of Trade in Rhino Horn so Fiercely Debated?

The legalisation or continued ban of the international trade in rhino horn has been a conservation debate which has provoked a large amount of interest from a wide variety of stakeholders, from conservation experts and rhino owners to concerned members of the public. That this is a matter of great interest and controversy (if not **the** conservation issue that is most fiercely debated by the public and stakeholders) can be gauged by the fact that when the question of legalisation of the rhino horn trade was debated at the last meeting of signatories to the CITES Conference of the Parties 17 (CoP17) held in Johannesburg in October 2016, the number of people attending the session exceeded seating capacity to the extent that people were sitting in the aisles and lining the walls (personal observation by the author)("Swaziland CITES Proposal," 2016). Why has there been so much interest in the rhino horn trade issue?

From a conservation standpoint, rhinos are a mega-herbivore considered to be a keystone species "…one that helps define an entire ecosystem." (Galetti, 2017; NationalGeographic, 2017). "Rhino grazing helps maintain savannah grasslands, which in turn supports numerous other species… through nutrient …[and seed…] dispersal," (Daughty, 2013), geoforming, acting as hosts and symbionts to other fauna and invertebrates and their pattern of grazing (white rhino) and browsing (black rhino).Rhinos are also an iconic animal that forms part of the "Big Five" – the term used by big game hunters to denote the five most dangerous African animals to shoot on foot ("Big Five Game,"). This term has subsequently been co-opted by eco-tourism 'safari' operators and high-end, highly priced game lodges who "guarantee" a Big Five experience (Capstick,

1984). Having the Big Five is considered a strong selling point as can be seen on the website below.



Rhinos in Africa have been the victims of large scale predation by man on several fronts:

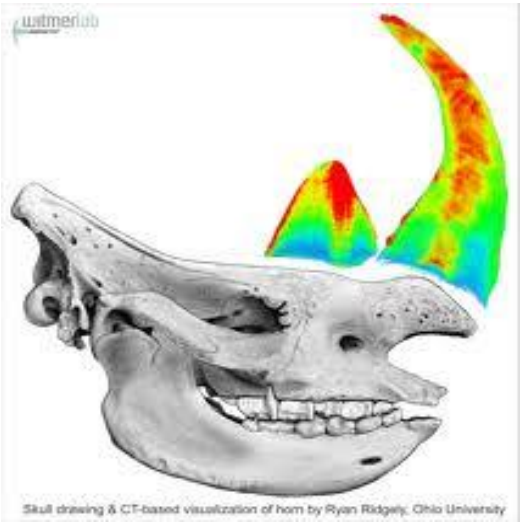
- Hunting for sport with modern weapons, particularly in the 19th century and early part of the 20th century ('t Sas-Rolfes, 2015; Ronald Orenstein, 2013; Player, 1966)
- Killing for the supply of Traditional Chinese Medicine (hereafter referred to as TCM) (Michael 't Sas-Rolfes, 2012; Hübschle, 2016b; D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017a; Ronald Orenstein, 2013)
- Jambiya or dagger handles in Yemen (Michael 't Sas-Rolfes, 2012; Hübschle, 2016a; Ronald Orenstein, 2013)

- Decorative items including a “poison detecting cup” (Michael 't Sas-Rolfes, 2012; Hübschle, 2016a; Lang, 2011; Ronald Orenstein, 2013; Zhao, 2016)

But in recent years immediately prior to this study the demand for rhino horn had been augmented by the purchase of rhino horn for status and investment (E. H. Bulte, Mason, C.F., Horan, R.D., 2003; Gao, 2016; Hübschle, 2016a, 2016b; Kennaugh, 2016a; Kotze, 2014a, 2014b; C. F. Mason, Bulte, E.H., Horan, R.D., 2012; Patton, 2016)

The rhino has a set of horns composed of keratin (the same substance that human nails and hair are composed of) (Ridgerley, 2013; Wikipedia, 2018b) that grow continuously throughout their lifespan of ± 40 years (Rachlow, 1997; RRC, 2018). The horn does not form an integral part of the bone structure as can be seen in the figure below.

Figure 1: CT Based Visualization of Rhino Horn



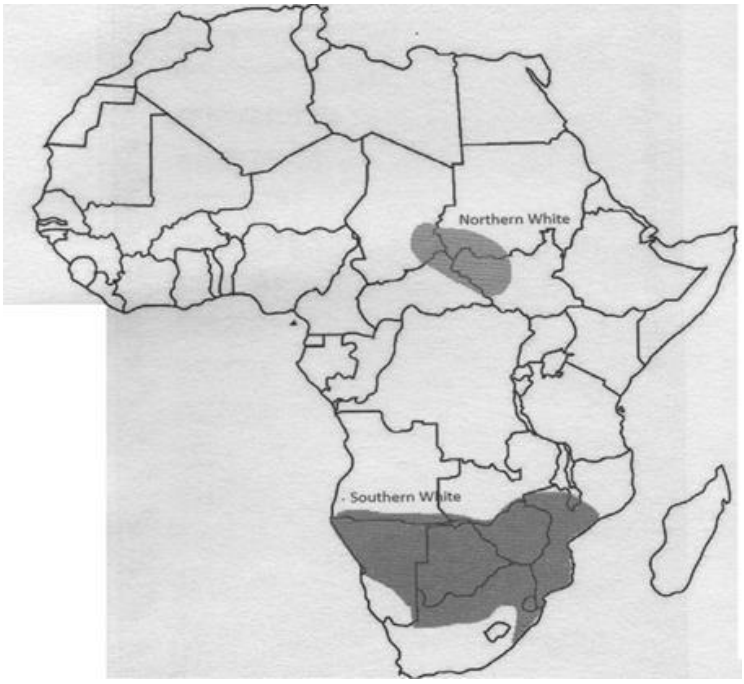
(Ridgerley, 2013)

Two species of rhinos still survive in Africa (Ronald Orenstein, 2013) in 2018. These two species, the Southern White Rhino (Ceratotherium simum simum) (hereafter referred to as the White Rhino) and the Black Rhino (Diceros bicornis) make up almost 90% of the global population of rhino and this study has concerned itself with only these two species.

The study focuses on the South African rhino population as that comprises 79% of African rhino (R. Emslie, 2015).

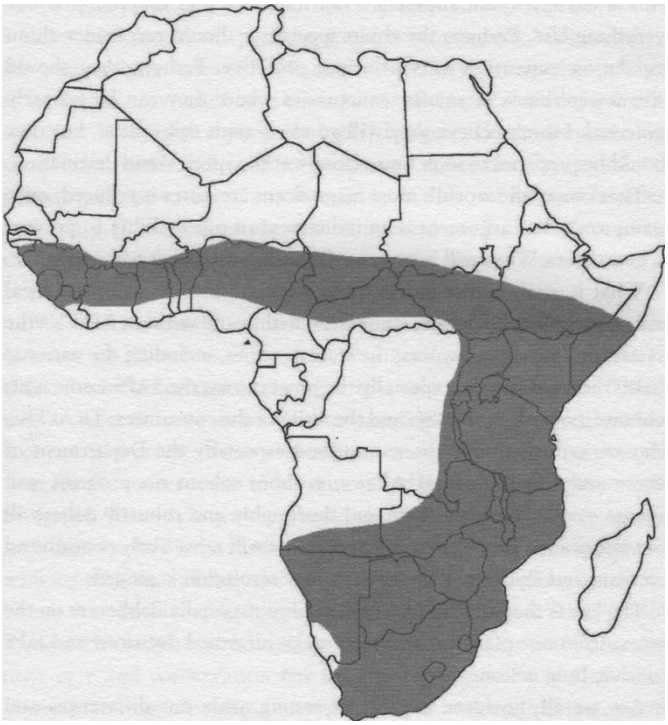
Rhino were previously widespread in Africa (see figures 2 and 3 below).

Figure 2: White Rhino Historical Distribution Map



(C. Walker, & Walker Anton, 2012)

Figure 3: Black Rhino Historical Distribution Map



(C. Walker, & Walker Anton, 2012)

Figure 4: Status of Rhinos in African Range States*

Persisted	Rhino Extinct	Rhino Reintroduced From South Africa
Kenya	Angola	Botswana
Namibia	Benin	Malawi
South Africa	Burkina Faso	Swaziland
Tanzania	Burundi	Zambia
Zimbabwe	Cameroon	
	Central African Republic	
	Chad	
	Côte d'Ivoire	
	Democratic Republic of Congo	
	Ethiopia	
	Ghana	
	Guinea	
	Mali	
	Mozambique	
	Nigeria	
	Rwanda	
	Somalia	
	Sudan	
	Togo	
	Uganda	
5	**20**	**4**

(Hanks, 2015b)

> *****Range state is a term generally used in zoogeography and conservation biology to refer to any nation that exercises jurisdiction over any part of a range which a particular species, taxon or biotope inhabits, or crosses or overflies at any time on its normal migration route. (Wikipedia, 2018a).

However, the situation as at 2015 was as shown in Figure 4 above (90% of Africa's rhino were in only two countries in 2015 – South Africa and Namibia) (R. Emslie, Miliken, T., Talukdar, B., Ellis, S., Adcock, K., & Knight, M, 2015)

Black Rhino became extinct in twenty-two of the original twenty-six African range states (Hanks, 2015a) and the Northern White Rhino (Ceratotherium simum cottoni) became officially extinct in the wild in 2018 (Gibbens, 2018).

The story of the Southern White Rhino has, however, been one of remarkable conservation success. At the turn of the 19th century between 20 and 50 White Rhino, which were previously presumed extinct, were discovered in KwaZulu-Natal Province (KZN) of South Africa (Player, 1966; C. Walker, & Walker Anton, 2012). This core population bred up under the conservation of the then Natal Parks Board (NPB) (later Ezemvelo KZN WildLife) until their numbers exceeded the carrying capacity of the Imfolozi and Hluhluwe game reserves where they had been discovered. In the 1960's a major translocation operation was undertaken to restock other South African protected areas and thereafter, other former range states (Player, 2008; C. Walker, & Walker, Anton., 2012)

In addition, starting in the 1960s, many game farmers were persuaded by the then PB to buy rhino. Stock farmers converted to game farming by the 'carrot' of relatively quick and large profits from trophy hunts or surplus or past breeding bulls sold by the NPB – (David Cook in the film ("Rhino in crisis - A Blueprint for Survival," 2014)). By 2015, 2.5 million

hectares of private land on game farms were occupied by more than 5000 (27%) of South Africa's White Rhinos, and approximately 450 (23%) of the Black Rhinos in South Africa (Jones, 2016b).

CITES was formed in 1975 to regulate the trade in endangered species. All international trade in rhino horn was banned by CITES in 1977. Ten years later CITES admitted that, *"… the efforts of the Parties [to the Convention i.e. signatory nations] … have failed to stem the flow of the illegal trade in rhinoceros … horn"* (Ronald Orenstein, 2013; C. Walker, & Walker Anton, 2012). Despite this, South African proposals to legalise trade in 1992 and 1997 failed (D. Biggs, Courchamp, F., Martin, R., Possingham, H.P.,, 2013).

The rhino horn trade was made less restricted for the two species of rhino, the Southern White Rhino and the Black Rhino, that were present in South Africa because of South Africa's success in conserving them (C. Walker, & Walker Anton, 2012). A few trophy hunts were allowed to take place each year and hunters could export the horn sets internationally. Live animals could be traded subject to the requisite permits.

In the 20th century, the rhino poaching problem was largely confined to the Black Rhinos north of Southern Africa (Michael 't Sas-Rolfes, 2012). Black Rhino populations in Africa fell from about 65,000 animals in 1970 to about 15,000 in 1980 because of large scale poaching (Ronald Orenstein, 2013).

Despite the reports of wholesale slaughter of Black Rhino in the north, South Africa was unprepared for the rapid rise in rhino poaching that began in 2008 (Hanks, 2015b; Ronald Orenstein, 2013). Hanks states that although, as early as 1975, there was "*a … trickle … [of] reports … that there was a growing demand for rhino horn from North Yemen and China - the potential threat was not taken … seriously*" (Hanks, 2015b).

Ayling estimated that 85% of the worlds rhino population was killed between 1970 and 1987 (Ayling, 2013).

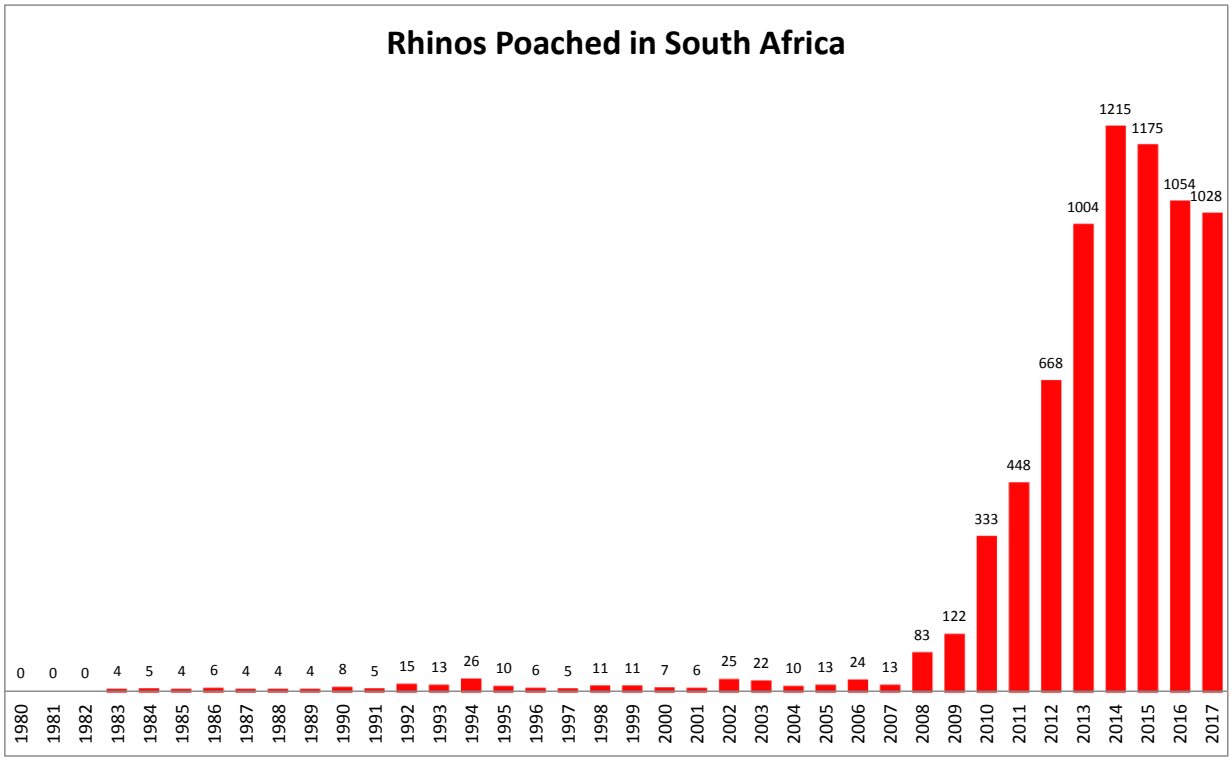
A demand for rhino horn existed mainly in the East(Hübschle, 2016a)& (Kennaugh, 2016b) as:

> *"…an investment and money laundering tool …*
>
> *…a status symbol … [and] …*
>
> *…medicine"*

After most of the Asian Rhino species became effectively 'extinct in the wild' this demand was met by poaching - the thousands of Black Rhino in South Central Sub Saharan Africa. As these were hunted to virtual extinction, the focus of poachers and syndicates shifted to Southern Africa (R. Orenstein, 2013).

Poaching of mainly White Rhino in South Africa increased exponentially between 2007 and 2014 and continued at this high level (see figure 5 below) despite concerted efforts in anti-poaching by state, private rhino owners and staff at many non-governmental organisations (NGOs) who raised money for anti-poaching efforts.

Figure 5: Numbers of Rhino Poached



Sources: 1900-2011 (C. Walker, & Walker Anton, 2012); 2012-2017 (TRAFFIC, 2017)

The level of poaching was most probably unsustainable. Emslie *et al.* had predicted that the 'tipping point', where rhino deaths exceed births, could already have been reached by 2014 or 2015 (R. Emslie, Miliken, T., Talukdar, B, 2013). Di Minin *et al.* predicted that 'continuing with business as usual' could lead to the extinction of rhino in the wild in South Africa by 2023 (Di Minin, 2015). Ferreira predicted in 2015 that "… *declines in white rhino abundance … would be … detectable … by 2018 …*" if the current poaching trends continued (Ferreira, 2018a). Joubert presents census figures for rhino in Kruger National Park (KNP)(Joubert, 2015 (updated 2018)) that indicated a halving of KNP's rhino population in the seven years from 2010 to 2017. There was thus wide agreement that rhinos were heading for extinction if the *status quo* was allowed to continue.

Table 1 - Rhinos in Kruger National Park

Year	Number of Rhino
2010	10 621
2011	10 495
2012	9 093
2013	8 968
2014	8 617
2015	8 875
2016	7 240
2017	5 145

(Joubert, 2015 (updated 2018))

In this paper extinction is defined as having a population and/or range that does not permit the species to be evolutionarily viable so they no longer function as a keystone species. Preservation of a few rhinos in zoos or in game parks outside of their recent range will not be considered as staving off extinction.

Michael t' Sas-Rolfes in his 2015 paper set out two major philosophies behind conservation. These were:

- sustainable use which *"… is consistent with global policy enshrined in a world conservation strategy (IUCN 1980) … convention on biological diversity and draft sustainable development goals*." (IUCN, 1980).
- the contrasting preservationist (or non-consumptive use) approach which *"… emphasises the integrity of individual specimens and ecosystems and are suspicious … toward notions of sustainable use. Interests … of different anti-use groups … [preservationists,* supporters of animal rights] … frequently align to support trade restrictions and bans ... *Their alignment of interests often lead[s] to common stances [… in analysing …] … the CITES decision making process …".* ('t Sas-Rolfes, 2015)

The stakeholders who were addressing the rhino poaching problem in South Africa held a similar set of potentially mutually exclusive philosophies on what should be done to stop or substantially reduce the level of poaching:

1. A preservationist approach which was to continue with the trade ban, accepting that the demand would then continue to be met via the illegal route of poachers, corrupt middle-men and crime syndicates (Rademeyer, 2016b) but, increase the anti-poaching and judicial prosecution efforts while mounting a demand-reduction campaign in end-user countries. The outcome hoped for in this approach was to decrease both poaching and demand so that rhino numbers could, once again, be increased by natural growth.

   Large amounts of money and manpower have been utilised in the poaching 'war'. Costs of security in South Africa were estimated at R1,2 billion per annum for private rhinos owners alone (Jones, 2016a). In addition, Non-Governmental Organisations (hereafter abbreviated to NGOs) and Single Issue Organisations (hereafter abbreviated to SIOs) solicited donations for advocacy, rhino orphanages and anti-poaching efforts as well as social marketing campaigns to reduce demand for rhino horn (Johnson, 2016b; Mike Norton-Griffiths, 2010; Wildaid, 2014).

   However, there were concerns that this level of investment in terms of money and manpower was unsustainable and that donor fatigue would set in (Hanks, 2015a). Already, in 2018, John Hume, the founder of the largest private rhino conservation project in the world (1622 rhino being cared for and over 1000 successfully bred) had sounded the warning that he had exhausted his life savings (having already invested more than US$120 million over 9 years) and did not have the resources to continue to fund the project (Hume, 2018).

There was also scepticism as to the efficacy of demand-reduction campaigns (Johnson, 2016a) and (Gayle Burgess, 2016), argued that they might indeed unintentionally stimulate demand.

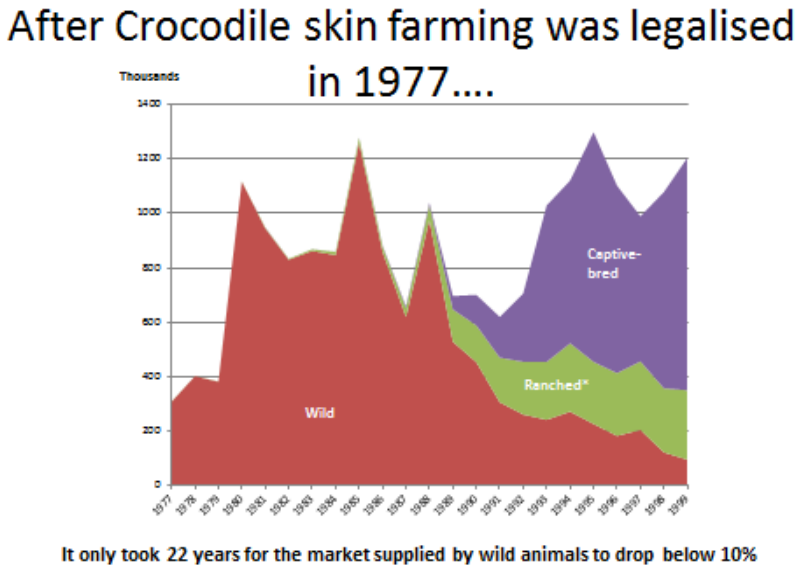
Burgess's research suggested that an element of the communications strategies of some NGOs' 'demand reduction' messages urged compassion and warned that unsustainable illegal harvesting could lead to extinction were potentially counterproductive because *"… some people are motivated to acquire wildlife products specifically because they are rare or precious" (Gail Burgess, 2016)*. Ammann and Patton also mention illegality as a selling point for the new demand driven by status which Ammann states has overtaken medical demand (Patton, 2016).

An interesting and initially counter-intuitive theory was first described by Yandle as the *'Baptists and the Bootleggers'* (Bruce. Yandle, 1983). He posited that bootleggers were kept in business by the Baptists' moral opposition to Sunday trading in liquor. Kasterine *et al.* had expanded this to the wildlife trade where he posited it was possible that those who opposed trade on moral grounds were providing poachers and the illegal value chain with a monopoly that legal owners could not enter (A. Kasterine, Bazzola, M., 2015). The paper went further and speculated that some service providers to rhino owners, such as security firms, may also fill the role of '*Baptists*'. This intriguing idea did not seem to have been tested although it was once again mentioned by Michael 't Sas-Rolfes in his 2015 paper on the economics and politics of wildlife trade regulations. This research assessed whether there were any indications of unwitting *'Baptist and Bootlegger'* alliances between moral opponents of a legalised trade and those that benefit from the ban.

2. A sustainable use approach would legalise, but strictly regulate an international trade in rhino horn. This would allow rhino custodians to sell some of their large stockpiles of horn accumulated from natural mortalities and the more recent practice of regularly de-horning rhino (to make them less attractive as a target for poachers).

   It could also, over time, lead to a partial substitution of the illegal supply as happened with crocodile skins between 1977 and 1999 (Revol, 1995).

Figure 6: Crocodile Farming



(MacGregor, 2006)

*Ranching involved collecting specimens from the wild and rearing them in a controlled environment. Ranching in this work includes the producing of the breeding stock, so obviating the requirement for wild sourcing.

However, opponents worried that legalisation could ease laundering of poached horn and lead to an increase in demand due to removal of the stigma of illegality. Collins *et al.* maintained that the inelastic demand for medicinal use could mean

> "*legalisation would … encourage rather than prevent poaching …"* It was also viewed by some as being unethical to promote the use of a medical product whose efficacy had yet to be proven by western medical science (Malby-Anthony, 2018). The ability of African governments to properly enforce regulations and prevent corruption was also an issue of concern.

South Africa, as the nation holding the overwhelming majority of Africa's rhino population, needed to act decisively in order to avert possible extinction.

The debate between the proponents and opponents of legalisation has been fierce and has arguably led to South Africa having no clear strategy or action plan for this key issue. At the seventeenth Conference of the Parties (CoP17) of CITES held in Johannesburg in September 2016, South Africa took no action to have the trade legalised. This fell instead to the Kingdom of Swaziland — which only held 73 rhino at that time ("Swaziland CITES Proposal," 2016) which proposed an amendment to the regulations to allow legal trade. This amendment was defeated.

The next Conference of the Parties (CoP18) is to be held in Switzerland in August 2019 and it might be expected that South Africa, as the holder of the majority of the world's rhinos, would take a leadership role in the debate between continuing or ending the CITES ban on international trade in rhino horn (R. Emslie, Milliken, T., Talukdar, B., Ellis, S., Adcock, K., Knight, M,H, 2015).

2.3 Demand for Rhino Horn Exists

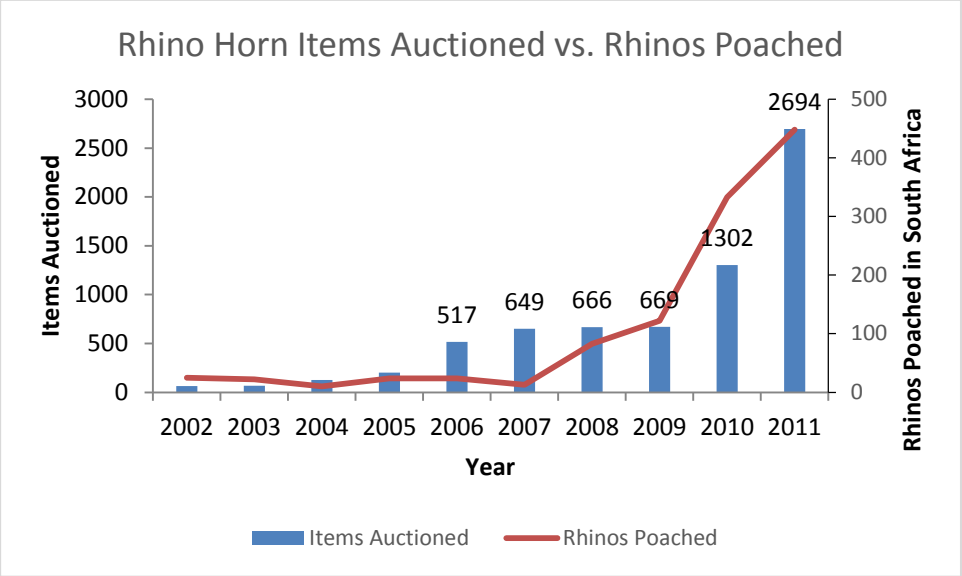
That demand for rhino horn continues to exist is demonstrated by the sustained high level of poaching.

2.3.1 Drivers of Demand

The demand for rhino horn has been driven by multiple markets including:

1. **Medical demand via traditional Chinese medicine (hereafter referred to as TCM) and traditional eastern medicine (hereafter abbreviated to TEM) continues**. This is an area of fierce debate, although an article published in 1991 by Butt found antipyretic effects of prescriptions containing rhino horn, a later one by Laburn *et al.* could find no antipyretic effect (Butt, 1991; Laburn, 1997). However, rhino horn had been prescribed as an antipyretic since around 2800 BC (Shennong Ben Cao Jing) (C. Walker, & Walker Anton, 2012) and many studies have found that a large number of TCM and TEM practitioners in both China and Vietnam prescribe it (Michael 't Sas-Rolfes, 2012; Gao, 2016; Hübschle, 2016b; Kennaugh, 2016a; D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017a; Ronald Orenstein, 2013). TEM prescribes rhino horn for life threatening illnesses (Collins, 2015).
2. **Aesthetic demand:** Rhino horn was one of the eight treasures of the ancient Chinese educated classes (Ayling, 2013; Lang, 2011). Gao *et al.* in their assessment of articles on rhino horn in Chinese newspapers, between 2000 and 2014, cited investment and collectable value as being touted in 75% of the 332 articles and artistic value in 40%, whereas the medical value was only mentioned in 29% of the articles (Gao, 2016). Other writers have commented on the swing in the driver of demand for rhino horn, "… from health to wealth …" (Patton, 2016), and the comparison of Gao between rhinos poached in South Africa and rhino horn based items auctioned in China, provides a graphic indication of a likely concurrence.

Figure 7: Items Auctioned



(Gao, 2016)

3. **Poison detecting libation cups:** were mentioned by both Ayling and Lang (Ayling, 2013; Lang, 2011). It was believed that a cup carved from rhino horn would indicate poisons, which are generally alkaloid, by producing bubbles.
4. **Gifts and status:** the buying of rhino horn to display status was found in the TRAFFIC 2013 survey of 720 individuals in Hanoi and Ho Chi Minh city to be the primary motivation for the purchase of rhino horn. This status was underpinned by the belief in rhino horns' health benefits. However, Macmillan's in-person survey of over 1000 Vietnamese consumers found that gift giving was relatively rare and was mentioned by only 12% of purchasers (D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017a). This was an example of the uncertainty, the lack of evidence or completely contradictory conclusions that have made quantitative analysis of underlying rhino horn demand problematic.
5. **Investment:** Bulte *et al.* first wrote of the strategy of purchasing an item of a potentially renewable resource in the hopes that efforts to save the underlying resource would fail leading to greater scarcity and possible extinction. Increasing

scarcity would lead to a rising price and a greater profit for the investor (E. H. Bulte, Mason, C.F., Horan, R.D., 2003). In 2012 this was followed up with a further article broadening the concept (C. F. Mason, Bulte, Erwin. H., Horan, Richard. D., 2012). Recent research confirmed the increasingly important role that investment played in the demand for rhino horn (Hübschle, 2016a; C. F. Mason, Bulte, Erwin. H., Horan, Richard. D., 2012; Patton, 2016). The survey by Gao *et al.* of Chinese newspaper media content found that 74% of articles mentioned investment and collectable value (Gao, 2016).

6. **Jambiya handles:** Jambiya were traditional knives given as a gift to young men in Yemen. Although the demand has dropped since the ban on the use of rhino horn for Jambiya handles, imposed by Yemen in 1992, and the decrease in disposable income during the civil war in Yemen, there was still demand amongst northern Yemeni tribesmen and prosperous Sana'a men (Michael 't Sas-Rolfes, 2012; Ayling, 2013; Vigne, 2008).
7. **Money laundering was mentioned by both Hübschle and Fischer as a demand driver (Fischer, 2004; Hübschle, 2016b).** Neither commented on the mechanism used for laundering but it is presumed that rhino horn, as a high value to weight commodity, was easily concealed and transported and, as a great amount of rhino horn was used in powdered form in TCM and TEM, could be filtered into the large medical market so facilitating the conversion of the proceeds of crime into legitimate funds.

2.3.2 Summary of Demand for Rhino Horn Over Time

Table 2 - Demands for Rhino Horn

USE									
Year	**Reference**		**Traditional Medicine**						
		Jambiya	**China**	**Vietnam**	**Libation cup / Art**	**Gift/Status/ Party drug**	**Investment**	**Laundering**	**Comments**
2008	Vigne	√							
2010	Ayling	√	√	√	√	√			
2011	Lang				√		√		
2013	TRAFFIC			√		√			
2014	Challender								Trade in illegal wild life globally >US$20bn
2014	Kotze		√						
2016	Collins						√		
2016	Gao		√						
2016b	Hübschle		√	√		√	√	√	
2016a	Kennaugh		√						Less prestige if legalised. Over 40% will decline or stop
2016	Maas			√	√	√	√		
2017	Macmillan		√	√		√			No evidence of stigma

Therefore, demand for rhino horn from multiple directions exists and this demand is large and persistent. Their assessment that the demand is large and persistent was ‘common cause’ across the stakeholder spectrum.

2.4 Overall Demand for Rhino Horn

However, the major disagreements centred around:

- the question of the approximate quantum of demand and,
- its nature (i.e. was it a ‘good’ for which demand and supply could be brought into equilibrium by the price mechanism, some kind of unique good where the demand really was insatiable and so immune to the price mechanism, or an asset like gold where demand is often fuelled by an increasing price? (M. 't Sas-Rolfes, 2012; 't Sas-Rolfes, 2015; F. Aguayo, Nadal, Alejandro, 2014; Epsley, 2017; M Eustace, 2015; Fischer, 2004; Kotze, 2014a, 2014b; Maas, 2016; D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017b; Y. Taylor, 2014; Wiltshire, 2015)

2.4.1 Problems in Assessment

2.4.2 Assessing Quantum

Michael't Sas Rolfes cited three problems that economists faced in assessing the quantum of wildlife trade ('t Sas-Rolfes, 2015).

> *"… the high level of complexity in most wildlife markets …",*
>
> *" … useable data sets on wildlife trade and its impacts … are … difficult to obtain …" [and] " … [are] … seldom discussed in … peer reviewed literature …".*

The trade in rhino horn has exhibited all three of these characteristics along with other illegal wildlife products and, it is argued, many (if not most) are illegally traded.

Demand for rhino horn is difficult to model or forecast as it is multi-faceted in terms of the utility that buyers ascribe to it and this differs geographically (see Table 1) and had been shown to change over time. An in-person survey conducted by Macmillan *et al.* of more than 1000 Vietnamese consumers showed a slight decrease in rhino horn medical consumption trade in the prior 5 years (D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017a). The demand for Jambiya handles was also shown to have declined (Ayling, 2013).

In addition, legalisation could have various effects, some of which might increase demand and others which could decrease demand. These include:

- Providing a convenient channel to launder horn obtained illegally (Fischer, 2004; Hübschle, 2016b).
- The reverse stigma effect, where law abiding citizens would start buying rhino horn as it was no longer illegal (Fischer, 2004). However, Macmillan *et al.* found no evidence of stigma associated with rhino horn in their study (D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017a)

In fact, there was a possible reduction in status attached to rhino horn and its desirability as a 'face gift' if trade was legalised and therefore legal rhino horn had less prestige attached to it. This would mean that legalisation could drive down this particular demand (Kennaugh, 2016a). When Ammann questioned why the price of rhino horn quoted by a dealer in Vietnam had dropped from $60,000 per kilogram to $20,000 to $28,000 per kilogram four years later, one of the explanations received was that, "… speculators might have dropped out of the scene …" (Patton, 2016).

Given Gao *et als'.* (Gao, 2016) assessment of the importance (75%) of the investment and collectibles markets for rhino horn, this possibility of acting as a major swing factor in the demand for rhino horn seemed to have not been addressed at all and could be an area for further research.

- This finding by Ammann (Patton, 2016) provided 'on the ground' validation of the hypothesis below:
    - The strategy posited by Bulte and Mason *et al.* of relying on increasing scarcity driving the speculative hoarding of rhino horn, could be reversed by legalisation (E. H. Bulte, Mason, C. F., Horan, R. D., 2003; C. F. Mason, Bulte, Erwin. H., Horan, Richard. D., 2012). This could lead to not only removing the demand created by that market segment, it could be posited that legalisation would trigger dis-hoarding and so add significantly to the supply of horn, albeit for a limited period of time.

It could be inferred from the above that Michael 't Sas Rolfe's second and third problems, those of useable data sets and lack of peer reviewed literature were also problematic in determining the overall demand for rhino horn.

Kennaugh quoted in her presentation “A study of rhino horn – Behavioural economics” for Horizon Key:

> *“the most savage controversies are those about matters as to which there is no good evidence either way” from an “An Outline of Intellectual Rubbish” in Unpopular Essays 1950* (Kennaugh, 2016c).

So, the exact nature and quantum of the demand for rhino horn is one such ‘controversy’. It is extremely difficult to determine the underlying demand due to the multifaceted drivers of this demand, its geographic differentiation, the fact that it changes over time and the difficulty of obtaining data on the market size due to the trade in rhino horn being illegal.

There are widely varying estimates of what the demand for rhino horn would be if it were legalised. This estimation of the quantum of demand if trade was legalised is a key question in the debate as to whether, if trade were legalised, the demand could be sustainably supplied legally. However, the quantum of demand is not important in itself but more so whether it would be above the long term sustainable supply of rhino horn and/or would not be brought into equilibrium by the price mechanism. If this happened, it is likely that poaching would continue at a level that would drive down the population of rhino. This would then lead to a vicious spiral of lower legal supply and an increase in poaching, so driving the rhino to extinction in the wild.

Alternately, if the legal market was below the sustainable supply, or could be brought into equilibrium by the price mechanism, legalisation could be a powerful strategy to facilitate the survival of African rhinos by driving down the illegal killing of rhino for its horn and supplanting it with legal supply as happened with crocodile skins (see **Figure 6: Crocodile Farming**).

This question of the demand often side-tracks, entirely, any (public) debate on the legalisation. On a standalone basis, demand is not all important; but rather it is the size of any imbalance between demand in a legalised environment and sustainable, legal supply (as set out above) that would drive the time period within which rhino would become extinct or reach comfortably sustainable levels. Legal supply, too, could reasonably be expected to respond to legalisation and increase to meet demand, if this was possible.

The two approaches to studying demand have been:

2.4.3 Extrapolations from Demographics, Income Levels and Consumption

Kotze in his 2014 paper arrived at a wide range of projections for TCM use of rhino horn of between 17 tons and 426 tons per annum (roughly 2100 to 7100 horn sets if a mean mass of 6kg per horn set is assumed) (Kotze, 2014a). Kotze therefore concluded that the demand for rhino horn was 'insatiable' (Kotze, 2014a). Maas used similar methods in her paper to come to the conclusion that the demand created by TCM could not be satisfied by legal methods (Maas, 2016).

Neither of these estimations took into account the other markets for rhino horn nor the shifting nature of demand over time.

The assertion of an unsustainably large demand obviously had resonance and was often quoted as a reason why legalisation would not decrease poaching. Yvette Taylor in her Sunday Times article postulated that the legalisation of international trade would be akin to "letting the genie out of the bottle" (Y. Taylor, 2014). In an article in Africa Geographic in 2017, the author stated that "demand for rhino horn is a bottomless pit" (Epsley, 2017). These opinions and simplistic extrapolations could, however, not be merely dismissed and were important as CITES was driven by the precautionary principle to err on the side of

the *status quo* if there is uncertainty about the effects of amending any of the CITES regulations (Cross, 1996).

2.4.4 Using Annual Poaching as a Starting Point for Estimation

Using the stabilized mean poaching figures and adding a factor for horns obtained through theft and illegal sales from stockpiles was used implicitly by several researchers to estimate the demand. Both Eustace and Wiltshire used a demand of 1500 horn sets per annum in reaching their conclusion of the global demand for rhino horn (M Eustace, 2015; Wiltshire, 2015) which was based on this method of estimation.

The assessment of the African Rhino Specialist Group (hereafter abbreviated to AfRSG) of the International Union for Conservation of Nature (hereafter abbreviated to IUCN) provided arguably the most scientifically sound estimate of the rhino horns that have been sourced annually from Africa based on credible source data and collated by a specialist group of experts, see below (R. Emslie, Miliken, T., Talukdar, B., Ellis, S., Adcock, K., & Knight, M, 2015).

Table 3 - Horns Sourced for Illegal Markets

Estimated number of African rhino horn going into the illegal trade from sources identified by the AfRSG as illegal supply points, presumably into the illegal trade.

October 2012 to December 2015	
Recorded poached rhinos	7875
Thefts of horn	538
Legal sales (e.g.trophy hunts.)	278
Sub total	8691
Less: recovery of illegally obtained horn	2111
Horns from Africa going into illegal trade	**6580**
Annualised	2024

(Emslie *et al.* 2015)

As the international trade in rhino horn was banned, all this rhino horn was, by definition, going into the illegal trade.

They concluded that "… rhino populations cannot sustain … much [higher] …poaching levels."

2.5 Potential Supply of Legal Rhino Horn

While there were several published articles that estimated the potential legal supply of rhino horn (M Eustace, 2015; Kotze, 2014b; Maas, 2016; Wiltshire, 2015) they differed considerably.

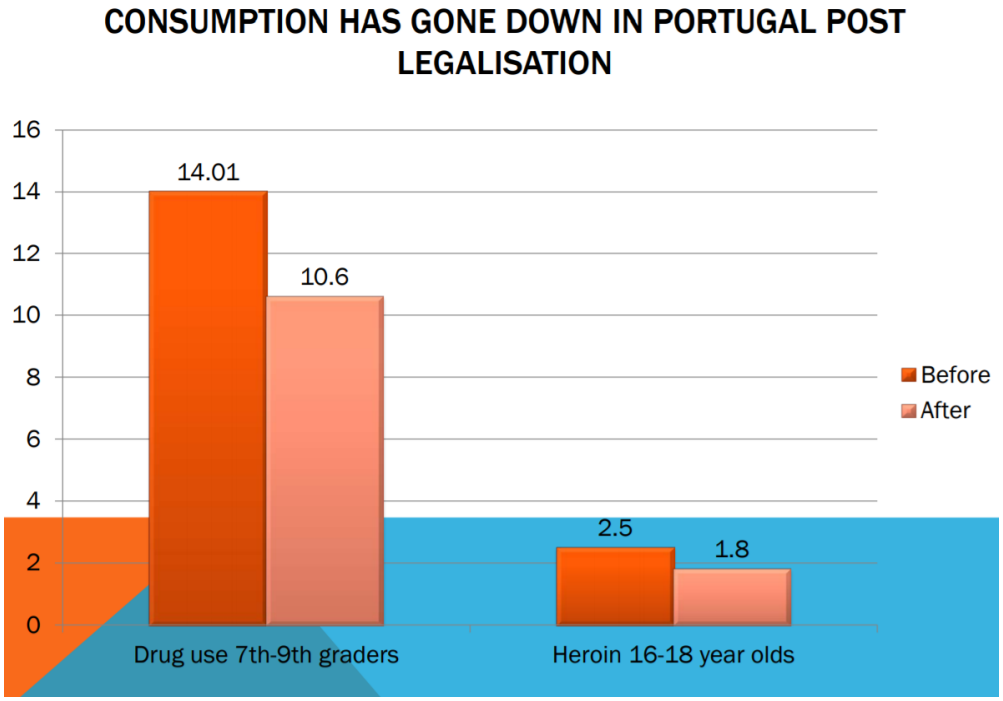
Taylor *et al.* presented a comprehensive assessment by several well regarded experts in the field (A. Taylor, Balfour, D., Brebner, D., K., Coetzee, R., Davies-Mostert, H., Lindsey, P., Shaw, J., 't Sas-Rolfe, M., 2017). Taylor *et.al.* concluded that the most likely scenario to result from the supply from natural mortalities, regular de-horning of a proportion of privately-owned white rhino, and utilising existing stock piles over 10 years would be the supply of an annual mass of rhino horn equivalent to approximately 905 rhino horn sets at the then existing situation. It was reasonable to assume that the supply was likely to increase greatly under legalisation. This was remarkably close to their best assessment of the demand of 909 horn set equivalents. This study did not make any adjustments to the effect that the price mechanism could have on the supply or demand. It must be noted that this assessment was less than half the horns sourced for illegal markets that had been estimated by AfRSG (as shown in Table 3 above).

Taylor *et al.'s* assessment of demand was based on poached rhinos minus those that were recovered by enforcement agencies, but did not reckon in supply from sources often

not taken into account, such as thefts from private collections and museums that had been incorporated in AfRSG's estimation of demand.

No cognisance was given to the counterintuitive effects on demand of the legalisation of other substances. An example is shown below:

Figure 8: Drug Consumption in Portugal Pre- and Post- Legalisation



(Greenwald, 2009)

Both the supply and demand estimates have had a wide range which could render the supply/demand balance significantly deficient in legally supplying the market, so could continue to drive the illegal killing of rhino. Equally, the sustainable supply and demand in a legal market could provide a surplus (although the price mechanism would, most probably, bring supply and demand into equilibrium as it does in so many other markets).

Because of this uncertainty about any demand imbalance, and if so, whether supply outweighs demand or vice versa, a consensus building methodoly that assesses the effects of both sustainable horn over- and under-supply is essential.

The greatest uncertainty exists not only around the quantum of the demand for rhino horn, but (as discussed in sections 2.4 and 2.5) in the fact that it is changing over time and could change considerably more in a sudden 'step change' in a trade environment that was legalised. In a legalised market, suppliers could be expected to adjust to any imbalances by adjusting production, if the 'rules of the game' empowered them to.

The question most fiercely debated on at open fora and on social media is what demand is and whether there are any methods or mechanisms that would tend to equilibrate the supply and demand, other than the price mechanism that operates in a free, legal trade.

There have been concerted efforts to reduce demand in consuming countries (Wildaid, 2014) but the efficacy of such efforts has been questioned (Wiltshire, 2015). In fact, some of the behavioural change campaigns purported to be aimed at reducing demand, contained messages that could have actually driven up demand rather than reduced it (Gayle Burgess, 2016).

A major proponent of the legalisation of trade, Michael Eustace argued, was that price mechanism would bring the market into equilibrium (Michael Eustace, 2011). Aguayo and Nadal's arguments in "Leonardo's Sailors" (F. Aguayo, Nadal, Alejandro, 2014) are widely cited as rebutting this mechanism in the rhino horn trade. Their lengthy and disjointed article is largely a polemic against the partial equilibrium equation (an economic theory positing that supply and demand would adjust via the price mechanism in a freely traded market). Their main point of relevance to the legalisation debate was that insufficient was

known about the demand or whether price would act as an equilibrating mechanism between supply and demand (as it did in most other markets) and so any legalisation would be ‘reckless’. They entirely ignored the fact that demand is generally best gauged by interaction via the price mechanism in a freely traded market. The article had longevity in that it played into the moral beliefs, fears and/or agendas of the anti-legalisation lobby the maintained that legalisation would increase demand for rhino horn. The article had been extensively quoted by anti-trade legalisation campaigners (especially on social media). The article was still being quoted in 2017 (Epsley, 2017).

The question as to whether the legally produced horn could supply a legal market was one that was not easily amenable to empirical verification due to the fact that a small scale pilot project of,perhaps, opening a certain market for the medium term could be conducted because opponents of legalisation feared that even a conditional legalisation would not produce the effect required and could do irreversible harm (Y. Taylor, 2014) while sending mixed messages to consuming countries (Wildaid, 2014).

Ayling however, in her substantial research on “What Sustains Wildlife Crime?” concludes that “… *a… regulated trade … may be worth attempting: … Even if it did not work, a carefully designed and monitored experiment would add to what we know.”* (Ayling, 2013)

Therefore, the following factors made it unlikely that methods of debate that had been employed previously by proponents and opponents (a series of rebuttals of the opposing views, arguments in favour of the particular standpoint and some ad hominem attacks) would yield much, if any, move towards agreement on the way forward:

- the great uncertainty around demand for rhino horn under a legal trade environment (and the undue importance ascribed to it),
- the importance of whether legally produced horn ***could*** supply the demand,

- the fundamental disagreement between pro-legalisation and anti-legalisation proponents on legalisation's effects on demand, supply and poaching and whether the effects of a temporary legalisation would be damaging and irreversible and,
- the mistrust and rancour that has characterized this debate.

An impasse had been reached which had led to the inaction of CITES where a ban on international trade in rhino horn had been in place for 42 years. South Africa, which was custodian of 79% of the African rhino (R. Emslie, Miliken, T., Talukdar, B., Ellis, S., Adcock, K., & Knight, M, 2015), was possibly leaning towards inaction in putting forward any proposals on rhino trading to the CITES Cop meeting in 2019.

An example of the dire consequences of deep discord was identified by Bewick who was commissioned to determine the cause/s of the St. Georges, London Hospital having a post cardiac surgery death rate of 3,7% (almost double the national average of 2,0%). He concluded that there were two main causes – one of which was that "… *the department was riven between two camps … [exhibiting] … tribal-like activities* …" (Bewick, 2018).

In this case the deep discord could have been contributing to the lack of decisive action by the South African authorities in adopting and driving forward or conclusively rejecting a strategy that many conservationists had recommended to stop the poaching to extinction of African rhino, viz. legalisation of the international trade in rhino horn ('t Sas-Rolfes, 2015; Child, 2012; M Eustace, 2015; Hanks, 2015a; Hughes, 2018; M. Norton-Griffiths, 2010; TCI, 2014). It was clear that a new approach was needed to assess the consequences of any decision vis a vis the legalisation or continued ban of international trade in rhino horn, in order to afford decision makers comfort that they had comprehensively assessed the consequences of their decisions .

It is possible that the legalisation of international rhino horn trade would gradually shift the trade from almost totally illegal to almost totally legal as Michael t'Sas-Rolfes posed the question:

> *"Could contemporary economic analyses of wildlife trade regulation be improved by broadening their scope to include insights from the institutional economics literature and if so, how?"* ('t Sas-Rolfes, 2015).

2.6 Conclusion

Greatly increased poaching of African rhinos and the threat of imminent extinction was driving a fierce debate on how best to save the two rhino species still existing in Africa. There are two main schools of thought:

1. To continue the ban more effectively.
2. To legalise the international sale of horn.

Which strategy to follow depends on many variables that need to be considered in reaching the decision, however, the key determinants of which strategy is more likely to succeed are:

1. Would the international trade in rhino horn be legalised?
2. Would legalisation or a continued ban be more likely to bring poaching of rhino to below the natural recruitment of rhino's?
3. ***Could*** the rhino horn supply meet the demand for a legal market in rhino horn?

2.6.1 The Way Forward

As definitive conclusions about the supply/demand balance are problematic due to the lack of data about the market demand, the uncertainty of the effects of legalisation and the changing nature of demand, methods for presenting decision makers with viable decision support tools other than the traditional research, need to be explored.

That the existing environment and the levels of rhino poaching, that had become characteristic of it, were unsustainable and untenable, was generally accepted. Adam Hart (2018) summed it up as, "*In terms of cold hard cash, right now rhino are worth far more dead as horn on the streets of Vietnam, than alive in the African bush."*

This was borne out by a comparison of values calculated from available information. Average auction values have been used to estimate the live value of a White Rhino. Figures Figure 9: Value of White Rhino Dead as Horn,Figure 10: Value of White Rhino Alive (on auction) and Figure 10: Value of White Rhino Alive (on auction)below.

Figure 9: Value of White Rhino Dead as Horn

Reference	Street value of whole horn	Weight of adult rhino horn	Value of horn
	US$ per kg		
Gao 2016	72 000		
Hübschle 2016	25 000 to 75 000		
Ammann 2017	20 000 to 28 000		
Assumed for calculation	25 000	5,88 kg*	$147 000
High			$441 000
Low			$117 600

*(Pienaar, 1991)

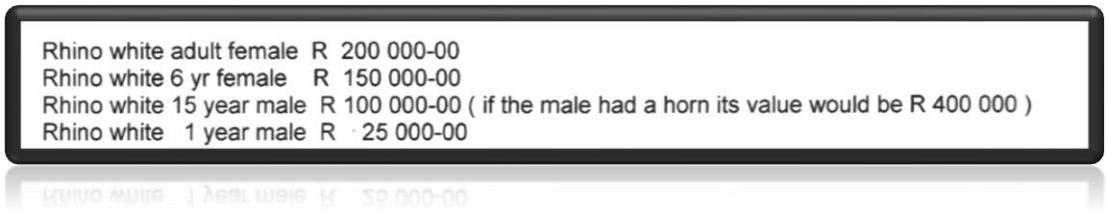
Figure 10: Value of White Rhino Alive (on auction)

	ZA Rand	ZAR / US$ Year End	US$	
2016	R373 571	13.72	27 228	Average heifer Thaba Tholo **
2016	R112 500	13.72	8 200	Average young bull Thaba Tholo **
2017	R361 500	12.31	29 366	Average Ezemvelo *
2017	R311 818	12.31	25 330	Average of 140 auctions ***

* (Bentley, 2017)
** (AgriOrbit, 2016)
*** (Erasmus, 2016)

It was instructive to note the difference in price for a mature rhino bull with and without horn quoted by a game capture and selling business in early 2019:

Figure 11: Prices of Rhinos on the Legal Live Market (early 2019)



(Tracy, 2019)

The difference in price of a mature (15 year old) male rhino set out above can be explained by a horned bull being ready as a trophy shoot and a bull with a trimmed horn having to be kept and guarded while his horn grows to trophy length.

Hart therefore concludes, "… *we must find realistic workable ways to change this [i.e. rhinos being worth more dead than alive] if we are to reverse the current poaching crisis*." (Hart, 2018)

A further indication of the value of rhino horn is that the spot price of gold in May, 2018 was US$1 304.88/ounce equivalent to US$ 45 946/kg which just more than half the minimum for rhino horn shown in Figure 9: Value of White Rhino Dead as Horn.

Challender *et al.* stated that, *"Conservationists, therefore, need to design new strategies that actually reflect the powerful forces that shape the modern world, forces that regulations such as CITES cannot withstand."* (Challender., 2014).

Michael t' Sas-Rolfes concluded his 2015 paper with:

> *"The problem with conserving wild mega-fauna remains unresolved and there is definite scope to provide more insight for analysis of the underlying issues and point to more effective long term solutions."* ('t Sas-Rolfes, 2015).

There was widespread agreement that solutions needed to be found to the poaching crisis, but the manner in which this was to be done was less than clear-cut.

Johnson (2016) had also contended that conservation was failing but she pointed to a lack of multidisciplinary collaboration and strategic intuition in dealing with problems as a cause to this failure. She suggested using commercial models developed by "… *[a] 'generalist' strategist/[s] who is/are … better at navigating uncertainty, are more risk tolerant and demonstrate greater levels of adaptability …"* (Johnson, 2016a).

A survey of literature on consensus building in polarised issues in wildlife and environmental issues revealed three articles (Bell, 2019; Lapointe, 2018; Tracy, 2019) . They shared the following characteristics:

- They found a collaboratively developed solution by the widest spread of stakeholders generally produced a result that was widely accepted;
- However; there were three further commonalities that precluded their use in this study (apart from learning from using an inclusive process):
    - All participants were paid, normally by some kind of state structure and this study was conducted purely by the author with no outside funding;
    - None of the articles described the process of consensus building in sufficient detail to serve as a template;
    - There were no pre- and post-measurements of consensus which the author wished to do in order that there was an impartial, measureable assessment of consensus building by the process.

So, although this literature review has surveyed a fairly broad range of the large and growing body of research and literature on the fiercely debated topic of legalisation of the international rhino horn trade, none of that literature utilised the type of insightful, multidisciplinary strategic models alluded to by Johnson, or that had been used successfully by companies and countries in similar situations of not easily analysed uncertainties and not easily understood consequences of decisions.

This research has therefore analysed methods successfully employed previously in other spheres characterised by fierce debate and deep discord, to produce decision support materials for stakeholders and decision makers, and assess whether these tools could prove useful in building consensus in this debate.

3 Research Methodology

3.1 Research Design

3.1.1 Introduction

This study researched a methodology to be used for the development of coherent strategic overviews as a decision tool in deliberations which could build consensus on whether a continued ban or legalising the international trade in rhino horn would be the better approach to rhino conservation. The methodology was constructed using decision support tools that have been successfully utilised by both private sector and governments in similar situations in the past (i.e. where fierce disagreement and incomplete information existed).

For many variables important to this debate, credible, current, peer-reviewed literature has been shown to exist. Examples of just two such areas are:

- The attitudes and interests of an important of group of stakeholders i.e. private rhino owners published by Rubino, Pienaar and Wright (Rubino, 2017; E. C. Rubino, Pienaar, E.F., 2018a, 2018b; E. C. Rubino, Pienaar, E.F., Soto, J.R., 2018; Wright, 2016). It is important to note that prior to 2016, the views of private rhino owners were not generally the subject of academic research and were not accorded the status that should be due to a group of stakeholders who are custodians of 27% of South Africa's rhinos

  It is ironic that, although *"…empowering local people to value wildlife…in a multi-pronged approach…to…control the […illegal…] global trade in wildlife…"* (Rosen, 2010), the efforts of the private rhino owners and trophy hunters (Holechek, 2017) who ***are*** local people and bring badly needed funds to rural areas, are generally not given recognition in this regard.

  The contributions on the illegal trade to the debate by articles in 2016 and 2017 (Hübschle, 2016a, 2016b; Moneron, 2017; Rademeyer, 2016a, 2016b) were extremely valuable as they presented information on the illegal trade which had been difficult to obtain previously. Although there had been some work published on the illegal trade previously (Ronald Orenstein, 2013; Rademeyer, 2012), the information appeared mostly in the form of books and, as such, had been written in a journalistic rather than an academic style.

However, as was pointed out in the literature review on the demand/supply balance for rhino horn (sections 2.3 and 2.4), each variable in this debate is complex, multifaceted, geographically-diverse, and has changed over time, and would likely change in ways which would be highly debatable if the trade were legalised. In addition, although there is general agreement that the demand was large and mainly emanates from the Far East (particularly China and Vietnam), there are differing views on demand drivers and the

relative importance of the different market sectors. Therefore, developing a coherent, ***strategic*** overview of the supply/demand balance, and the solution to the poaching of rhinos in an environment where almost all trade was banned has proven difficult and time consuming using conventional methods. Once developed using conventional analysis methods, such an overview was difficult to convey succinctly and was vulnerable to attack by single-point arguments presented in isolation.

Accordingly, the author decided to develop a clear, easily-understood, comprehensive framework that was 'punchy' enough to be memorable, which stakeholders, influencers and decision makers could use to assess various strategies so that they would be better able to evaluate the possible impacts of future decisions (Section 2.2.). This approach was tested by assessing whether the level of consensus increased over the process and if opinions became more clearly defined.

In this study the simple dictionary definition for consensus was used *"… a generally accepted opinion among a group of people".* The level of consensus would be established by comparing the percentage holding the most commonly held view at the start and the percentage holding the most commonly held view at the end of the study.

The research conducted in this study was designed to provide stakeholders and all decision makers with a holistic framework and common vocabulary. This section describes the principal framework within which this analysis was carried out, and provides a more detailed description of the specific methods that were employed, the theories underpinning them and the rationale for choosing these methods.

The key decision facing rhino stakeholders is how best to preserve the two species of extant African rhino as evolutionarily viable populations and allow them to continue to fulfil

their role as a keystone species in at least most of the larger protected areas in South Africa. In this context the preservation of a few animals in zoos, or in 'exile' out of their natural range, is not regarded as preservation. A rhino population in captive breeding operations were only regarded as evolutionarily viable if the operations were conducted in a manner that facilitated collective re-wilding, as opposed to individually facilitated re-wilding), and on a scale such that the re-stocking of larger protected areas denuded of their rhino populations by poaching would be feasible.

As had been highlighted previously, there were fundamental disagreements on what the input variables and their effects on unsustainable rhino poaching would be.

The principal dichotomy was between those advocating only the non-consumptive use of wildlife, such as ecotourism and photo-tourism, and those promoting sustainable use. It must be noted that those promoting non-consumptive use did not generally consider non-lethal harvesting of horn as non-consumptive despite rhino horn's life-long growth. Sustainable use would include legal international sale of rhino horn, trophy hunting, and sustainable harvesting for horn, meat, hides and other rhino products along with non-consumptive uses such as ecotourism. Limited trophy hunting and the sale of live animals to carefully vetted buyers was allowed under the CITES regulations for South Africa in 2018.

Examples of articles arguing the two views of wildlife conservation (i.e. only non-consumptive use versus sustainable use) in the specific case of rhino, are listed below. From this list it can be seen that the topic has held interest for a large number of people with diverse views.

Articles Concluding That Non-consumptive use (see above) is the Only Acceptable Conservation Tool

2004 The Complex Interactions of Markets for Endangered Species Products (Fischer, 2004)

2005 An Economic Assessment of Wildlife Farming and Conservation (Bulte, 2005)

2013 Rhino Horn - Debunking the Pro Trade Propaganda! (Cota-Larson, 2013)

2013 Horn of Contention: A Review of Literature on the Economics of Trade in Rhino Horn (Campbell, 2013)

2013 Rhino Poaching: Supply and Demand Uncertain (Collins, 2013)

2013 No Easy Alternatives to Conservation Enforcement: Response to Challender and Macmillan (Phelps, 2013)

2014 International Rhino Coalition: Assessing the Risks of Rhino Horn Trade (*Assessing the Risks of Rhino Horn Trade - Conservation Action Trust*, 2014)

Why legalising trade in horn will hasten the demise of rhinos (Kotze, 2014b)

A review of the economic literature of wildlife trade in general (F. Aguayo, 2014)

The Impact of a Legal Ivory Trade on Africa's Elephant Population (Rice, 2014)

Flawed Assumptions Underlying Calls for the Legalisation of the Rhino Horn Trade (Watts, 2014)

CITES and South Africa’s Proposal to Legalise Rhino Horn Trade (Travers, 2014)

Rhino Horn "There Is Never the Right Way to do the Wrong Thing" (K. Trendler, 2014)

When the Buying Stops the Killing Can Too (Wildaid, 2014)

2016 Research Confirms Preference for Traditional Medicine Materials (TAMs) Derived from Wild Animals (Johnson, 2016b)

2016 Pointless: A Quantitative Assessment of Supply and Demand in Rhino Horn and a Case Against Trade (Maas, 2016)

2017 Rhino Horn Trade = Extinction in the Wild (Epsley, 2017)

2017 Legal Trade in Rhino Horn Could Dwarf Illegal One (Popescu, 2017)

Articles Concluding That Sustainable use Could be a Conservation Tool

1983 Bootleggers and Baptists - The Education of a Regulatory Economist (B. Yandle, 1983)

2007 How Many Wildebeest do you Need? (Norton-Griffiths, 2007)

2010 The Growing Involvement of Foreign NGOs in Setting Policy Agendas and Political Decision Making in Africa (M. Norton-Griffiths, 2010)

2014 Rhino in Crisis - A Blueprint for Survival (TCI, 2014)

2015 **An Urgent Call For Legal Trade In Rhino Horn** : ***Rhino Addio*** (*all papers listed below accessible from this link)* (Africa, 2015)

Foreword	Dr Peter Oberem
Introduction given by	John Hanks
A Pro-Trade Agenda	Mavuso Msimang
Calling all Rhino Owners	Dr Mike Knight
The cost of the CITES trade ban on African rhino conservation	Pelham Jones
Conservation & Community Benefits	Julian Sturgeon
Limpopo Communities to Lobby CITES to legalise the Rhino Horn Trade	Dipati Benjamin Maenetja
Wildlife Policy in Southern Africa – Why Not Crop the Game?	Dr Brian Child
The Swazi Conservation Reality	Ted Reilly
High Court Challenge: Trade Moratorium on Rhino Horn	Izak du Toit
An Assessment of the Anti-trade Arguments	Jane Wiltshire
Smart Trade	Michael Eustace

2015 Domino Effect - *Rhino Files* (Child, 2015)

2015 Bootleggers and Baptists - APolitical Economy Framework for Analysing the Illegal Trade in Wildlife (A. Kasterine, Bazzola, M., 2015)

2017 Wildlife Conservation on the Rangelands of Eastern and Southern Africa: Past, Present and Future (Holechek, 2017)

Articles Assessing Both Approaches

In addition, many of the more academic papers assessed both approaches and considered whether legalisation would reduce the illegal killing:

2012 The Rhino Poaching Crisis: A Market Analysis (M. 't Sas-Rolfes, 2012)

2013 Legal Trade of Africa's Rhino Horns (D. Biggs, Courchamp, F., Martin, R., Possingham, H.P., 2013)

2015 The Economics and Politics of Wildlife Trade Regulation ('t Sas-Rolfes, 2015)

2016 A Game of Horns: Transnational Flow of Rhino Horns (Hübschle, 2016a)

2016 A Study of Rhino Horn - Behavioural Economics (Kennaugh, 2016b)

2017 Demand in Vietnam for Rhino Horn -Used in Traditional Medicine (D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017b)

2018 Could Legalising the Trade in Rhino Horn Save the Species? (Hart, 2018)

There were two major challenges facing the resolution of the debate on the legalisation of rhino horn:

- There were strong opposing views (demonstrated above) held by parties who had invested large amounts of money, time and/or reputation in their positions;
    - Private rhino owners had made large investments in terms of money and sacrifice (in terms of physical danger, psychological stress and adverse social effects) (E. C. Rubino, Pienaar, E.F., Soto, J.R., 2018). One such investor has invested over US$120 million (Hume, 2018).

- Conservators (which includes field rangers, hands-on researchers and academics) had dedicated their lives to rhinos and sometimes paid with their lives – over 1000 game guards and rangers had been killed in Africa in 'poaching wars' (Hanks, 2015b; Reilly, 2015).
- Advocacy and animal rights NGOs had a large amount of their credibility and ego built into their position and rhino conservation represented a significant focus for their fund raising activities. Eugene Lapointe of the IWMC World Conservation Trust estimated that in 2016/2017 just three international animal rights NGOs (PETA, Humane Society and IFAW) had raised donations of over a billion US dollars.
- SIOs had often raised considerable amounts of money for, and expended many 'man-days', in their campaigns. In some cases, the founders had dedicated their lives to their cause over a long period of time (Malby-Anthony, 2018).
- In addition, there was not a general consensus on whether a legal supply could satisfy the demand for horn or that price would serve as a sufficient market equilibration function in advance of any implementation of a decision to legalise. As can be seen in section 2.4 and 2.5 of the Literature Review, while the likely range of legal supply of horn could be estimated with a fair level of confidence, the range of estimates of the quantum of demand was so wide as to not provide any practically useful indication for conventional analysis.

Wilkinson called decisions impinged upon by large uncertainties in key variables;

*" … **long fuse big bang problems"** that "… often [are] … a life or death … decision … [that doesn't] … lend … [itself] … to traditional analysis; it is simply*

impossible to research away the uncertainties on which the success of a key decision will hang"… (Wilkinson, 1995).

A technique that Wilkinson (1995) recommended in cases like these was scenario planning. Scenario planning has been used to provide credible analysis and frameworks in similar circumstances of uncertainty and contentious debate and has been successful in:

> " *… building understanding and … eventually consensus and ha[d] been found to be … an effective way of accommodating differences and generating a shared understanding of the problem and … the future"* (Segal, 2007).

This technique has been used in this study to form the underlying structure for the research and for the final presentation of the results.

3.1.2 Scenario Development

A scenario is a " … plausible, alternative, hypothesis about how the world might unfold, specifically designed to highlight risks and opportunities …" (Schoemaker, 1995).

Scenario development was chosen as the most suitable research methodology in this case after a scan of the decision support landscape as it is especially beneficial when:

> *"there are strong differences of opinion …"*
>
> *"with multiple opinions having merit …";*
>
> *"the situation needs a common language and framework …" [and …]*
>
> *"the entity is faced with a focal question"* (Schoemaker, 1995).

The debate on the legalisation of the international trade in rhino horn displayed all these characteristics:

- The case for and against legalised trade has been argued strongly (see sections 2.2, 2.4, and 3.1).
- This decision and the eventual outcome of the vote on any amendment of the CITES Regulations on international trade in rhino horn was seen to depend crucially (among other conditions) on what the demand for rhino horn was and

could be placed under the two dispensations: legalisation of the international trade or the continuation of the ban. While most of the other conditions CITES required to make a finding, could and had been resolved (or could be resolved by regulation), the question of whether the sustainable supply of rhino horn could satisfy demand in a legalised environment, was still hotly debated. A significant number and weight of stakeholders held opposing views as to which approach had the most merit in reducing poaching below the natural growth in rhino population. The effect of such a decision on the illegal killing of rhino i.e. whether or not this demand could be met by legally obtained horn, thus enabling rhino to continue to exist in the wild as an evolutionarily viable species, was the focal question of this debate.

- It was self-evident that a common language and framework would be useful, if not essential, in moving this debate forward. The two approaches tended to be argued from completely different frameworks:
    - Non-consumptive use was generally argued from a moral standpoint and was also often concerned primarily with saving an individual or a small pocket of the species. Two impactful tag lines demonstrating this moral stance were:
        - ***"There is no right way to do the wrong thing"*** (Karen Trendler, 2014) and;
        - **"When the buying stops, the killing can too"** (Wildaid, 2014)
    - Sustainable use was argued from the overall conservation of the species and the ecosystem it relied on and supported. It tended to be more focused on economics and holistic co-existence with an ever-increasing human population.
- South Africa, as custodians of nearly 90% of Africa's rhinos, was therefore faced with a pivotal decision: should the country propose an amendment to the CITES

> regulations at CoP18 that was to be held in 2019 to legalise the international trade in rhino horn and, if so, how should they present the amendment so as to secure the requisite votes?

Nick Segal viewed scenarios,

> *" … as a tool for generating awareness with a view to building understanding and perhaps eventually consensus … [where] … the challenge is to reconcile diverse perspectives on a particular issue …"* (Segal, 2007).

If greater consensus could be achieved, even partially, there would be a substantial benefit arising from the use of scenarios.

In addition, as could be inferred by the number, range and credibility of the many papers reviewed in the Literature Review and as set down in more detail on specific issues in 2.3 and in 3.1, there was a large amount of data on the multiple inputs to the debate. Scenario planning is used to *" … simplify… [y] the avalanche of data into a limited number of possible states."* (Schoemaker, 1995).

The building of understanding and possible consensus (Segal, 2007) and the encapsulation of the mass of data into a few, easily-understood narratives (Schoemaker, 1995) would be valuable outcomes that should be appreciated by stakeholders and decision makers. The author therefore judged that the scenario formulation and dissemination could facilitate constructive discussion and highlight possible areas of agreement as well as reveal the areas of deep division that required further research and/or tough decisions. The process itself has the potential to start identifying and building a consensus.

Although there has been some detailed work using scenarios on the question of horn trade legalisation, notably that of Di Minin (Di Minin, 2015), these were formula generated scenarios presented within an academic framework. Di Minin's analysis was based on a complex model that produced eight different scenarios. Di Minin's research had not been widely grasped or used in general debate despite its detailed, well-argued and clear conclusions. This was perhaps because there were too many scenarios that were not sufficiently differentiated and therefore not memorable enough for the diverse stakeholders in this debate to grasp, remember and use easily in a discussion or argument.

The type of scenarios referred to by Schoemaker and Segal (Schoemaker, 1995; Segal, 2007) that were most likely to be useful in this debate are those similar to the ones that were developed to help companies and countries gain an understanding of and, therefore, make better decisions on complex questions. These were termed 'decision scenarios' by Schoemaker (1995). Garvin describes these decision scenarios as:

> *" … plausible alternative [hypotheses] about how the world might unfold, especially designed to highlight risks and opportunities facing the … [entity]"* (Garvin, 2006).

Similar situations, with strong opposing views and hard to forecast variables, where this approach has proved useful are:

- Shell developed contrasting scenarios in the early 1970s that prepared them better for the oil shock of the 1970s ("The Man Who Saw the Future," 2003). This was despite some strenuous defence of the generally accepted, rather narrow, price ranges held by many influential internal decision makers.
- Anglo American, a then large listed South African company, utilised the scenario approach in the late 1980s to highlight possible future scenarios for South Africa

under the assumption of a continuation or possible repeal of apartheid(the legal framework of racial separation by which the country was governed - until then). These scenarios are credited with greatly contributing to the successful transition that South Africa made to a democratic state in 1994 (Galer, 2004; Segal, 2007).

"The Anglo scenarios were not just an intellectual exercise. They were a powerful means of shaping the debate and influencing the agenda for political action in South Africa" (Schoemaker, 1995).

The objective of scenario development was to craft a few, clearly-differentiated futures; each that would lead to different perceptions by decision makers and therefore possibly different decisions. The method set out by Garvin and Levesque in developing scenarios was the one broadly followed (Garvin, 2006) in this research. This consisted of:

3.1.3 Formulation of Scenarios

3.1.4 Selecting a Large Enough Sample of Participants to Represent a Cross Section

This will be dealt with in detail below, in sections 3.2.1, 3.2.2, 3.2.4, and 3.2.5 including the definition of 'stakeholder/s' and 'stakeholder group/s'.

3.1.5 Identifying the Key Focal Issue

Garvin and Levesque define this as: " *… a significant upcoming decision … that has important long range consequences …"* (Garvin, 2006).

In this case the decision being debated is whether legalising the trade in rhino horn or continuing with the trade ban would be more effective in reducing rhino poaching below the natural population growth.

3.1.6 Identifying Driving Forces

These are the elements which are judged likely to have fundamental effects on the key focal issue.

The large number of academic papers and other research articles that were produced in the lead up to CoP17 in 2016, have subsequently proved useful in identifying driving forces, and were used to:

- develop the initial scenarios;
- frame the areas where the input of stakeholders will be canvassed; and
- paint the background to enrich the various scenarios.

3.1.7 Determining Critical Uncertainties

The Literature Review points to the lack of consensus on what the demand range for rhino horn was likely to be if trade were legalised and whether the customary supply/demand equilibrating function of price would, in fact, take effect (or take affect sufficiently). It was essentially unknowable in terms of wide acceptance in advance of legalisation, thus rendering this a ***"long fuse big bang"*** problem (Wilkinson, 1995). While the exact quantum of demand was not critical, its relationship to the sustainable legal supply of horn was key. If the demand was higher than sustainable legal supply and the price did not serve to equilibrate supply and demand sufficiently by encouraging supply and/or attenuating demand, the shortfall would be supplied by illegally (normally lethally) obtained horn and the population of rhino would inevitably decline (most probably at an ever increasing rate). If the reverse, rhino populations would have a chance of expanding once more under a legalised trade environment.

The size of the difference between these two variables (sustainable, legal supply and demand) in a stable, legalised trade environment would influence only the time frame over which the future would play out. This critical uncertainty, therefore, is dichotomous and its absolute size is only peripherally important. The crucial issue is the interrelation of supply and demand in a legalised environment.

While this has been modelled by Di Minin *et al.* 2015, the results have not been as widely taken up in the ensuing debates as would have been expected considering the thoroughness of the research and the stature of the authors. Possibly this was due to the complexities of multiple variables producing eight scenarios which was difficult to grasp.

The critical uncertainty and focal question identified above in 3.1.5 and 3.1.7 were used to develop an initial scenario framework.

3.1.8 Scenario Development

The ultimate aim was to create a few easily-identifiable, clearly-differentiated but plausible narratives of what a possible future would be like. The narratives must be "*logically coherent and consistent*" (Garvin, 2006).

Once these futures had been crafted, they were to be utilised as decision-support tools to raise the level of debate and test the possible decisions and strategies being considered.

However, in order to develop these decision scenarios, an iterative process is generally used (Garvin, 2006). A fairly simple scenario framework is first produced. These initial scenarios are then progressively refined and enriched by soliciting input from people with as wide a range of opinions and expertise as possible.

The inputs from participants in the various rounds of the questionnaire are synthesized into coherent, well-reasoned, easily-understood narratives that can provide a platform for further debate. The process is designed to build consensus via a few clear, easily understood, non-technical scenarios based on conclusions reached collaboratively and

which, accordingly, can be expected to have more ‘buy in’ from all the parties involved (Buffet, 2018).

The overarching architecture used in the research design is used to build scenarios with broad input across the opponent/proponent spectrum and representing as many stakeholder groups as possible. In order to facilitate covering this spectrum and, making the initial assumption that stakeholder groups are likely to have similar opinions in the main, broad stakeholder groups (see sections 3.2.1, 3.2.2, 3.3.3, and 3.3.4) were identified. The opinions of as many of these stakeholder groups as possible were canvassed (with as many representatives of each group as possible).

3.1.9 Stakeholder/s and Stakeholder Group Identification

A preliminary stakeholder analysis for each of these scenarios was carried out as part of the process of promoting as much lateral thinking and novel feedback, from as wide a range of participants as possible.

A stakeholder is defined by Applegate as *“ … any person, group or organisational unit that will be influenced by, or will influence the problem at hand”* (Applegate, 2008). Redmond expanded this to the concept of a strategic group that has similar combinations of strategies (Redmond, 2008).

In the debate about the legalisation of the rhino horn trade there are two broad groups of stakeholders:

3.1.10 Direct Stakeholders

These are stakeholders who have ‘skin in the game’. ‘Skin in the game’ is a term originally used in corporate finance for the amount that an entity or individual has invested or has at risk in a goal (Macmillan). This investment includes inputs of time, reputation, expertise, exposure to personal danger or psychological trauma, as well as monetary assets. The dictionary added an observation that, “*You take more ownership of something when you have some skin in the game*.” (Macmillan). Taleb (2018) devoted an entire book to providing illustrations of entities behaving differently depending on whether or not they had ‘skin in the game’.

Thomas Sowell’s quote encapsulated this succinctly:

> *“It is hard to imagine a more stupid or more dangerous way of making decisions than by putting those […extremely important…] decisions in the hands of people who pay no price for being wrong” (Sowell, 2018).*

Yet much of wildlife conservation policy has been determined by parties without direct ‘skin in the game’.

This study has actively sought to avoid the problem of giving the power of decision making to those without a stake in the outcome, by ensuring as many direct stakeholders as possible were included in the survey.

3.1.11 Indirect Stakeholders

These are stakeholders who have not made an investment in the goal but are extremely involved in the debate as they derive considerable benefit or have a deep interest in the outcome of the debate on the legalisation of the international trade in rhino horn.

T'Sas-Rolfe made the following observation about indirect stakeholders:

> *"… the problem of agency (i.e. the principal/agent problem) … [is where] … parties managing wildlife resources may differ from those who benefit from such management, who in turn may differ from those who must bear the burden of costs. These different parties may face distinctly different incentives, which play out in various political and economic games."*

One such group without direct 'skin in the game' is animal rights NGOs who nevertheless have a significant impact on the outcome and implementation of decisions on wildlife policy. They have indirect 'skin in the game' in that they raise large amounts of funds using rhino poaching as an important plank in their fund raising platform. E. La Pointe, in a 2016 presentation, estimated that just three such animal rights NGOs (Peta, IFAW and Humane Society of the US) had raised more than a billion US dollars in 2015. They did have a significant impact on wildlife decisions as highlighted by several authors:

Rabinowitz (1995) stated: *'… the rest of … [the blame for the decline of the Sumatran Rhino] … falls squarely in the lap of international funding and conservation organisations. [who with their …] funding and expertise ha[ve] played a major role in directing the course of rhino conservation … .'*

Norton-Griffiths once again drew attention in 2010 to the counter-productive role foreign NGOs and SIOs play in making decisions on wildlife conservation in Africa (M. Norton-Griffiths, 2010).

An initial list of stakeholder groups was drawn up using the Literature Review and included individuals or entities that had 'self-identified' by articles, presentations or posts on social media on the subject. The completeness of the coverage of this list of the various stakeholders and opinions on legalisation was tested in the first round of questionnaires by soliciting their opinions on the legalisation of trade and asking them tp self identify with the .any of the stakeholder groups presented or suggest a stakeholder grouping they would feel more appropriate. All utilised the stakeholder groups provided although a significant number felt they represented several stakeholder groups.

3.1.12 Delphi Technique

As participation in the process leads to greater buy-in (Buffet, 2018; Schoemaker, 1995) and there were a large range of opinions, the Delphi Technique was chosen to solicit a wide range of input in the development of scenarios. This approach entailed:

> *"…the presentation of a questionnaire… to a panel of 'informed' individuals….in order to seek their opinion…on a particular issue. After they respond, the data are summarised and a new questionnaire is designed based … on the results from the first [questionnaire]"* (McKenna, 1994)

The Delphi Technique enabled research to be conducted in a manner that was affordable, covered the major stakeholders (as recommended by Schoemaker and Garvin) and provided the level and spread of expertise and interests to formulate credible, initial scenarios.

Further characteristics of Delphi studies, as highlighted by McKenna that *"participants do not meet in face to face discussions"* and there is *"… a guarantee of anonymity for subjects' responses"* also suited this debate where there had been acrimony and personal dislike and many participants who had been vociferous in their views might have found it difficult to alter their stance publicly. As proponents and opponents did not directly confront each other, except via aggregated, arms-length feedback and the filter of the

researcher, the opportunity for *ad hominem* attacks was minimised. This objective was achieved with only a few *ad hominem* attacks, mostly directed at the researcher and/or the framing of the statements.

Comments that merely impugned the integrity of other stakeholders were filtered out and not included in the following round of questionnaires. The attacks on the statements or framing of the statements were dealt with by incorporating statements encapsulating the criticisms (where it was possible to state them coherently) in the next round of questionnaires.

McKenna summarised the Delphi Technique as:

> *" … the presentation of a questionnaire … to a panel of 'informed individuals' … in order to seek their opinion or judgment on a particular issue. After they respond, the data are summarised and a new questionnaire … designed … on the results from the first round is resubmitted to each respondent to reconsider their initial opinion …"* (McKenna, 1994).

Kezar and Maxey in their change-oriented Delphi Model stated that the Delphi Technique was effective in enhancing understanding of problems. It was particularly suited to problems that yield to:

> *"… consideration of … more subjective judgements of individuals on a collective basis … and that would not be amenable to more traditional precise analytical techniques".*

They recommend this approach where there is incomplete knowledge, or a divergence of opinion (Kezar, 2016). The problem of assessing the effects on the demand/supply balance of the legalisation of rhino horn was one such problem.

Kezar and Maxey emphasised that *"a well-conceived sample is essential to the success [of a Delphi Study]"* (Kezar, 2016). It was therefore even more important than usual to include the full range of different viewpoints. The choice of participants is dealt with in section 3.2.1.

The technique specified that *"participants do not meet in face-to-face discussions"* (McKenna, 1994) and the technique therefore lent itself to being administered via online questionnaires. Online questionnaires are a relatively affordable and quick way to canvas stakeholders' opinions over a large geographic area and the authorinterposed herself between respondents who held widely opposing views and sometimes regarded other stakeholders with antipathy. This arm's length interaction lessened the likelihood of rancour and reduced the possibility of emotions overwhelming the feedback.

Several studies (Hasson, 2011; Kezar, 2016) had concluded that the results obtained by a properly constructed Delphi Study by well-informed (although not necessarily expert) stakeholders is not necessarily any less accurate than more traditional analyses.

There were no clear expert/experts on the rhino horn trade legalisation whose bona fides (in terms of both good faith definition and credentials on the subject) (Merriam-Webster) were accepted unequivocally by all sides. So the Delphi Method, which incorporates a wide spectrum of opinions, was well-suited to arriving at a decision on the way forward, that had greater credibility if not necessarily, unanimity.

The number of iterations of:

- survey,
- collation of responses, and
- re-survey with a questionnaire based on previous responses.

depends on:

- the reaching of a consensus,
- the identification of the opposing views, and
- the surfacing of new insights. (Kezar, 2016)

The author decided to conduct the minimum of two rounds and then assess whether the three results enumerated had been substantially achieved.

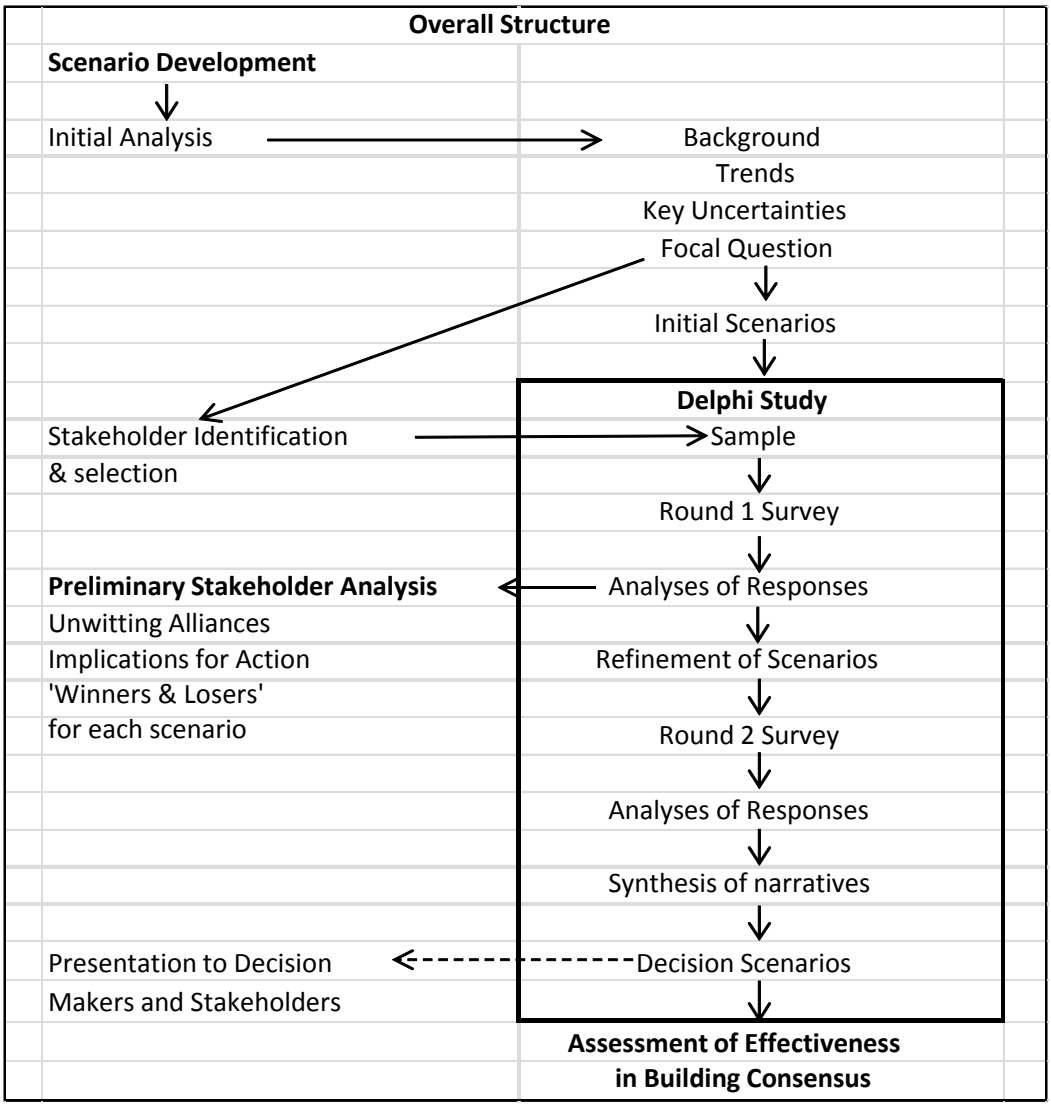
A problem with the Delphi Technique is that it is fairly onerous in terms of time and introspection on the part of respondents so there is often a substantial drop-off in the number of respondents in succeeding rounds (author's own experience).

Fortunately, only two rounds of the Delphi questionnaires were necessary to achieve significant consensus as will be shown later in section 3.9.

3.1.13 Overall Architecture of Research

A schematic of the methodologies followed is shown below.

Figure 12: Research Methodology Review



3.2 Research Method

3.2.1 Sample Size and Selection

Sample size, selection and representivity were key to the credibility of this research.

Scenario development requires 15 to 30 participants representing a cross section of interests, types of expertise and opinions (Garvin, 2006). Sample sizes for a Delphi Study

range from *"10 … to several hundred … [but], … [a typical] sample [size] … range[s] … from 30 to 60 …"* (Kezar, 2016). In both cases, samples should be structured to incorporate *" … the full range of different perspectives …"* (Kezar, 2016).

The author initially aimed to identify at least one hundred 'wise men' ("The Seven Sages of Greece," 620-550 BC) who represented various diverse stakeholder groupings and others who were knowledgeable in the area of rhino conservation, and/or trade and/or economics, across the ban/legalise spectrum, to canvas. Their views on the various preliminary scenarios, legalisation and the factors that had been mooted to impact on the legal rhino horn supply/demand balance were canvassed in the first round of the Delphi Survey, that took the form of a series of online questions with multiple-choice answers (Appendix 2). Respondents were also encouraged to make any comments they wished regarding their views on legalisation, the arguments mooted for and against the legalisation, and initial scenarios (which were stated starkly with little or no explanation or rationalisation) to solicit as many inputs as possible. The impact on stakeholder groupings of each scenario helped generate more, more nuanced and/or novel insights.

This stark statement of the scenarios would also, it was hoped, reduce any perception of surveyor bias by invitees.

4 Analysis of Results

4.1 Round I

4.1.1 Sample Identification and Selection

Although, as commented in section 2.2, the question of the legalisation of rhino horn trade evoked wide interest amongst the general public, it is only those representatives or individuals who were stakeholders that were canvassed for the Delphi Study.

Schoemaker found that, *"… scenarios had the same impact (on stakeholders) when developed by the 'stakeholder' or supplied by others …". However, "… participation in the process leads to greater buy-in …"* (Schoemaker, 1995).

As this study was to test consensus building amongst stakeholder groupings, the questionnaire targeted as wide a spread across the stakeholder groupings as possible within the constraints of time, costs and their willingness to complete the survey.

4.1.2 Method of Data Collection

In order to be able to canvas as wide as a cross section of stakeholders and opinions affordably and within a reasonable time frame, a web-based survey package (Survey Monkey www.surveymonkey.com) was utilised to construct questionnaires and to invite participants to complete the questionnaires online. The package tracks non- respondents, sends automated reminders, collect and collates all responses and provides simple statistics and interactive charts.

4.1.3 Sample Determination

From the Literature Review an initial list of stakeholder groups was drawn up as follows:

4.1.3.1 **Direct Stakeholders**

- Rhino custodians (i.e. guardians of the rhino with direct responsibility for rhinos either through ownership or their position in state protected areas with rhino)
  - Private rhino ranchers (rancher)
  - 'Big Five' game reserves (Big 5 reserve)
  - Other private rhino owners (PROs) (other PRO)
  - Kruger and Hluhluwe Imfolozi Parks (KNP and HIP)
  - Smaller state protected areas in Southern Africa (other state)
- Rhino single issue organisations (Rhino SIOs) who raised money mainly for rhino orphanages and anti-poaching activities.

- Protected area managers/game rangers (Manager/Game ranger).
- South African Fiscus – South African Revenue Service (SARS) which would benefit by the additional income tax on any profits made on any legal trade and that currently has to find the funds for rhino protection for state owned protected areas. SARS also loses out on the tax on the funds currently expended by private rhino owners on anti-poaching efforts and write- offs of poached rhinos.

4.1.3.2 **Indirect Stakeholders**

- Providers to rhino custodians and owners - such as security and veterinary services (providers).
- Non-governmental organisations (hereafter abbreviated to NGOs) concentrating on:

  Animal rights (AR NGOs)

  - Biodiversity (Biodiversity NGOs)

  - Communities bordering protected areas with rhinos (Border communities).
  - Illegal trade
    - Poachers
    - Middle men
    - Syndicates
    - Buyers of rhino horn
      - TEM horn consumers
    - Jewellery/Libation cups – buyers and owners
    - Speculative hoarders of horn
- Sundry
  - Trophy hunting outfitters/hunters (Trophy hunters)

- Tourism operators (Eco-tourism)
- Academics who have published in the field (Academics) — the author judged these to be stakeholders (albeit indirect) with 'skin in the game' by virtue of the time they had invested in research into and publishing on the international trade in rhino horn.
- Media (Media) — Although media do not have any direct 'skin in the game', several journalists specialising in wildlife issues, especially trade, were included due to the efforts they had made to gather facts and stories on wildlife trade and publish these.

There were three main classes of stakeholders who were not represented in the respondents:

- Border communities where few initial invitees were able to be identified of which none responded.
- Anyone involved in the illegal trade where there were no invitees.
- The South African Fiscus where the South African Revenue Service (SARS) had previously refused to answer any questions on the rhino trade on the grounds that their policy precludes it.

In all these cases, reliance was placed on secondary sources in arriving at assessments of their interests and the impacts of the various scenarios on them as well as the author's reasoning.

An effort was made to incorporate the full spectrum of opinions on the trade legalisation debates. The data to determine invitees' stance on the legalisation of the international trade in rhino horn had been garnered mainly from secondary data. Many of the stakeholders had aired their positions on the debate publicly, so the initial participant list covered those opposing and proposing legalisation as well as those of neutral or of unknown opinion. All those for whom contact details were known or obtainable were

included in both the initial and second round of questionnaires. All invitees were considered to be well informed and interested because the sampling technique included only direct and indirect stakeholders.

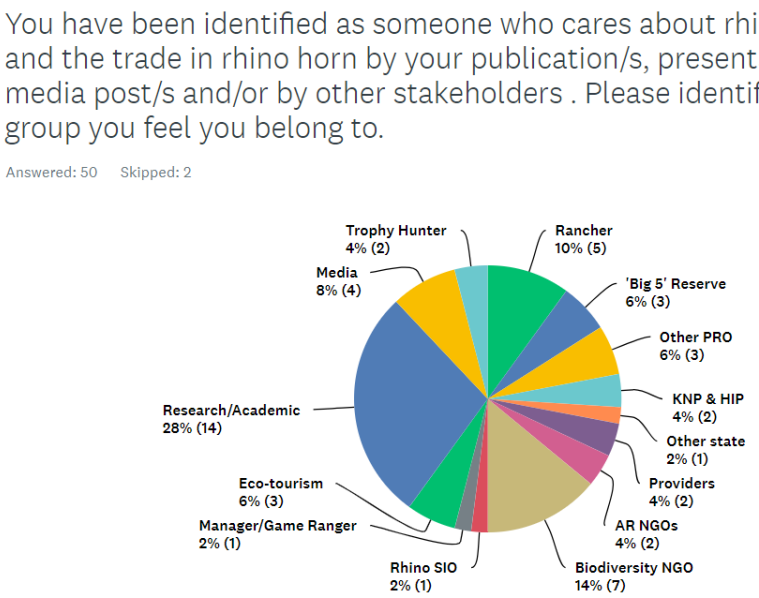
The initial list of 223 questionnaire invitees was sent to stakeholders, 18% of whom had clearly stated their opposition to legalisation of trade in rhino horn; 25% of whom had clearly stated their support of legalisation; 15% of whom had stated or demonstrated their neutrality(largely academics and environmental writers) and the remainder's views (43%) were unknown.

This sample was augmented by additional invitees suggested by original invitees, or people who heard the research was being undertaken and requested to be included – 'snowball sampling'. The final sample was–comprised of 333 invitees.

Every one of the invitees that did not respond received at least one e-mail reminder as well as being telephoned personally, where their telephone numbers were available. In addition, all 333 original invitees were sent the second questionnaire, together with a reminder, if necessary. This strategy yielded a further four respondents in the second round who had not answered the first round questionnaire.

Fifty-three invitees responded to the first questionnaire. Respondents covered the spectrum of stakeholders as is illustrated in the figure below:

Figure 13: Stakeholders Round 1



- Note: one respondent sent a reply that was not captured in the figures above but because he had worked for at least five of the above stakeholder groups, his reponse was not manually captured into this questionnaire's responses, although his responses were captured for all the other questions.
- As the number of responses (53) was greater than 30, the use of statistics for small samples was justified for this questionnaire.

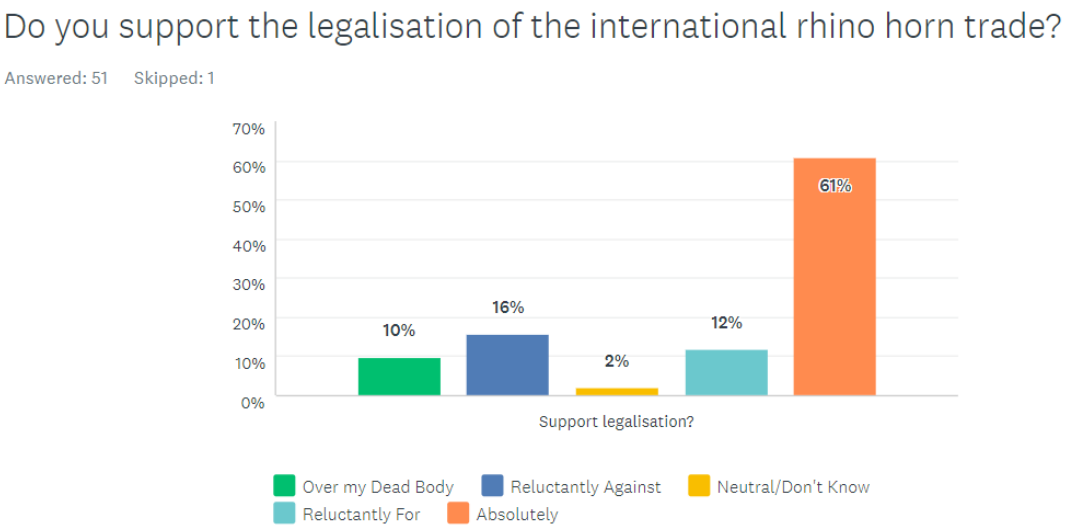
As can be seen in Figure Figure 13: Stakeholders Round 1 above, the stakeholder group with the largest number of representatives was that of academics and the second largest was that of biodiversity NGOs. NGOs and SIOs, as a group, made up 20% of the sample. Rhino ranchers had the third largest individual group representation and private rhino owners, together, made up 22% of the total respondents.

As has been commented on in section 3.2.4, no one involved in the illegal trade was able to be included, nor any from border communities or SARS.

The spectrum of opinions on legalisation also covered the range although there was a preponderance of pro-legalisation respondents. A large number of the initially 'unknowns' turned out to be pro-trade legalisation and a significant number of respondents who had

previously publically been opponents of legalisation voted ‘reluctantly for’. Perhaps some of this disconnect between the author’s prior assessment of stance on legalisation (necessarily public), and the outcome shown here is, at least in part, due to the guarantee of confidentiality given to respondents. However, there was an indication that, amongst this sample at least, there had been a shift towards legalisation.

Figure 14: Initial Support for Legalisation



Whether these results showed that there had been a general shift in the stance on legalisation among stakeholders could not be determined definitively from this study alone. The possible explanation that pro-legalisation participants were more committed and so were more likely to respond, cannot be discounted. Further research would be necessary to determine which of these explanations, if any, was applied.

The distribution with a bimodal distribution and a substantial number only partially convinced respondents, did indicate that the survey had succeeded in eliciting responses from a wide spectrum of stakeholders and diverse opinion holders on legalisation.

The data also highlighted that there was a significant proportion of respondents (30%) whose opinions were not clearly defined (reluctantly for, reluctantly against or neutral) who the author judged were most likely to change their stance and build greater consensus.

An initial list of 223 invitees was drawn up.

4.1.4 Stakeholder Analysis

There have been several conferences and publications on the subject of the pros and cons of a legalised international rhino horn trade:

- Assessing the Risks of Rhino Horn Trade 2014.https://conservationaction.co.za/resources/reports/assessing-the-risks-of-rhino-horn-trade/
- The South African Government's Department of Environmental Affairs Committee of Inquiry 2014. https://www.environment.gov.za/event/deptactivity/committeeofinquiry_rhinopoaching_workshop#workshopagenda
- Rhino Addio? An urgent call for legal trade in rhino horn. https://www.rhinoalive.com/rhino-files/

The presenters/authors/panellists were targeted to provide a core of survey participants who were presumed to be knowledgeable, interested, well-informed and motivated due to their previously demonstrated interest in the rhino horn trade. They were also presumed to be more likely to respond, as well as represent a broad spectrum of opinions on legalisation and stakeholder representation. This core was supplemented by self-identified stakeholders who had shown their interest in this issue through research publications, media articles and reports, social media posts, publishing books and interaction at CoP17.

4.1.5 Round I Questionnaire Design (see Appendix 2)

Round I of the Delphi Survey began with self-identification by respondents as to which stakeholder group they felt they belonged.

1. You have been identified as a stakeholder and a 'wise man' i.e. knowledgeable and/or interested in the legalisation or not of the international trade in rhino horn. Please identify which stakeholder group you feel you belong to:

- ◯ Private Rhino Owner - Captive Breeding Facility (CBF)
- ◯ Private Rhino Owner - 'Big 5' Ecotourism or Photosafari
- ◯ Private Rhino Owner Other
- ◯ State Protected Area - large rhino population: Kruger National Park (KNP) & Hluhluwe Imfolozi Park (HIP)
- ◯ State Protected Area (PA) - other
- ◯ Providers to Rhino Custodians - security, vets, game capture, equipment etc
- ◯ Non Governmental Organisation (NGO) - primarily involved in advocacy
- ◯ Single Issue Organisation (SIO) - rhino orphanage, anti-poaching assistance etc.
- ◯ Poacher
- ◯ Middleman
- ◯ Syndicate
- ◯ Traditional Chinese Medicine (TCM) user or prescriber
- ◯ Speculative Hoarder of Rhino Horn
- ◯ Buyer or Owner of Horn Art, Antiques or Jewellery
- ◯ Rhinos
- ◯ South African Economy and Fiscus
- ◯ Communities bordering Rhino Owning Protected Areas
- ◯ Rhino Custodians e.g. rangers, reserve managers
- ◯ Tourism Industry
- ◯ Academic
- ◯ Media

Their responses provided an indication of the representativeness of the sample of the various stakeholder groups and also provided feedback on the completeness of the list of stakeholders identified.

This question too, acted as a relatively ‘non-threatening’ and easily-answered start to the questionnaire which should encourage further response from respondents (Salant, 1994). This question design proved successful in that all Invitees who started the questionnaire, completed the questionnaire. Most respondents answered all questions.

The second question solicited the respondents’ stance on legalisation of the international rhino horn trade. This enabled the spread of respondents across the spectrum of possible opinions to be determined. This question was placed at the beginning of the first round questionnaire in order to obtain respondents’ opinions prior to any intervention by the process of scenario development by means of a Delphi Study – the ‘base case’. It was

assumed there would be a spread of opinions due to the effort made to include all opinions among the invitees.

Thereafter, participants were presented with the four initial scenarios and were asked to rate how they thought each scenario would impact on each of the stakeholders, including themselves.

This, it was hoped, would reveal those stakeholder groups that reacted similarly under each of the scenarios and so could be amalgamated to simplify analysis. It would further highlight any potential unwitting alliances and surprising alignment of interests between disparate stakeholder groups as suggested by the 'Baptists and the Bootleggers' hypothesis ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M., 2015; B. Yandle, 1983).

4.2 Scenario Development

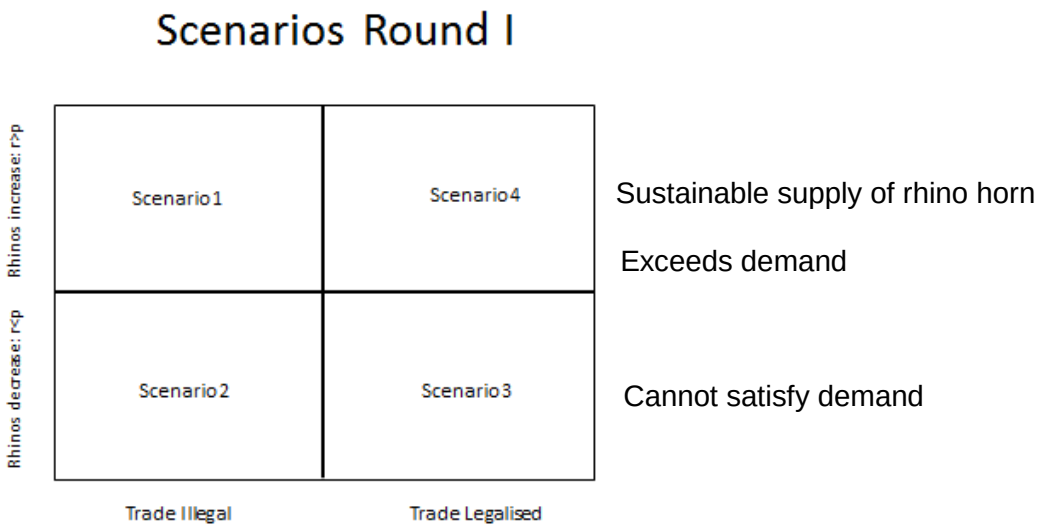
In order to elicit the input of the participants without undue influence from the author, very 'bare' scenarios were presented for consideration in the first round. These scenarios were built around two axes:

Axis 1 International trade in rhino horn –legalised, or the ban continued?

Axis 2 The rate of illegal killing of rhinos relative (p) to their recruitment or natural rate of increase (r) – would p exceed r?

This produced four *"initial scenarios"* (Garvin, 2006), or *"learning scenarios"* (Schoemaker, 1995), each with clear dichotomous boundaries (see Figure 13 below); a legal or banned international trade, marked by the horizontal axis and whether the rate of natural increase is greater or lesser than the rate of poaching shown on the vertical axis.

Figure 15: Learning/Initial Scenarios



Key: r = rate of recruitment in numbers of rhino (natural births less deaths)

p = rate of mortality due to illegal killing by rhino horn poachers

Each of the four scenarios was described as plainly as possible with a minimum of elaboration in order not to colour the respondents' perceptions (or do so as little as possible) and to garner as much as possible from the respondents' own initial opinions.

Scenario 1: The ban remains in place but poaching is brought down below the level of natural increase in rhinos. What do you feel is the impact on each of these stakeholders?

Scenario 2: The ban remains in place but poaching remains above the level of natural increase in rhinos leading to their eventual extinction in the wild despite increased anti-poaching, demand reduction and prosecution efforts. What do you feel is the impact on each of these stakeholders?

Scenario 3: International trade is legalised but despite owners and custodians now having the money to invest in more manpower and sophisticated equipment, poachers are likewise incentivised and poaching remains above the level of natural increase in rhinos leading to their eventual extinction in the wild. What do you feel is the impact on each of these stakeholders?

Scenario 4: The trade is legalised and poaching is reduced to less than the level of natural increase in rhinos leading to their wild range expansion, growth in numbers and eventual partial or total supplanting of poached horr by legally obtained horn most of which will be provided by horn stockpiles, regular de-horning of some animals and horns from natural mortalities (i.e. non-lethally obtained horn). What do you feel is the impact on each of these stakeholders?

Participants were then asked to rate how they assessed that the various stakeholders would be impacted under each of the four scenarios.

These questions were intended to:

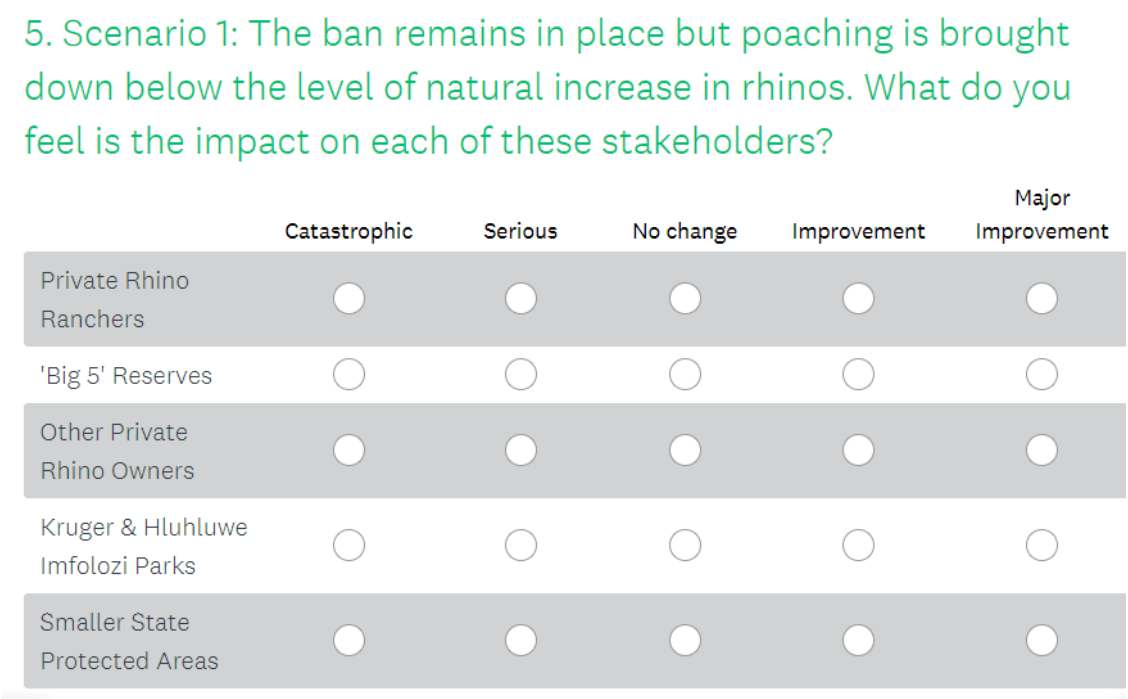
- provoke respondents to engage in more in-depth consideration of the scenarios and make comments that could then be used to enrich the following round of scenarios;
- reveal more about each stakeholder group (Redmond, 2008);
- reveal whether the stakeholder groups identified were distinct or had such similar strategies that they could be amalgamated without sacrificing valuable insights (Redmond, 2008); and
- reveal indications of any unwitting or surprising alliances as set out in the *'Baptist and Bootlegger'* hypothesis ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M, 2015; Bruce. Yandle, 1983) which suggested that groups who support a ban on a substance or service on moral or other grounds can sometimes unwittingly facilitate illegal traders' monopoly on the trade in that substance.

4.3 Stakeholder Analysis

4.3.1 Analysis and Collation of First Round Responses

Schoemaker suggests that in order to better understand uncertainties and trends, one should seek to *"… understand how a key stakeholder will behave in a given scenario …" (Schoemaker, 1995).*

Figure 16: Example of Portion of a Scenario Stakeholder Analysis (See Appendix 1)



Respondents were required to rate the impact of each scenario on each stakeholder using the categories shown in the example below:

Table 4 - Stakeholder Impacts

Category	Nominal Ordinal Value
Catastrophic	1
Serious	2
No change	3
Improvement	4
Major improvement	5

Nominal ordinal values (as shown above) were assigned to the various impacts.

This enabled simple statistical techniques used for numerical variables to be utilised and enabled easy manipulation and presentation in charts.

The responses regarding the effects on stakeholders of each scenario (questions 3, 4, 5 and 6) were collated and analysed..

This rating facilitated the conducting of a stakeholder analysis and a preliminary analysis of whether there were any unwitting alliances ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M, 2015; Bruce. Yandle, 1983).

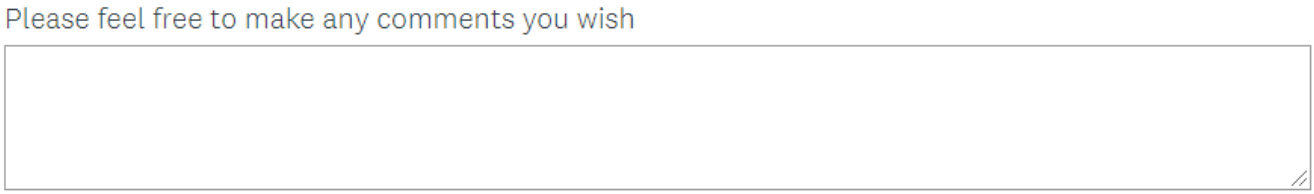
The data from all respondents were analysed using simple statistical methods to reveal any statistically significant positive or negative correlations between stakeholder groups (see Appendix 5, Correlation Matrix). In particular, data were examined as to whether:

- There were any logical groupings of stakeholders that could be utilised to simplify the analysis and so aid understanding; and/or
- whether the thesis put forward by Kasterine and Bozzola (A. Kasterine, Bazzola, M, 2015) that *"advocates of trade bans … have an unwitting, unintended alliance with illegal traders"* applied in this case.

In the context of the purpose for which this survey was being carried out (i.e. to give input for a second round compilation of a Delphi Study), it was not judged that any more sophisticated statistics would add meaningfully to the analysis.

At the end of each scenario stakeholder analysis (Questions 3, 4, 5 and 6) (See Appendix 1) respondents were asked for any comments:

Figure 17: Comment Box at the end of Each Scenario Stakeholder Analysis



These were deliberately set to the maximum number of words allowable by the computer package in order to encourage respondents to provide as much unscripted input as

possible and to encourage respondents' own views (Kezar, 2016). From the number and the detail of the comments that respondents took the time (see 5.6, 5.1, 5.3.1, 5.5.1, 5.6, 5.6.7)to proffer, the author judged that this objective was achieved.

5 Results and Analysis: Round I

5.1 Stakeholder and Scenario Analysis

A first assessment was carried out using simple univariate statistics (mean) to assess the mean impact on each stakeholder of each scenario. These means were then correlated (See Appendix 4: Correlation Matrix).

5.2 Stakeholder Analysis

This Correlation Matrix (See Appendix 4: Correlation Matrix) was examined for groups of stakeholders with a correlation coefficient (r^2) of greater than 0.95 indicating that there were coinciding outcomes for the stakeholders under the various scenarios with at least a 95% confidence level. This high correlation indicated that these stakeholder groups could be amalgamated without losing key insights. Subsequent to this analysis, the following stakeholder groups were amalgamated to simplify analysis:

- **Rhino Owners and Custodians**

  Big Five Reserves, other private rhino owners, Kruger and Hluhluwe/Imfolozi game parks and smaller state protected areas were all found to have correlation co-efficients of above 0.95 with each other. These were therefore amalgamated into a category called '***Rhino Custodians/Owners'***. The only category of rhino owners that exhibited some significant differences from the others was that of Private Rhino Ranchers and the author therefore decided there was utility in keeping them in a separate category. The reasoning underlying this judgement is demonstrated by the extract from the correlation shown below:

Table 5 - Rhino Owners & Custodians Correlation Coefficients

	PRR	Big 5	Other	KNP & HIP	PA
Private Rhino Ranchers (PRR)	1.00	0.91	0.97	0.87	0.90
'Big 5' Reserves		1.00	0.98	1.00	1.00
Other Private Rhino Owners (Other)			1.00	0.96	0.97
Kruger & Hluhluwe Imfolozi Parks (KNP & HIP)				1.00	1.00
Smaller State Protected Areas (PA)					1.00

These groups (excluding Private Rhino Ranchers) were amalgamated by calculating a simple mean of the impact of each of the four scenarios of the four component stakeholder groups. As the Correlation coefficient between the mean effect in each scenario was above, 0.95 (i.e. the impact of all scenarios on the stakeholder groups, were the same within a 95% confidence level), the author judged that amalgamating these stakeholder groups would not significantly impact on the results of the study and would make the understanding and discussion easier by reducing the number of stakeholder groups.

- **NGOs and SIOs**

Biodiversity NGOs, other NGOs and Rhino SIOs all had correlation coefficients greater than 0.95 with each other and therefore were amalgamated into a new category called '***Other NGOs/SIOs'***. The only NGO stakeholder group that was significantly different to Other NGOs/SIOs was that of Animal Rights NGOs. The author judged that there was therefore utility in maintaining this as a separate category in the light of the additional differences between this and the other NGOs/SIOs commented on below, and the hypotheses put forward under the

'Baptists and Bootleggers' hypothesis ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M., 2015; Norton-Griffiths, 2007; B. Yandle, 1983).

Table 6 - NGOs and SIOs Correlation Coefficients

	AR NGOs	BD NGOs	NGOs	SIOs
Animal Rights NGOs (AR NGOs)	1.00	0.74	0.79	0.69
Biodiversity NGOs (BD NGOs)		1.00	0.99	1.00
Other NGOs (NGOs)			1.00	0.98
Rhino SIOs (SIOs)				1.00

- **Poachers and Middlemen**

Syndicates, poachers and middlemen had a greater than 0.95 correlation with each other. However, syndicates were kept as a separate category as it was considered that differences in drivers and outcome between the syndicates and lower tier poachers and middlemen might arise on further analysis. None of the stakeholders involved in the illegal trade had been respondents so the author felt it was possible that respondents simply knew too little about these particular stakeholders to differentiate between them. Poachers and Middlemen were amalgamated in a new category – ***Poachers (tiers 1 and 2)***.

Table 7- Poachers & Middlemen Correlation Coefficient

	Poachers	Middlemen
Poachers	1.00	0.98

The impact on the syndicates of the various scenarios had negative correlations for all groups except Poachers and Middlemen, as could be expected, but effectively no correlation with the Animal Rights NGOs (see Appendix 4, Correlation Matrix). Animal

Rights NGOs were the only stakeholder group with positive correlations (albeit weak ones) with the interests of Poachers and Middlemen.

Table 8 - Poachers and Middlemen Correlation with all Other Stakeholders

	Poachers	Middlemen
Private Rhino Ranchers	-0.77	-0.66
'Big 5'	-0.58	-0.55
Other	-0.71	-0.64
KNP	-0.54	-0.52
PA	-0.59	-0.57
Providers	-0.38	-0.36
AR NGOs	0.33	0.26
BD NGOs	-0.39	-0.41
Other NGOs	-0.31	-0.37
Rhino SIOs	-0.45	-0.47
Ranchers	-0.73	-0.72
PA	-0.58	-0.57
Syndicates	0.91	0.97
TEM	-0.82	-0.76
Jewellery	-0.93	-0.92
Hoarders	-0.16	0.10
Tourism	-0.45	-0.47
Media	-0.22	-0.26
SARS	-0.61	-0.58
Trophy Hunting	-0.65	-0.62

This is an indication (albeit a weak one) that an unwitting 'Baptist and Bootlegger' alliance might exist between Animal Rights NGOs and Poachers and Middlemen. This needs to be further studied with methods specially adapted to examine whether such an alliance does exist.

5.3 Initial Scenario Analysis

At this stage it was felt that it would ease understanding and any discussion flow if titles were given to the various scenarios. These are as shown below:

Figure 18: Named Scenarios

- Scenario 1 – where the ban on international trade in rhino horn stays in place but, through a massive effort on the part of many parties, the level of illegal rhino killing is brought below the natural recruitment – ***Fort Knox***. This was commented on as being implausible and only being even contemplatable under a large number of onerous pre-conditions which were presented as part of Scenario 1 in Round II of the questionnaire. This scenario would approximate the situation that would pertain if the ban succeeded – ***a properly enforced ban and adequately funded, effective demand reduction campaign.***
- Scenario 2 - where the ban on international trade in rhino horn is continued, but the amount of illegal killing continues to exceed the recruitment. This was labelled ***Besieged*** and was commented on by many of the respondents; many of whom expressed the view that this was the status quo (late 2018). A few felt that the existing laws and regulations just needed to be comprehensively enforced and all discussion on legalisation ceased, in order to avoid sending mixed messages to

rhino-horn consuming populations and to bring rhino poaching down below recruitment to avoid the extinction of African rhinos. These sentiments were incorporated into the statements presented as part of this scenario in Round II. This scenario would approximate the situation that pertained at the time of the study (late 2018) – ***the status quo.***

- Scenario 3 – international trade in rhino horn is legalised but illegal killing continues to outpace the recruitment of rhinos. Initially rhino owners and state owned protection agencies would be able to realise some of the value currently tied up in their rhino horn stockpiles, built up over years from natural mortalities, confiscation of poached rhino horn and the practice of prophylactic de-horning. Rhino owners and custodians would therefore have the funds to protect their rhino more effectively. However, as the level of illegal killings would still exceed recruitment, the value of rhino horn in the illegal trade, particularly for speculative hoarders and collectors of objects ‘d art, would rise. Therefore, they would be prepared to pay continually increasing prices for the rhino horn. Tier 1 and 2 poachers would have more incentive to poach and more funds, leading to their efforts becoming more sophisticated and an ***Arms Race*** between poachers and rhino owners and custodians (and their security providers) would ensue. There were serious doubts expressed by many respondents that this scenario was plausible. This scenario would approximate the situation if the international trade in rhino horn was legalised and this failed for any reason/s including inadequate enforcement and the easing of laundering and rhino horn demand being ‘ignited’ by its legalisation – ***failed trade legalisation.***
- Scenario 4 – international trade in rhino horn is legalised and succeeds in supplanting an increasing amount of the horn currently being supplied by the illegal killing of rhino — by having an effective system of regulation, law

enforcement and incentives and so bringing the level of illegal killing below recruitment. This would allow recruitment in the rhino population - ***Gold Circle***.

The mean impact on these shareholder groups of the various scenarios is shown below.

Table 9 - Analysis of Impact on Stakeholder Groups of Each Scenario

Scenario	1	2	3	4
Now Named *	**Fort Knox**	**Besieged**	**Arms Race**	**Gold Circle**
Private Rhino Ranchers	2.42	1.44	2.79	4.87
Rhino custodians/owners	3.06	1.26	1.91	4.79
Providers to Rhino Custodians & Owners	3.82	1.59	2.24	4.60
AR NGOs	3.70	2.40	2.38	2.93
Other NGOs/SIOs	3.42	2.14	2.13	3.88
Border Communities	3.48	2.19	2.18	3.64
Protected Area Managers/Game Rangers	3.24	1.75	2.03	4.56
Poachers Tiers 1&2	2.70	2.35	2.47	1.75
Syndicates	2.72	2.56	2.80	1.98
TEM Consumers	2.82	2.33	2.76	3.69
Art Consumers	2.80	2.55	2.88	4.02
Speculative Hoarders of Horn	2.74	3.00	3.54	3.07
Tourism Operators	3.47	2.00	2.05	4.17
Media	3.40	2.60	2.59	3.43
South African Fiscus	3.05	1.91	2.33	4.19
Trophy Hunting Outfitter/Hunter	2.96	1.84	2.20	4.31
MEAN	**3.11**	**2.12**	**2.45**	**3.74**

Best Outcome for Stakeholder Group
Worst Outcome for Stakeholder Group

Nominal ordinal values as shown below had been assigned to the various impacts.

Category	Nominal Ordinal Value
Catastrophic	1
Serious	2
No change	3
Improvement	4
Major improvement	5

5.3.1 Observations from the Stakeholder Analysis (see Table 9 - Analysis of Impact on Stakeholder Groups of Each Scenario)

1. For almost all stakeholders, the ***Gold Circle*** was unsurprisingly the best outcome. This was even indicated to be the case for the Speculative Hoarders of Horn which seemed counter intuitive. This particular conclusion about speculative hoarders

needs to be further researched as this study had no representatives from hoarders, thus their interests could have been misunderstood by respondents. For AR NGOs and Speculative Hoarders of Horn, the Gold Circle was not the best outcome. It seems relatively easy to explain why this should be for Speculative Hoarders of Horn: their strategy of 'banking on extinction' has not worked and therefore they have not seen the large increase in value they had expected. For AR NGOs, the anomaly in the Gold Circle not being the scenario with the best outcome for them, is less easily explained. A 'Baptists and Bootleggers' type alliance seems to be indicated.

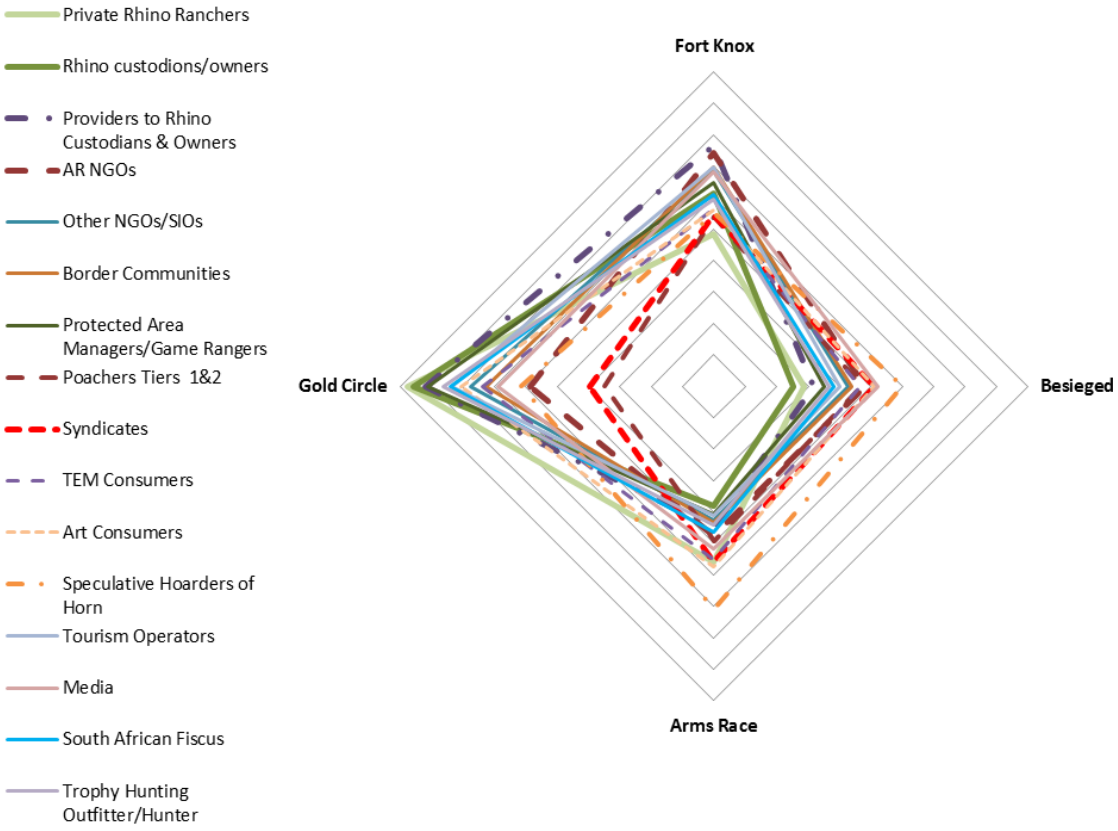
2. ***Besieged*** was the worst outcome for almost all stakeholders except Poachers and Syndicates. For Poachers and Syndicates, Gold Circle was the worst scenario.
3. ***Arms Race***, where the legalisation of trade failed, was still better for most stakeholder groups than the Besieged (status quo) scenario. The exceptions (AR NGOs, Other NGOs/SIOs, Border Communities and Media) had an equally bad outcome to that of Besieged (status quo). This showed that respondents, felt that a failed legalisation policy was generally better than (and in some cases, no worse than) the Besieged (status quo) scenario.
4. The only stakeholder groups for which the ***Gold Circle*** scenario was not the best option were the Tier 1 and 2 Poachers, the Criminal Syndicates and the Animal Rights NGOs. For all three of these groups the best option was that of ***Fort Knox***.
5. A well-conceived and implemented legalisation of the international trade in rhino horn and effective implementation, i.e.***Gold Circle*** was clearly judged the best option for all stakeholders with the exception of the three surprising results for the stakeholders discussed in 1 and 4 above.

5.3.2 Graphical Depiction of Stakeholder Scenario Results

There is a large amount of data from the Stakeholder Scenario analysis from Round I — how the 16 Stakeholders fare in the four different scenarios (themselves the product of a

two-by-two matrix). Tufte stated that, *"...When principles of design replicate principles of thought, the act of arranging information becomes an act of insight"* (Tufte, 1997). The author experimented with several ways of depicting this complex data set in a way that would be relatively easily understandable so that insights and inferences could be detected and displayed to readers. After experimenting with many of the ways to depict complex data sets it was decided to utilise a radar chart (as shown below):

Figure 19: Radar Chart Depicting the Effect of Each Scenario on Each Stakeholder Group



Radial axes depict the nominal ordinal values (as shown below) that had been assigned to the various impacts.

Category	Nominal Ordinal Value
Catastrophic	1
Serious	2
No change	3
Improvement	4
Major improvement	5

This radar chart depicts the impact on each stakeholder in each scenario with the four apices representing the four scenarios, and the radial distance from the centre indicating increasingly favourable outcomes. Each radial gridline denotes 0.5 on the nominal ordinal scale shown above.

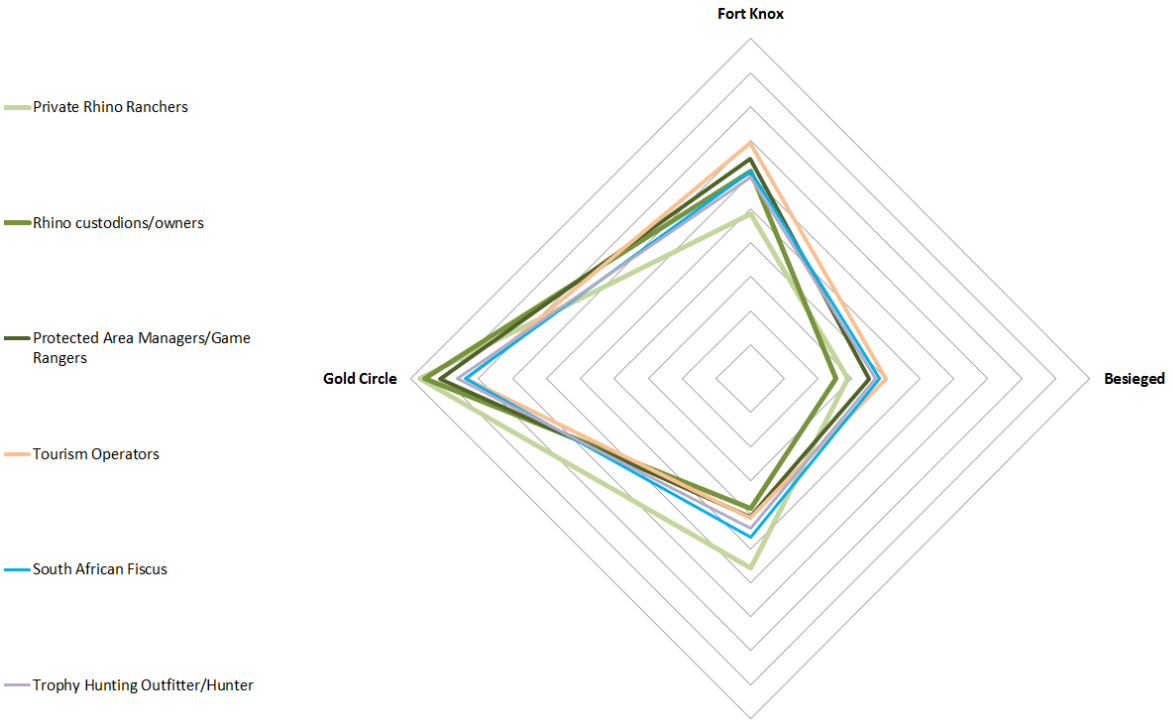
This chart contains a large amount of data, some of which overlaps at various points making it difficult to draw inferences and conclusions apart from the obvious — that the status quo or Besieged scenario is bad for all concerned (in fact, the worst for all except Poachers, Syndicates and Speculative Hoarders of Horn). This is also shown in Table 9 **-** Analysis of Impact on Stakeholder Groups of Each Scenario.

Because of the confusion of the large amount of data being depicted, the author decided to use the concept of Parallelism, as recommended by Tufte in his book on Visual Explanations (Tufte, 1997).

> *"Parallelism connects visual elements. Connections are built among images by position, orientation, overlap, synchronization and similarities in content. Parallelism grows from a common viewpoint that relates like with like. Congruity of structure across multiple images gives the eye a context for assessing data variation. Parallelism…[allows]…the perceiving mind itself to actively work…to detect and…generate links, clusters, and matches among assorted visual images".*

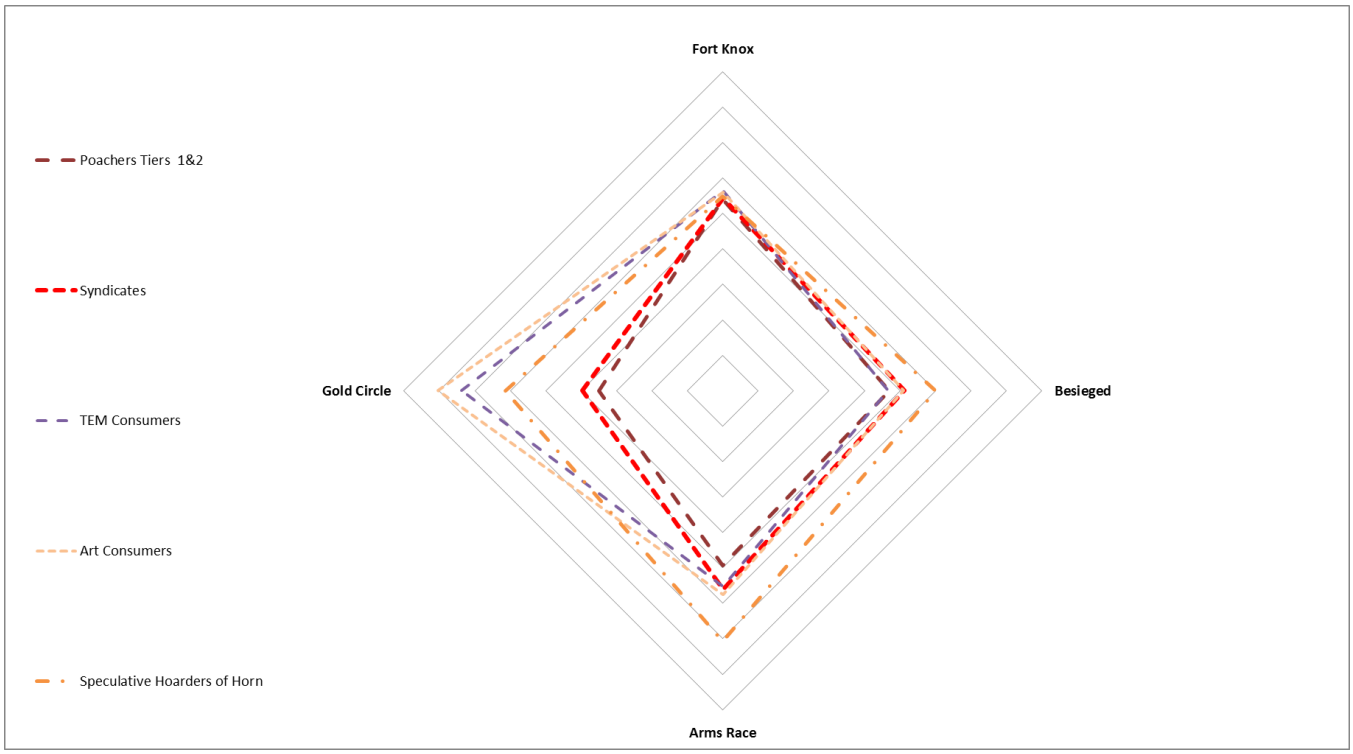
Basically, parallelism incorporates keeping the same format while showing different elements and (often) considerably less data in order to make a point about the data that would otherwise be obscured.

Figure20: Convergence and Divergence of Stakeholder Outcomes for Those with a Direct Stake in Rhinos' Continued Existence



The chart above shows the close alignment of the interests of Direct Stakeholders (and the South African Fiscus who would benefit from additional revenue). (See Table 5 - Rhino Owners & Custodians Correlation Coefficients). Therefore, in the following parallel charts, Protected Areas Managers and Game Rangers will be used as a proxy for all the Stakeholder Groups with Direct stakes in the rhinos' continued existence.

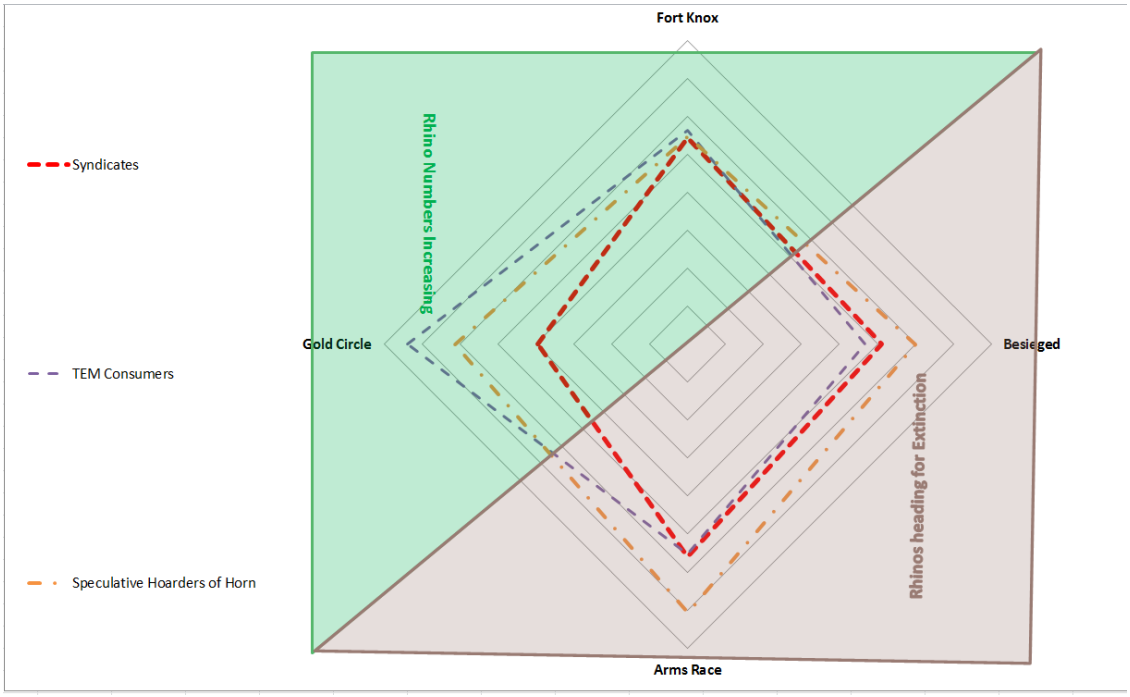
Figure 21: Outcomes of Scenarios on Those Involved in the Illegal Trade



This chart highlights several interesting insights:

- The outcome for all illegal stakeholders depicted above converges in the Fort Knox scenario, however, the results were significantly different between Poachers and Syndicates and all the other illegal stakeholders depicted for Gold Circle.
- The outcomes for Poachers and Syndicates under all scenarios were similar and, in the following depictions the Syndicates will be used as a proxy for those two groups.
- The outcomes for TEM Horn consumers and Art Consumers were sufficiently similar to use the TEM Consumer as a Proxy for these two in the following depictions.
- Speculative Hoarders' outcomes were not particularly close to any of the other participants in the illegal trade and, as such, will continue to be depicted separately.

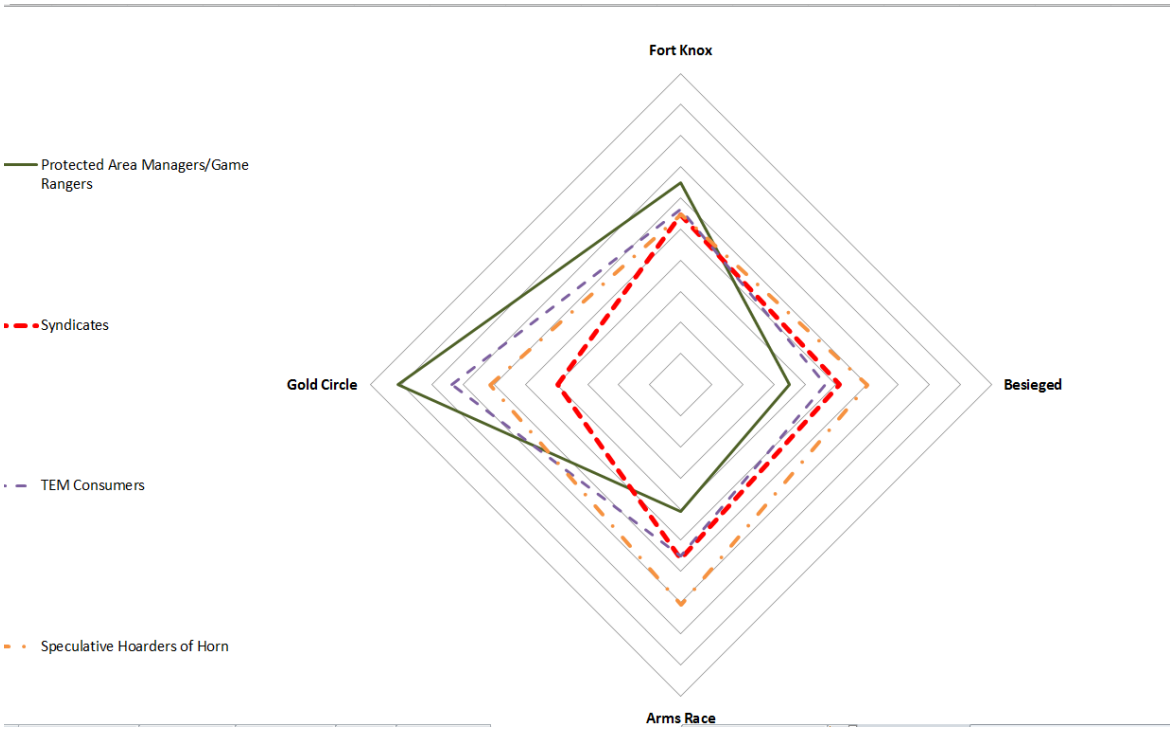
Figure 22: Illustration of the Betting/Banking on Extinction Phenomena



The above diagram illustrates the effects postulated by Bulte, Mason *et al.* (E. H. Bulte, Mason, C.F., Horan, R.D., 2003; C. F. Mason, Bulte, E.H., Horan, R.D., 2012) whereby *"…speculators, by holding large stockpiles of […rhino horn…]… […bet on extinction and…] induce poachers to harvest so rapidly as to make extinction of the species inevitable".* This is an extension of the earlier thesis whereby speculators accumulated horn and *" …Bank on Extinction…"* (E. H. Bulte, Mason, C.F., Horan, R.D., 2003). Both the scenarios where rhinos are heading for extinction, unsurprisingly, have considerably better outcomes for Speculative Hoarders of Horn than for all the other illegal trade stakeholder groups. The scenario for which there is a surprising result is Gold Circle where the outcome is better for Speculative Hoarders of Horn than for Poachers, Middlemen and Syndicates. Is this because there is a reasonable prospect that speculators would be able to launder their horn? As this survey did not include hoarders directly, this is an area that would benefit from further research.

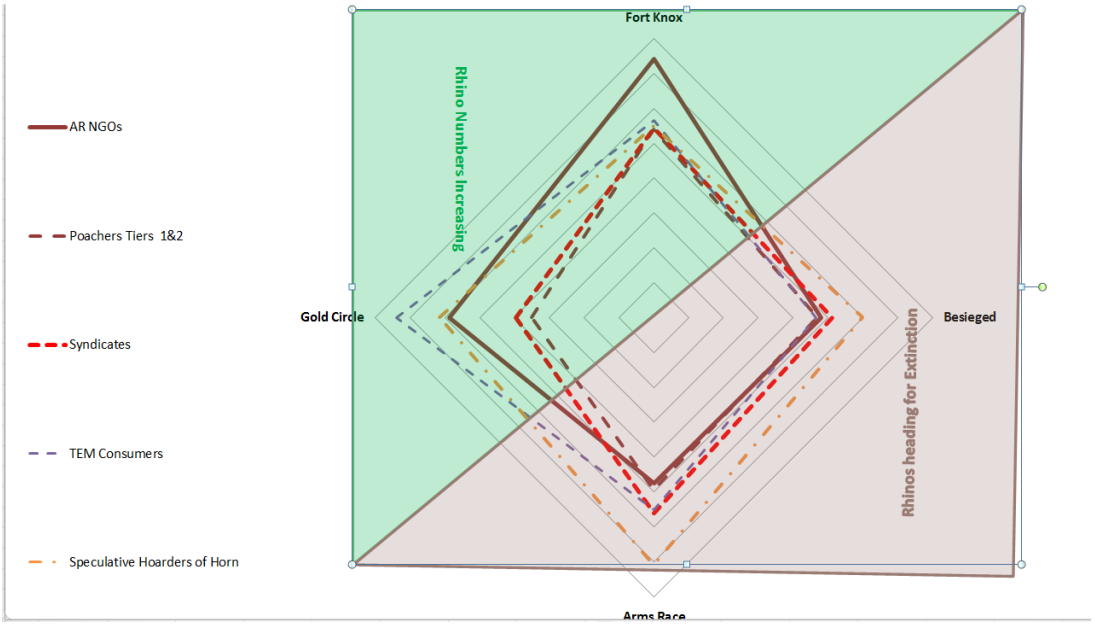
The pronounced improved outcome for rhino horn consumers in the Gold Circle scenario (especially when compared to the case for Speculative Hoarders of Horn and Poachers and Syndicates) would be consistent with findings of Macmillan *et al.* that among Vietnamese traditional medicine consumers, there was a strong preference for non-lethally harvested horn (D. MacMillan, Bozzola, M., Hanley, N., Kasterine, A., Sheremet, O., 2017b) which would be the case in a legalised, successful (in terms of rhino poaching) scenario such as the Golden Circle. Of course, the better outcome for TEM and Art Consumers of rhino horn, demonstrated in the graph above, could be due to other factors such as a wish for a sustainable supply of rhino horn. As no TEM and art consumers were directly involved as respondents (although some researchers who had examined both TEM and TCM markets were among the respondents), this is an area that should be studied further. The inferences drawn from the graph above should only be viewed as interesting indications that the preference for non-lethally harvested horn (that had not, as far as Macmillan et al was able to ascertain, been tested for, nor flagged by previous research) could be a factor in TEM consumer behaviour. This is an area for further research.

Figure 23: Comparison of Direct Rhino Stakeholders' Outcomes with Stakeholders Involved in the Illegal Trade



As would be expected, the outcomes for rhino owners/custodians/managers do not coincide with those involved in the illegal trade for horns although there is an interesting correspondence between the TEM consumers and rhino owners/custodians/managers where both stakeholder groups have their best outcome in the Gold Circle scenario and their worst outcome in the Besieged (status quo) scenario. Once again, the reasoning and caveat set out above applies.

Figure 24: Coincidence of Outcomes Between AR NGOs and Those Involved in Illegal Trade



It is remarkable to note the convergence of interests between Poacher and Syndicates and AR NGOs under those scenarios where rhinos are decreasing (Arms Race and Besieged - shown by the brown triangle). It does point to a possible *"Baptist and Bootleggers"* unwitting alliance between these parties ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M., 2015; B. Yandle, 1983). Further research into this phenomenon is indicated.

5.4 Overall Conclusions from Round I

- Generally, respondents were deeply engaged with the process and many gave detailed, considered comments, as would be expected from stakeholders. This indicated that the respondent sample did consist of stakeholders and that some store can be placed on the results according to several studies (Hasson, 2011; Kezar, 2016) that concluded that the results obtained by a properly constructed Delphi Study, of well-informed stakeholders, are not necessarily any less accurate than more traditional analyses.
- Some respondents took exception to some statements as they felt justification for each statement should be provided in a

questionnaire that formed part of an academic study. This would have:

- Made the questionnaire longer and more cumbersome; and
- perhaps shown bias.

The author did not provided the justification and, on reflection, would not provide justification in a first or second round of a Delphi study as it would render the process too unwieldy and open up debate on single point issues, rather than opening decision makers' minds to considering possible futures and the overall environment that would be necessary and would be created. However, when the decision scenarios are presented, the presenter should be prepared to give more background and justification, if necessary.

- Two interesting and, at least to some, unexpected and/or counterintuitive relationships that were indicated by this analysis:
  - The congruence of TEM Consumers' interests with those of rhino owners, custodians and ranchers with TEM rhino horn consumers (**Figure 23: Comparison of Direct Rhino Stakeholders' Outcomes with Stakeholders Involved in the Illegal Trade**); and
  - A possible *"Baptist and Bootleggers"* unwitting alliance between poachers and syndicates and AR NGOs where a party who opposes trade on moral grounds might unwittingly hand a monopoly in that trade to those operating it illegally (**Figure 24: Coincidence of Outcomes Between AR NGOs and Those Involved in Illegal Trade)**.

These could both be subjects of further research.

5.4.1 Summary of Stakeholder Scenario Analysis

The surprising coincidence of rhino owners/managers/custodians with TEM Consumers and Art Buyers of horn suggests that other engagements apart from mere demand reduction campaigns should be explored; there might be unforeseen ways and benefits from doing this.

These above observations were indications that there could be a *"Baptists and Bootleggers"* type unwitting alliance between animals rights NGOs and the illegal supply chain, although this conclusion is rather tenuous (A. Kasterine, Bazzola, M, 2015; Bruce. Yandle, 1983). Further research in this area could prove fruitful.

5.5 Stance on Legalisation/Continued Ban Debate

Finally, the initial survey presented arguments that had been made by proponents and opponents of legalisation to gauge:

- those arguments that were generally agreed upon;
- those arguments that had a strong bimodal distribution indicating two strong different opinions; and
- those arguments where there was no discernible agreement.

5.5.1 Respondents' Stance on Arguments for and Against Legalising the International Trade in Rhino Horn

Respondents were then canvassed on their opinions on the arguments that had been advanced by proponents and opponents of the legalisation of the international trade in rhino horn. The following nominal ordinal values were ascribed to each choice:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don't know	3
Agree	4
Completely agree	5

5.5.2 Arguments Advanced for Continuing the Ban on International Trade in Rhino Horn

In general, respondents disagreed with the arguments in favour of continuing the ban (a score of less than 3).

The table below presents the arguments and weighted average scores of these arguments.

Table 10 - Arguments Against Legalisation

	Weighted Average
Legalisation will make it easier to launder poached and stolen horns	2.27
Legalisation will increase demand	2.63
Legalisation will reward hoarders and syndicates	2.69
The ban just has to be properly enforced to decrease poaching	2.39
Legalisation will encourage increased intensive rhino farming	3.92
Legalisation will encourage a remedy that has not been proven and so is unethical	1.96
Legalisation will make already wealthy owners richer	2.90
Rhinos need their horn	2.98
It is just wrong to trade in rhino horn	1.82
Not enough is known about market demand and dynamics	2.44
South Africa will not be able to supply demand	2.25
South African tourism will suffer	1.98
CITES will never agree so South Africa will just embarrass themselves by proposing legalisation	2.10
Demand reduction will work eventually	2.27
Legalisation will increase poaching	2.14

Statements that were strongly agreed with are highlighted in YELLOW. All other statements had a measure of agreement with one exception that rated below 3 (neutral/don't know). This is highlighted in PURPLE. This strengthened the conclusion that respondents did not, in general, disagree with the legalisation of the international trade in rhino horn.

The following nominal ordinal values were ascribed to each choice:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don’t know	3
Agree	4
Completely agree	5

In all cases (except one) respondents disagreed with the arguments against legalisation. The only firm agreement was the statement that: ‘legalisation will encourage increased intensive farming’.

5.5.1 Synthesis of Comments on Arguments Against Legalising the International Rhino Horn Trade

Several statements do not have a definitive reply:

- Demand reduction will work BUT it depends what your definition of work is. If it reduces demand then it is working. It is not necessarily expected to eliminate demand entirely
- Legalisation will increase demand - this is simply not known, rhino horn is not one product, but its increasing or decreasing demand depends on the use it is being put to, in which market, and what drives that demand. For some the illegality drives use, for some ease of access could increase consumption. The impact of prices on the various types of demand; […should also be factored into any conclusion…].
- Legalisation will reward hoarders and syndicates - assuming legislation of international trade allows laundering as has been observed in domestic trade then it is likely this will enable trade throughout the chain.
- The ban just has to be properly enforced to decrease poaching - this is so simplistic, if all consumption were stopped under the ban it would be true, but doesn't address the drivers and complexities behind it.

- Legalisation will encourage increased intensive rhino farming - seems likely based on other wildlife industry experiences, but would depend on trade agreement and regulation.
- Legalisation will encourage a remedy that has not been proven and so is unethical - this simplifies the breadth of the known market.
- Legalisation will just make already wealthy owners richer. [This scenario…] would depend on the trade agreement and regulations, and doesn't consider the security costs of so-called ‘wealthy owners’.
- Rhinos need their horn - small and/or intensive populations show no performance impacts from dehorning, social impacts in large wild populations are unknown.
- South African will not be able to supply demand - "South Africa"? - see above, not enough known about demand and would depend on sales structure - to whom, how many, how often and what price? Not a Nationalistic issue but a biological one, there are a limited number of endangered species left to produce this product and a potentially vast number of consumers.
- South African tourism will suffer - should be assessed in conjunction with impacts of crime, canned hunting, service delivery protests, corruption etc.
- Legalisation will increase poaching - duplication of questions above, depends on trade agreement, increased laundering has already been evidenced under domestic trade.

These opinions are obviously based on certain assumptions.

Should the question have the word BAN in it? The situation is way more nuanced than this section allows for.

A carefully crafted CSO, based on a recognised smart trade model, will be set up in partnership with the government, to monitor trade ensuring: transparency, fair price for registered custodians,

security levy funding, border community levy funding, payment of VAT and set Government Conservation and Marketing levies. We have the expertise to achieve this; it is NOT a pipe dream.

One does not have to satisfy the demand [initially], the risk of poaching must […just…] be higher than the cost on the legal market.

This is indeed a very complex subject and there is no one silver bullet. To stop poaching a whole number of issues need to be in place which include[s] demand reduction campaigns in tandem with a total worldwide ban on rhino trade (without the current loopholes), eliminating mixed messaging, increased security, better policing, better judicial processes, better anti-poaching teams and training, efficient specialised courts, whistle blower funds, targeting middlemen and syndicate leaders and much more.

There are lots of real-world examples where species threatened with extinction by poaching have been saved from extinction by the legalisation in trade in their products. Rhinos are a wonderful case for this solution as you don't even have to kill a rhino to harvest its horn.

Legalisation is a "no brainer" seeing how dismally, and at what enormous cost, the trade ban has failed to date. Twenty-two of the 33 African range states that had rhinos at the start of the trade ban have had their national rhino populations driven to extinction through poaching in the 41 years since the ban was put in place. The Asian rhinos have fared equally badly since the ban was imposed. The trade ban is simply not working!

I do think rhinos need their horns but until we put an end to the poaching threat no rhinos will survive with their horns in place.

Demand reduction may work over time - but why should we reject a) the income from horn b) the massive de-escalation of an unwinnable 'Vietnam' war c) sustainable development.

It is vital that the international ban stay in place, these laws must be enforced with severity and corruption routed out. Real and intensive education must be carried out in consumer countries with proper enforcement of local and international laws.

I see "hoarders" and "syndicates" as two very different groups. Many "hoarders" are the legitimate owners of rhino horn - the people who own the rhinos and accumulate horn from de-horning - they are waiting for an opportunity to legitimately trade their resource. By contrast, syndicates are groups of criminals that are in possession of poached (=stolen) rhino horn. These two should be separated in the questions as they the answer to them is very different.

Rhinos need their horns - in areas where there are large predators (mainly lions) the mortality of rhino carves might be slightly higher when the mother is de-horned - the data is not strong enough to provide statistical assurance. However, given the high mortality in Kruger and Hluhluwe-Imfolozi of adult animals […from poaching…], the small increase in calf mortality is insignificant compared to the death of adults. In areas where there are not lions, rhinos don't need their horns for calf protection.

A properly structured and regulated international rhino horn trade will provide the incentive for an expanded rhino breeding programme, increased supply of rhino horn and a biodiversity economy that will bring natural ecosystems and all other biodiversity components along.

5.5.2 Arguments Advanced for Legalisation of International Trade in Rhino Horn

The arguments advanced for legalising the trade in rhino horn all showed an agreement above neutral (=3) on the nominal ordinal scale. Those strongly supported are highlighted in the table below:

Table 11 - Arguments for Legalisation

	Weighted Average
The trade exists whether it is legalised or not	4.20
Currently all the profits from rhino horn go to poachers and syndicates while all the costs are borne by rhino custodians	4.57
The trade ban has not worked, rhinos have gone extinct throughout their range under this ban	4.06
Currently rhino custodians are concentrating their rhino in secure areas and/or disposing of them so the rhino range is shrinking	4.27
Legalisation will give rhino custodians the funds to fight the poachers	4.16
South Africa can run a viable regulated single channel market e.g. The South African Sugar Association	3.78
Rhinos have shown no ill effects from de-horning - it is continually growing in any case	3.84
The lifting of bans on other prohibited products has not lead to increased consumption	3.46
Price will adjust to equilibrate demand with supply	3.74
The marketing spend to effect meaningful demand reduction is beyond reach	3.34
Demand reduction takes too long	3.76
There will be a gradual supplanting of poached horns by non-lethal, legal horns	3.70
CITES will agree if South Africa and other range states speak with one voice	3.70
The South African economy will get the benefit of the proceeds of international sales of rhino horn	3.70
The South African fiscus will get additional taxes and state protected areas will become largely self-funding	3.62

The arguments with a weighted average above 4 (highlighted in YELLOW) were particularly strongly supported.

5.5.3 Synthesis of Comments on Arguments in Favour of Legalising the International Rhino Horn Trade

"The marketing ability of the syndicates needs to be taken into consideration."

"[Rather than legalising all international trade in rhino horn] there should be greater focus on increasing legal hunting [which … earns …] a high return, could benefit more people (i.e. though meat provision) and is much easier to regulate and control. This [would be] a strong incentive to land owners."

“Corruption plays too large a role in the South African rhino situation.”

“There are not enough rhino to speculate [on legalisation of trade]. If and when it fails, rhino will be extinct.”

“Trade bans have exacerbated many situations leading to criminality, only for the market to correct itself after trade is normalised e.g. corn laws in England, prohibition of alcohol in the USA, the war on drugs.”

“Trade creates value. Without value, can Africa afford rhinos?”

“It is time South Africa and other [African] range states give CITES (a corrupted organisation) the boot and manage their natural resources without Eurocentric mismanagement.’’

“Future generations will ask, “Why did it take so long for them to decide to legalise the rhino horn trade?”.”

5.6 Feedback from Round I of Delphi Survey

The following are comments on Round I that deal with the structure of the survey. They have been amalgamated where there are very similar comments and edited to make some comments more easily understandable, where necessary.

5.6.1 Lack of Context

- These scenarios need more spelling out.”
- “This scenario is difficult to score as the context … [is not clear].”

- "I can't distinguish between the options so cannot provide meaningfull input."
- "The scenario is difficult to score as the context [is] … not specified".

5.6.2 Review of Comments on Lack of Context

The Delphi Survey technique is iterative with the first survey *"… broad … to allow participants' perspectives to be recorded …".* Successive rounds *" … become more focused as these … views are explored and refined …" (Kezar, 2016).* Therefore, more detail was, in any case, going to be provided and sought in the second round of the survey but, as a result of these comments the introduction to Round II was crafted to provide more context and background. See below:

'Your input to Round I has been invaluable. Please tell us whether you agree with the results.

This is the second round of a Delphi Study. Round I responses and comments, focus group discussion and analysis of peer-reviewed data (where available and relevant) are distilled into four distinctive, internally consistent 'futures' which are shown below with their working titles. Those areas where there was least consensus or pointed to surprising outcomes have been incorporated into this round for your specific consideration.

A Delphi Study is a 'panel of wise men' and had been shown to produce results as good as expensive research by a team of experts.

5.6.3 Lack of Detail

- "This scenario needs more spelling out."
- "Over what time period? Outright extinction in the wild is not in line with current predictions. Furthermore, if this were to be the case, zoos would be significant stakeholders yet are not considered in research design?"

"You have not mentioned whether or not South Africa and its various stakeholders have been able to:

(i) successfully ban all domestic trade in horn

(ii) (most importantly) muzzle the mixed messages that come flooding out from SA about consuming (or not) rhino horn that confuses Asian consumers and

(iii) nor have you said whether we have been able to eliminate all the loopholes that plague our system that criminal syndicates have exploited to the max which helps drive rhino demand and thus poaching."

- "More information should be provided about the objectives of the study, the research process, methods and ethics."

- "A lot of questions and scenarios appear to rely on questionable data and assumptions put forward by both sides of the debate."

- "A lot of assumptions stated as fact without supporting evidence."

5.6.4 Review of Comments on Lack of Detail

On reflection, the survey design should have provided more explanation to respondents in the introduction of the process and the overall purpose. However, a long introduction could equally have deterred some potential respondents. The overall design of the questionnaire was perhaps too influenced by Kezar's requirement for eliciting broad comments and so, in trying not to overly influence the responses, the introduction was too truncated.

In future Delphi Surveys the requirement for a succinct, early explanation of the purpose and process should be included in the introduction to Round I.

5.6.5 Perceived Bias

- “This is a leading question and of doubtful value.”
- “You are asking leading questions and are predetermining a research outcome which tells me you are trying to come to a conclusion that you are designing.”
- “[The] questions [are] loaded with assumptions.”
- “Is this survey targeted at pro-trade supporters only – see opening sentence?”

5.6.6 Review of Comments on Perceived Bias

This is the opening sentence: “You have been identified as a stakeholder and a ‘wise man’ i.e. knowledgeable and/or interested in the legalisation or not of the international trade in rhino horn.’’

It is interesting and unfortunate that a survey that was deliberately designed to be neutral and to present the arguments and scenarios for both legalisation and continued ban of the international trade in rhino horn should be perceived as biased by at least two of the respondents.

These comments once again point to the need to put the survey into context immediately. Respondents highlighted the fact that the design and purpose of the survey had not been adequately contextualised. This was addressed in Round II but there was still one respondent who felt that the statements following each scenario were biased even although respondents were asked merely whether they agreed or disagreed with these statements.

5.6.7 Specific feedback on Each Initial Scenario

5.6.7.1 **Scenario 1: Ban Continues, Poaching Controlled (Fort Knox)**

Aggregated Comments

- "How will the poaching be brought under control?"
- "[This can only happen because…] syndicates have moved their attention to other interests or because there are fewer rhinos."
- "[Such a scenario] can only work in theory. … In reality the 40 year ban contributed to the major slaughter of rhinos … and [the] extinction of few rhino sub-species …"
- "Unlikely that poaching levels can be reduced – they have increased despite billions spent on security. Funds to sustain security are diminishing and costs [are] rising [of]… an all-out war between poachers and the conservation authorities …"
- "Many private rhino owners will not be able to afford to carry rhinos and will get rid of them. Rhino range …in both state and private areas will shrink."
- "A ban with poaching controlled … will require huge investments … that should be going to other areas of conservation and socio-economic development. The 'war' will still be on … which will reduce habitat for rhinos and curtail their … population growth."
- "Reserve managers will bear the brunt of the war and the reserves will suffer as the inordinate amount of time required to combat poaching will [impact negatively] on other aspects of reserve management."
- "High-end private reserves will scoop the major share of overseas rhino-tourism. …Poaching syndicates and rhino horn hoarders will score as rhino horn becomes … increasingly rare."
- "This is not a long-term solution. '…[an] … unlikely scenario as Government will not be able to protect the remaining rhino on state-owned land."

5.6.7.2 **Scenario 2: Ban Continues, Poaching Exceeds Natural Recruitment (Besieged)**

Aggregated Comments

- "This is the current situation. More guns and boots on the ground … intelligence … more effective law enforcement …[are] not sustainable without the funding that could be available through the sale of 'legal horn' This is the worst case scenario and unfortunately very likely."
- "All park boundary communities, the South African Fiscus and the South African eco-tourism industry will lose out as rhino tourism and rhino trophy hunting collapses. Many private reserves will cease to exist as rhinos have been a major pillar of their economic viability."
- "Hunters will hunt other species, poachers and syndicates will strengthen [their] illegal revenue streams. Hoarders and syndicates will thrive as rhino horn becomes 'priceless', once it's … gone, they will [all just]…shift to other illegal commodities."
- "The price of horn on the black market will increase and the incentives to poaching will do likewise."
- "Animal rights NGOs will have fulfilled their aim – the extinction of a species but in a very moral manner."
- "If:
    - all South African trade in horn was successfully banned;
    - all loopholes that criminals successfully exploit had been plugged;
    - all confusing, mixed messages about rhino horn consumption from South Africa had been muzzled; and
    - there was a total worldwide ban on all trade.
- Then:
    - rhino poaching would cease within two years;

- rhino speculators, poachers, middlemen and syndicates would be out of business; and
- all other stakeholders would be smiling.

5.6.7.3 **Scenario 3: Trade Legalised, Poaching Exceeds Natural Recruitment (Arms Race)**

Aggregated Comment Themes

- Many respondents dismissed this scenario as: 'not making sense, illogical, implausible and unlikely' because:
  - Why would syndicates spend vast sums to support poaching when they can purchase horn legally?
  - A legal trade will almost [certainly] put poachers out of business.
  - Legal horn will become freely available, making poaching less lucrative.
  - Rhino custodians will be able to raise funds from horn sales for rhino protection.
  - It is illogical to assume horn buyers will opt for costly, illegal and immorally poached horn so poaching incentives will be minimised.
  - Legal trade will greatly reduce the market for poached horn.
  - Landowners should be able to protect rhino, especially as the value chain shifts from criminal gangs to legitimate trade.
- One commentator however disagreed:
  - If trade is legalised, poaching will spiral as illegal horn is hidden in the legal trade machinery.
- And another referred to two pertinent factors:
  - [Sustainability] … depends on: levels of supply and demand at any given price; and
  - upon the time frame envisaged.

5.6.8 Scenario 4: Trade Legalised, Poaching Less Than Natural Recruitment (Golden Circle)

Aggregated Comments

The main schools of thought about this scenario are:

- "This scenario is optimum, the recipe for rhino survival."
    - "Everyone is a winner." Exception[s] are …
        - Those monopolising the illegal trade.
        - Animal Rights NGOs will lose support after their opposition to legal trade is shown to be unfounded; they will do all they can to make a legal trade fail. The NGOs have made a dishonest business out of rhino poaching [driven donations].
    - "This scenario needs a well-managed legal trade and a national de-horning programme."
    - "There is a risk that legal horn could exceed demand."
    - "Prices need to stay high so producers can be viable and local communities benefit."
    - "This scenario is impossible to achieve; Cinderella land … it can't and never will happen."
        - "The natural supply of rhino horn will never satisfy demand."
        - "There are not enough rhinos left to satisfy demand and so this scenario will never be sustainable."

Review of Comments

*The key differentiator between these schools of thought seems to be: d*o we have enough rhinos and rhino horn to supply the market sustainably?

5.6.9 Overall Conclusions on Scenarios from Round I

1. For almost all stakeholders, the ***Gold Circle*** was unsurprisingly the best outcome. This was even the case for the Speculative Hoarders of Horn which seemed

counter intuitive. This conclusion needs to be further researched as this study had no representatives from hoarders so it was possible their interests had been misunderstood by respondents.

2. ***Besieged*** was the worst outcome for stakeholders on average (see Table 3).
3. ***Arms Race***, where the current situation is made to work in reducing poaching of rhino below the natural recruitment rate via better implementation and stricter enforcement funded by legal sales of rhino horn was still only marginally better than the current situation (2018).
4. The only stakeholder groups for which the ***Gold Circle*** scenario was not the best were the Tier 1 and 2 Poachers, the Criminal Syndicates and the Animal Rights NGOs. For all three of these groups the best option was that of ***Fort Knox***. These three groups all therefore have a vested interest in the status quo. For Tier 1 and 2 poachers and Criminal Syndicates, the result was unsurprising. However, the results of this Delphi Study and the scenarios developed point to a possible "Baptists and Bootleggers" unintended alliance between Animal Rights NGO's and the suppliers of illegal poached horn ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M., 2015) and should be further explored.
5. A well-conceived and implemented legalisation of the international trade in rhino horn and effective implementation, i.e. ***Gold Circle*** is clearly the best option for all stakeholders with the exception of those three rather odd bed-fellows discussed in 1 and 4 above.

6 Delphi Study Round II

6.1 ***Compilation of Analysis from Round II of Delphi Survey*** *(see Appendix 3)*

The Delphi Survey technique is iterative with the first survey *"… broad … to allow participants' perspectives to be recorded …"* Successive rounds " … become more focused as these … views are explored and refined …" (Kezar, 2016). Therefore, more

detail was going to be both provided and sought in the second round of the survey but, as a result of these comments the introduction to Round II was crafted to provide more context and background. See below:

'Your input to Round I has been invaluable. Please tell us whether you agree with the results.

This is the second round of a Delphi Study. Round I responses and comments, focus group discussion and analysis of peer-reviewed data (where available and relevant) are distilled into four distinctive, internally consistent 'futures' which are shown below with their working titles. Those areas where there was least consensus or pointed to surprising outcomes have been incorporated into this round for your specific consideration.

A Delphi Study is a 'panel of wise men' and had been shown to produce results as good as expensive research by a team of experts.

6.1.1 Approach Incorporating Feedback of Round I

The results of the analysis of Round I of the survey, and especially any insights supplied in the comments section of each question, were incorporated to build richer scenarios. These scenarios were then presented in a second questionnaire (see Appendix 4) to all invitees (both respondents and non-respondents to Round I) as a slightly more detailed description of each of the initial four scenarios. These were 'enriched' chiefly by presenting assumptions, pre-conditions and consequences of each scenario that had been highlighted by respondents and refined by further research. Participants were given more detail on each scenario in the form of statements they could agree or disagree with on the same nominal ordinal scale as used in Round I. This was designed to focus the respondents' attention on the requirements and implications of the scenario, to evoke disagreement where this existed and to encourage deeper understanding of the scenarios and the possible consequences of any future decision on legalisation. It also highlighted

those elements felt to be unimportant or debateable, and those felt by respondents to be most important.

Finally the short descriptive name which was ascribed to each scenario (as seen in

Figure 25: Decision scenarios and more fully described in on pages 76 and 77) was provided.

6.1.2 Overall Architecture of the Delphi Survey Round II

This survey started with an overview of the process being followed and then thanked previous respondents for their input. Thereafter, the four scenarios were presented in more detail as it was judged that those respondents would be interested in seeing how their input was being incorporated and also reading the other inputs from Round I.

As the penultimate question, respondents were asked to present their opinion on whether they were in favour or against the legalisation of the rhino horn trade in order to gauge whether the process had built consensus. This 'book ended' the two rounds of the Delphi Survey, having had this question as number two of the Round I survey, and then revisiting it as the penultimate question in the Round II study. Any shifts in opinion, therefore, would give an indication as to whether the process of scenario development and Delphi Study had promoted consensus and/or deeper insight and understanding.

In the final question, respondents were asked to assess whether they felt the scenario planning process had changed their opinion, or added to their understanding in any way. This was added as a back-up to the previous question in case there was a large difference in the number and/or composition of those participants who responded to the two rounds of the survey. Such a difference could have made drawing a conclusion about the shifting of attitudes, merely from any differences in support for legalisation/ban, problematic. The inclusion of this question proved useful as although 23 responses were received for Round II, only 19 of these (out of the original 53 who completed Round I) were respondents from Round I. There were four additional responses from participants who had not responded to Round I. Thirty-four first round respondents did not respond to Round II.

6.1.3 Scenario Development

6.1.4 General Approach to Round II Scenario Formulation

Each scenario, now named, was presented in slightly more detail incorporating just the basis for the name selection.

Participants were then asked to agree or disagree with statements that had been synthesised from the answers and comments of Round I of the Delphi Study, information from the Literature Survey and further research suggested by the preceding three sources as the method of feeding back to the participants as suggested by McKenna:

> *"The use of **two** or more rounds between which a summary of the results of the previous round is communicated to and evaluated by panel members".*
> *(McKenna, 1994)*

As respondents would be required to agree or disagree with each statement, the author anticipated that respondents would be compelled to be involved in deciding on the validity of the statement, and provoking comment on any that the respondent felt strongly about.

6.1.5 Scenario 1 – Fort Knox

The ***Fort Knox*** scenario arises when the trade ban remains in place and the level of poaching is brought below the level of recruitment in rhino numbers. In order for this to happen rhinos will need to be guarded as professionally and intensively as the gold in ***Fort Knox***.

Table 12 - Fort Knox: Stakeholders' Agreement with Statements

The following are the requirements that have been flagged as necessary for the scenario to come about, or be posited as consequences of the scenario. Please indicate that you agree if they are necessary or likely to eventuate.

Statement	Weighted Average*
Massive amounts of state conservation funds and efforts will need to be expended to bring down poaching enough.	4.3
Consuming countries will need to put in a gargantuan effort to bring illegal trade in their countries under control.	4.36
Rhino protection will 'crowd out' almost all other conservation priorities,	3.7
Rhinos will be concentrated into far smaller, highly protected areas that are easier to protect.	4.00
The state will have to apply for more resources (both funds and the Defence Force) to try to control the poaching.	4.2
Of the state protected areas, only Kruger National Park (KNP), Hluhluwe Imfolozi (HIP) and possibly Pilansberg will be able to continue stocking rhino and those will be in small high-density rhino 'camps'.	3.18
Many private rhino owners will not be able to sustain the costs of security and personal safety in owning rhinos.	4.35
Of private rhino owners, only very expensive five star, Big Five lodges will afford to retain their rhino and will be able to offer tourists rhino (and Big Five) viewing.	4.09
As the rhino range shrinks, many private protected areas will revert to stock farming.	3.35
The market for live rhino will evaporate; exiting rhino owners will not be able to give their rhinos away.	3.39
SANParks and Ezemvelo will not be able to sell surplus rhino to subsidise their budgets.	3.71
In the short term, this will lead to large scale culling of rhino as their range shrinks.	2.91
In the longer term, the problem of extra bulls and/or past breeding bulls and their aggression will become acute, particularly at the high densities required for affordable protection, and there will be pressure for a greatly increased number of hunting trophy permits.	3.96
Trophy hunting outfitters and associated activities will have a bonanza.	3.57
Specialist 're-growth' facilities will spring up where de-horned rhino that are being disposed of at fire-sale prices will be protected while their horn re-grows and then sold on at a considerable profit to trophy hunting outfitters.	3.22
A massive social marketing campaign on the scale of a Pepsi launch into China will need to be funded and managed to effect behavioural change in traditional Eastern Medicine consuming countries to achieve sufficient demand reduction.	3.78
Donor funds will need to be focused almost entirely on rhino protection to the exclusion of other causes in order to fund the major effort to combat poaching effectively.	3.78
Despite this, buyers for investment, status and decorative items will continue to buy.	4.43
Speculators will continue to 'bank on extinction' and profit from the tightening market for horn.	4.13
Donor fatigue with the rhino issue will need to be carefully managed.	4.30
Non-governmental Organisations (NGOs) and Rhino Single Issue Organisations (SIOs) such as rhino orphanages will re-double their efforts and will see their donations rise.	3.35
Poaching will continue because of the rewards of selling illegal horn, but not at the current rate.	3.91
Law enforcement and justice administration in range countries will need to be massively increased.	4.30

Corruption will need to be virtually stamped out.	4.17
This success will be a major 'feather in the cap' of Animal Rights NGOs.	3.57
The number of security companies offering rhino protection will decrease with the shrinking areas holding rhinos, but their cost and professionalism will greatly increase.	3.78
The number of poachers will decrease markedly but the general expertise and ruthlessness of those remaining will rise.	3.83
Many large rhino ranchers and owners of captive breeding reserves will lose everything and many will go bankrupt.	3.48
The rhino horn price will escalate and so will the price paid to poachers.	3.96
Poachers will be paid more and the poaching war will get bloodier and more intense until all rhinos are safely in their enclaves.	3.9
Corruption will continue to escalate.	4.17
Hoarders will benefit as they sell their stock piles at massive profits.	4.22

Based on a nominal, ordinal scale as below:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don't know	3
Agree	4
Completely agree	5

Statements that were strongly agreed with are highlighted in YELLOW All other statements had a measure of agreement with one exception that rated below 3 (neutral/don't know). This is highlighted in PURPLE.

Whether the somewhat ambivalent attitude to wholesale culling being necessary was due to disagreement with its requirement driven by the decreased land available for rhino habitat or whether the thought of large scale culling was so anathema to respondents, who all had a stake in rhinos' continued existence as an evolutionarily viable species, that they could not embrace the concept is not clear from this study and could form part of a further study.

Fort Knox - Synthesis of Comments

- “It is [wrong] to think that with current poaching pressure … rhino populations will increase. We have to do things differently to make a change.”
- “Prohibition only bans [the] legal regulated trade … while providing an immunity [from competition] to highly organised criminals. Prohibition is the cause [of] the rhino poaching crisis.”

- “Demand reduction is a myth as demand is driven by [a millennia old] tradition … and by insatiable demand.”

- “What an opportunity exists for CITES to … lift the ban on [international] rhino horn sales and [facilitate] an economic solution for poor rural communities that surround [rhino owning reserves].”

- “More security will not stop the rhino war, some wars are [unwinnable].”

- “Demand for scarce commodities will [underpin] the [continued] illegal trade [despite] the efforts of state and private owners to protect their assets.”

6.1.6 Scenario 2 – Besieged

The ***Besieged*** scenario arises when the trade ban remains in place but the level of poaching is above the level of recruitment in rhino numbers, leading to extinction in the wild. Many stakeholders and researchers look on this as the ‘business as usual’ scenario that continues what is happening now. Several key pieces of academic research predict that this scenario will lead to extinction in the wild within five to ten years (Di Minin, 2015; Ferreira, 2018b).

The following are requirements that have been flagged as necessary for this scenario to come about, or be posited as consequences of this scenario. Please indicate if you agree that they are necessary or are likely to eventuate.

Table 13 - Besieged: Stakeholders' Agreement with Statements

Statement	Weighted Average*
Rhinos will initially be concentrated in small, almost zoo-like 'camps' in an effort to make protection possible.	3.61
The majority of private rhino owners will decide that the costs and safety issues make owning rhinos no longer worthwhile and will exit ownership 'at any cost'	4.04
Specialist horn regrowth facilities will spring up and purchase dehorned rhino from desperate private owners for a pittance and fiercely guard these rhinos in high-density, highly secure Alcatraz-like areas, prior to selling them for trophy hunting.	3.3
Rhinos will first disappear from smaller state protected areas and eventually from even Kruger National Park (KNP) and Hluhluwe Imfolozi Park (HIP).	3.70
Trophy hunting and professional hunters will benefit short term as the price of stock decreases; some desperate sellers might even give them rhinos 'on consignment' on some kind of profit sharing basis.	3.57
Only the very expensive, 5 star, 'Big Five' Lodges will retain their rhino and be able to offer tourists rhino (and Big Five) viewing.	3.09
As the rhino range shrinks, many private protected areas will revert to stock farming.	3.43
Communities bordering current rhino owning protected areas will become poverty 'Black Spots' as many tourism and trophy hunting jobs disappear or decrease and the opportunities for supplementing income through poaching rhino vanishes as rhinos become extinct.	3.43
The market for live rhinos will evaporate; existing rhino owners will hardly be able to give their rhinos away.	3.42
SANParks and Ezemvelo will not be able to sell their surplus rhino to subsidise their budgets.	3.70
This will lead to large scale culling of rhinos as their range shrinks.	2.64
Donor fatigue will set in.	3.96
Animal rights NGOs will lose some face in the medium term as it becomes evident that their preferred solutions don't work but they will move on to 'the next best thing'.	4.17
The price of rhino horn will rise even further.	4.09
Poaching will soar in the short term and then decrease along with rhino numbers and range.	4.00
Buyers for investment, status and decorative items will continue to buy.	4.35
Speculators will continue to profit from their stockpiles and their strategy of 'banking on extinction'.	4.39
Non-Governmental Organisations (NGOs) and Rhino Single Issue Organisations (SIOs) such as rhino orphanages will re-double their efforts and see their donations rise in the short term and drop dramatically thereafter.	3.43
Poaching will rise exponentially until the law of diminishing returns kicks in. In the short term the potential reward for poaching increases and rhino custodians no longer have the funds and/or the will to protect their rhino.	4.09
Law enforcement and justice administration in range countries will continue to be found wanting.	4.23
Corruption will continue and increase until rhino are extinct.	4.22

Service providers to the rhino industry such as security companies, dehorning and translocation teams and vets will have to switch their focus.	3.57
Poachers and communities from which they come, will first benefit and then lose massively as all wild rhinos are shot out.	3.83
Large rhino ranchers and owners of captive breeding reserves will lose everything and many will go bankrupt.	3.43
Consumers and prescribers of rhino horn in Traditional Eastern medicine (TEM) lose in the long term but switch to other remedies.	3.48
The South African tourism industry loses its unique selling position of being one of the few destinations to offer Big Five safaris.	4.00
The South African economy will suffer from a relative loss of tourism and those tourism related jobs.	3.83
However, the eventual extinction of rhinos allows conservation efforts to focus on the myriad other priorities currently being disadvantaged.	3.39

*Once again on the same nominal ordinal scale:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don't know	3
Agree	4
Completely agree	5

Respondents agreed with all the statements. However, only a few opinions were strongly held (highlighted in YELLOW). Once again, only one statement was disagreed with (highlighted in PURPLE). The general disagreement with the statements was mirrored in the comments which had a large number strongly positing that this was not a probable or plausible scenario.

6.1.7 Scenario 3 – Arms Race

The ***Arms Race*** scenario arises when trade is legalised but the level of poaching (p) is above the level of natural growth in rhino numbers (r). This is the scenario that is feared by opponents of legalisation of trade - the 'opening of Pandora's Box' in terms of demand.

> The following are requirements that have been flagged as necessary for this scenario to come about, or be posited as consequences of this scenario. Please indicate if you agree that they are necessary or are likely to eventuate.

Table 14 - Arms Race: Stakeholders' Agreement with Statements

Statement	Weighted Average*
Rhino horn owners will sell their stockpiles and rhino will become worth more alive than dead, at least temporarily.	4.17
Rhino custodians will plough large amounts into rhino protection.	4.17
The demand for illegal horn from poaching then returns.	2.91
Consumers and prescribers of rhino horn in traditional eastern medicine (TEM) lose in the long term but switch to other remedies.	2.87
The sudden surplus and decrease in prices evokes a loss of the 'cachet' formerly attached to rhino horns illegality and the 'status market dwindles'. Once the stockpiles are exhausted the legal supply can no longer supply the demand.	2.78
Poaching will then rise exponentially as the potential reward increases and legal supplies can no longer keep up.	2.74
Rhinos become extinct in the wild.	2.74
The reduction in demand from speculators and the sudden increase in supply from legal and illegal horn stockpiles will cause a rapid decrease in prices.	2.19
The demand for illegal horn from poaching then returns.	2.91
Consumers and prescribers of rhino horn in traditional eastern medicine (TEM) lose in the long term but switch to other remedies.	2.87
The sudden surplus and decrease in prices evokes a loss of the 'cachet' formerly attached to rhino horns illegality and the 'status market dwindles'. Once the stockpiles are exhausted the legal supply can no longer supply the demand.	2.78
Poaching will then rise exponentially as the potential reward increases and legal supplies can no longer keep up.	2.74
Rhinos become extinct in the wild.	2.74
The reduction in demand from speculators and the sudden increase in supply from legal and illegal horn stockpiles will cause a rapid decrease in price.	2.19

*Once again on the same nominal ordinal scale:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don't know	3
Agree	4
Completely agree	5

Respondents agreed with only two of the statements; these strongly held opinions are highlighted in YELLOW. Most statements were disagreed with — highlighted in PURPLE. This general disagreement with the statements was mirrored in the

Scenario 3 – Aggregated Comment Themes

- Many respondents dismissed this scenario as ‘not making sense, illogical, implausible and unlikely’ because:
    - Why would syndicates spend vast sums to support poaching when they can purchase horn legally?
    - A legal trade will almost put poachers out of business.
    - Legal horn will become freely available, making poaching less lucrative.
    - Rhino custodians will be able to raise funds from horn sales for rhino protection.
    - It is illogical to assume horn buyers will opt for costly, illegal and immorally poached horn, so poaching incentives will be minimised.
    - Legal trade will greatly reduce the market for poached horn.
    - Landowners should be able to protect rhinos, especially as the value chain shifts from criminal gangs to legitimate trade.
- One commentator, however, disagreed:
    - If trade is legalised, poaching will spiral as illegal horn is hidden in the legal trade machinery.
- And another referred to:
    - [Sustainability being] … depend [ent] s on:

      levels of supply and demand at any given price; and
    - the time frame envisaged.

6.1.8 Scenario 4 - The Gold Circle

The ***Gold Circle*** scenario arises when trade is legalised and implemented so that the level of poaching falls below the level of recruitment in rhino numbers. This is the scenario which, while widely desired, is felt by many to be contingent upon several demanding conditions being met.

> The following are requirements that have been flagged as necessary for this scenario to come about, or be posited as consequences of this scenario. Please indicate if you agree that they are necessary or are likely to eventuate.

Table 15 - Gold Circle Stakeholders' Agreement with Statements

Statement	Weighted Average*
For trade to be legalised CITES will need to pass an amendment.	4.17
CITES can and will be bypassed in legalising rhino horn trade by the major African range states concluding bilateral agreements with the major consuming nations.	3.30
A credible statutory body run by an independent professional board and managers, will need to be appointed immediately.	4.13
Private and State rhino owners will wish to realise at least some of their stocks as soon as possible.	4.43
An equitable system of determining how 'selling quota' is allocated will need to be designed and implemented.	4.09
Frequent, reliable auctions of identified, certified horn will need to be held.	3.91
The amount of horn offered at each auction will be carefully and dynamically determined to gauge the market and endeavour to supply sufficient legal horn to edge out poached horn without 'flooding' the market, so dropping prices, possibly awakening new demand.	4.09
The auctions will sell to any preauthorised buyer who consents to unannounced, random inspections of their specified warehouse/s and who have the requisite destination country permit and have made the specified non-refundable deposit.	3.87
Governments of consuming countries will need to be properly incentivised and lobbied to 'buy in' and implement effective certification of buyers and monitoring.	4.36
An ad valorem tax on horn sales will have a portion specifically allocated to communities bordering rhino owning protected areas.	4.05
Border communities will be invited to opt-in to a scheme to host and husband surplus bulls and past-breeding cows and share in the proceeds from regular dehorning, which will gradually but dramatically increase rhino range and amount of horn available.	3.87
Although poaching will not cease immediately, wholesale buyers will gradually switch to the convenience, certainty and reliability of legal horn.	3.83
There will undoubtedly be hiccups and mistakes in the system made along the way, but these will be rapidly corrected.	3.81
The number of private protected area owners willing to have rhino on their property will grow.	4.18
There will be an immediate drop in the demand for rhino horn as speculators no	2.91

longer accumulate and instead de-stock.	
'Status' buyers of horn will decrease as the cachet of illegality disappears.	3.26
Part of the proceeds of rhino horn sales will be applied to capitalising on the preference of many consumers for non-lethally harvested and legal wildlife products.	3.70
Existing stockpiles will be used to cushion any demand shocks until the system of dehorning a proportion of privately owned rhinos (which produces 6-10 times the horn starting far sooner than natural mortalities) adjusts to produce sufficient to supply the market with any excess demand over that from natural mortalities.	3.95
Poaching will initially fall as holders of buffer horn stocks in the illegal system try different methods of feeding it into the legal market.	3.70
Rhino custodians will immediately greatly increase the spending on anti-poaching in expectation that their cash flow will improve.	3.96
Financial institutions will be prepared to advance funds for rhino acquisition, fencing, anti-poaching equipment and even further land acquisition so greatly facilitating rhino range expansion and number increase.	3.96
South Africa will run a credible, well-regulated and successful rhino horn auction process.	3.83
The market for rhino horn will naturally segment with differing equilibrium prices for horns and factors such as non-lethally obtained horn, whole horn, state of preservation all playing a part in the final willingness to pay off the different market segments.	3.82
Horn wholesalers will gradually (although not necessarily entirely) move from illegal to legal horn due to reliability, quality assurance and to avoid the hassle of prosecution.	3.59
A marketing campaign on the scale of 'diamonds are forever' will be able to (and need to be) funded and flighted in consuming countries to strengthen the preference for non-lethally produced horn.	4.00
Service providers to the rhino industry, such as security companies, will gradually switch their focus to dehorning, translocation and providing 'horn-in-transit' guarding.	3.86
Animal rights NGOs will suffer some loss of face but will easily move on to the next cause.	3.73
Speculative hoarders and those 'banking on extinction' will suffer huge losses.	3.55
Tourism, particularly affordable Big Five experiences, will blossom with concomitant increases in employment and economic activity.	3.86
The South African fiscus will benefit from the increased taxes, economic activity and decreased expenditure on rhino security.	4.14

*Once again on the same nominal ordinal scale:

Choice	Nominal Ordinal Value
Totally disagree	1
Disagree	2
Don't know	3
Agree	4
Completely agree	5

Respondents agreed with all the statements. However, only a few opinions were strongly held (highlighted in YELLOW). Once again, only one statement was disagreed with (highlighted in PURPLE). All other arguments were agreed with. The statement that there

will be an immediate drop in demand for horn in the short term as speculators de-stock, could form the basis for further research.

6.2 Overall Assessment of Scenario Development via the Delphi Technique on Consensus Building

From the agreement with all, except a few statements in the details of the four scenarios presented, it can be inferred that these can now be used to craft decision scenarios which could and should be presented to decision makers and influencers. Those few areas where there was disagreement will need to be either excluded, researched further or presented as discussion points in any workshops on the final scenarios.

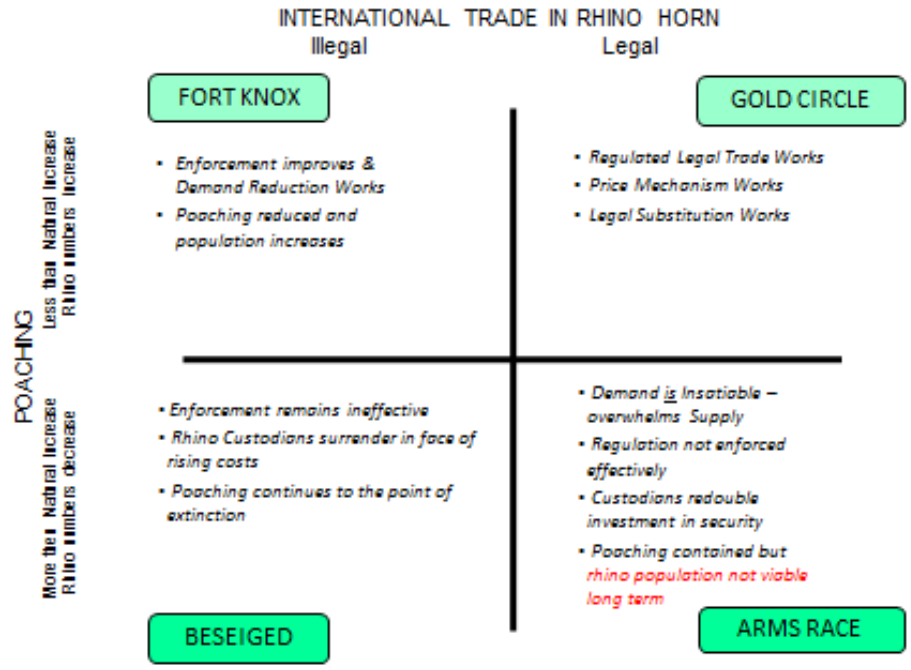
6.2.1 Observations

- Those statements about which there is strong agreement should form central pillars, with the others playing a supporting role in 'painting the picture' of the plausible future.
- Of all the scenarios, the ***Arms Race*** scenario received the least strongly positive votes and the most negative votes. If this is put together with the comments, the inference could be drawn that respondents found difficulty conceiving of how rhinos could become extinct if the international trade in rhino horn was legalised.
- The other three scenarios received similar amounts of strongly positive votes and the most disagreement votes.

6.2.2 Final Decision Scenarios

The following summarises the input from the Delphi Surveys on the development of decision scenarios.

Figure 25: Decision scenarios



The results of this Delphi Survey need to be built into coherent narratives in order to develop fully-fledged scenarios to be used as decision tools. These decision scenarios should then be presented widely as a basis for debate and to assess this tool's ability to build consensus among a wider audience than just those who took part in the Delphi Study, and in so testing Schoemaker's findings that, *"… scenarios had the same impact (on stakeholders) when developed by the 'stakeholder' or supplied by others …".* However, *"… participation in the process leads to greater buy-in …"* (Schoemaker, 1995).

6.3 Assessment of Degree of Consensus Building

6.3.1 Approach to Assessing Consensus Building

The final two questions of Round II of the Delphi Study assessed the degree of consensus by asking:

- exactly the same question that they had been asked at the beginning of the Round I questionnaire, “Are you in favour of the legalisation in the international trade in rhino horn?” ; and
- whether they had changed their opinions over the process of the feedback of results during the Delphi Study Rounds I and II and then considering that feedback (which would be the input to building Decision Scenarios (Garvin, 2006). Below, the results of this question are shown.

By

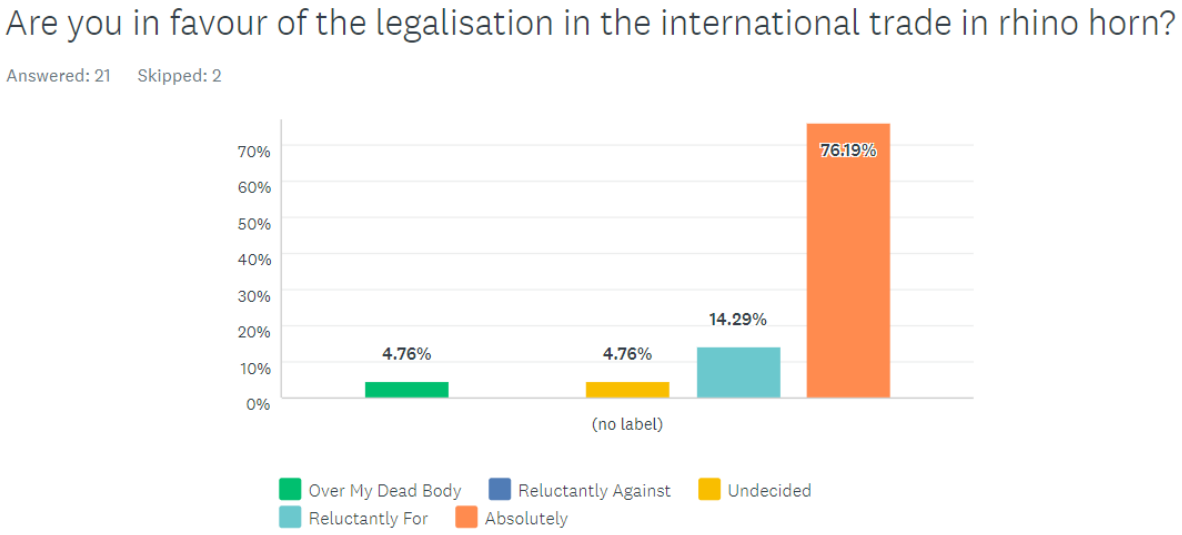
- designing the two questionnaires to be started and ended by the questions on respondents’ opinions; and
- endeavouring to have the two Rounds despatched and completed within a relatively short period (Round I in September and October 2016 and Round II in May 2017),

the author intended to isolate the impact of the scenario formulation exercise in consensus building and minimise the impacts of other extraneous influences.

6.3.2 Assessing the Consensus Built

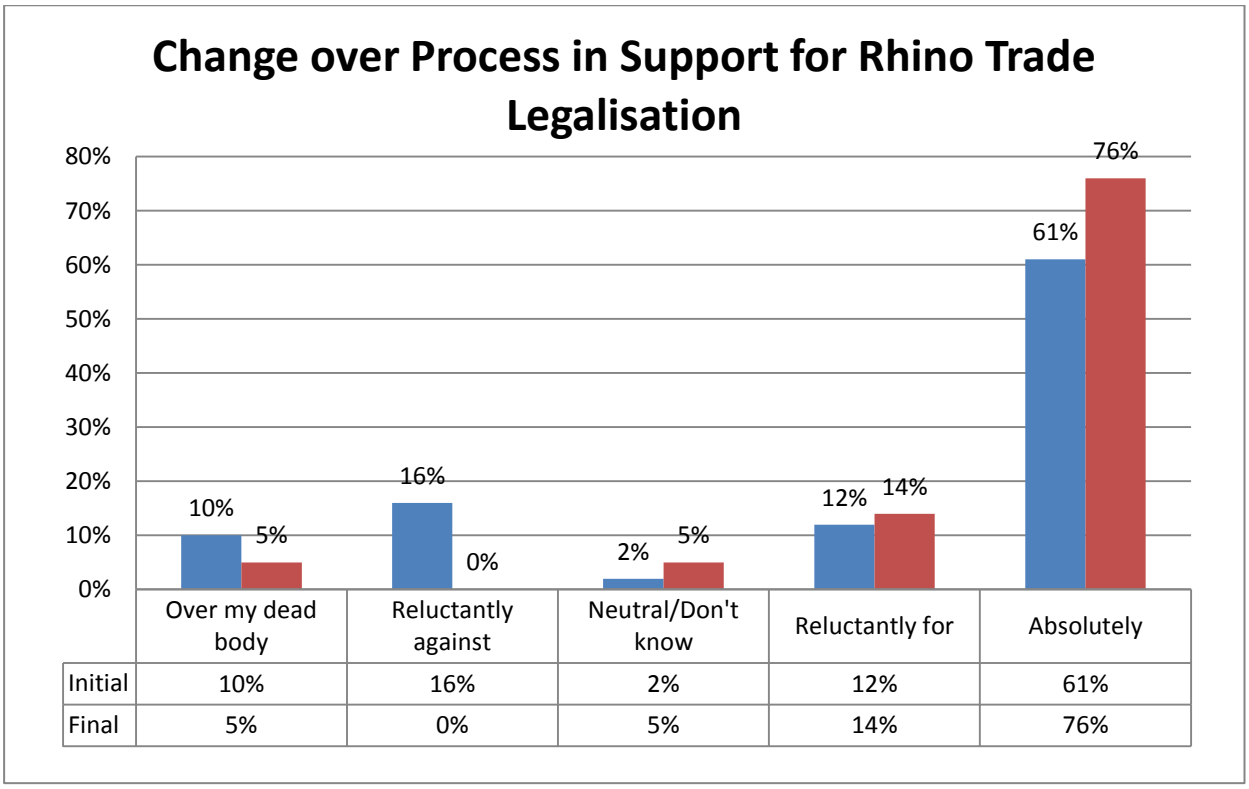
Respondents to Round II were asked whether they were in favour of the legalisation of the international trade in rhino horn. Their responses are shown below:

Figure 26: The Distribution of Respondents in Favour of and Against the Legalisation of the International Trade in Rhino Horn Post Scenario Formulation



This demonstrates remarkable consensus and a marked increase from the intial responses as the chart below shows:

Figure 27: Change over the scenario formulation process of support for the legalisation of the international trade in rhino horn



This chart highlights:

- A large change in the distribution of opinions:
    - from 26% against the legalisation of the trade to only 5%;
    - from 73% in favour of legalisation to 93%; and
- A marked reduction in the percentage of respondents with weakly held views (reluctantly for and reluctantly against) from 28% to 14%.

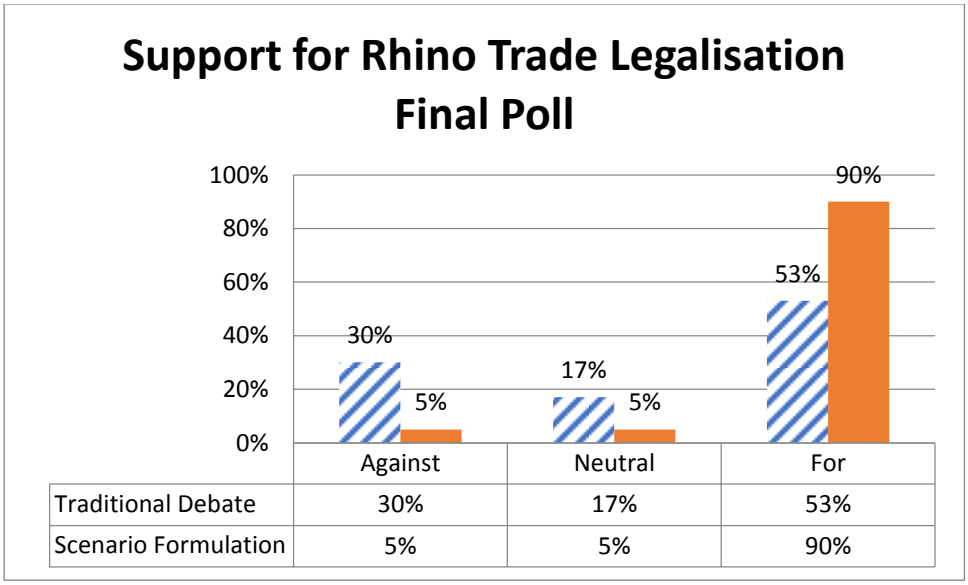
However, as Round II had only 23 respondents (versus 53 for Round I) of which only 19 had completed both rounds, some degree of caution should be exercised in interpreting the trends observed.

6.3.3 Comparison with other Methods of Consensus Building

There were few other academic studies on consensus building (see section 2.6) and none that the author was able to access that provided demonstrable, measureable consensus building. However, the results of an exit poll after a traditional debate format (see section 13) with proponents stating their proposition, answering questions from the floor and making concluding remarks were obtained.

The results of this poll are compared with the results of the scenario formulation exercise set out in this paper — see below:

Figure 28: Comparison of consensus building: conventional debate format vs scenario formulation



	Against	Neutral	For
Traditional Debate	30%	17%	53%
Scenario Formulation	5%	5%	90%

The two samples were similar in that:

- The numbers were similar (53 vs 89); and
- both samples could be presumed to be interested in the topic – the one by answering a lengthy questionnaire and the other by attending an evening function.

The results of the two methods of consensus building could be reasonably compared.

In terms of consensus building the results were markedly better with Scenario Formulation than the traditional debate in that:

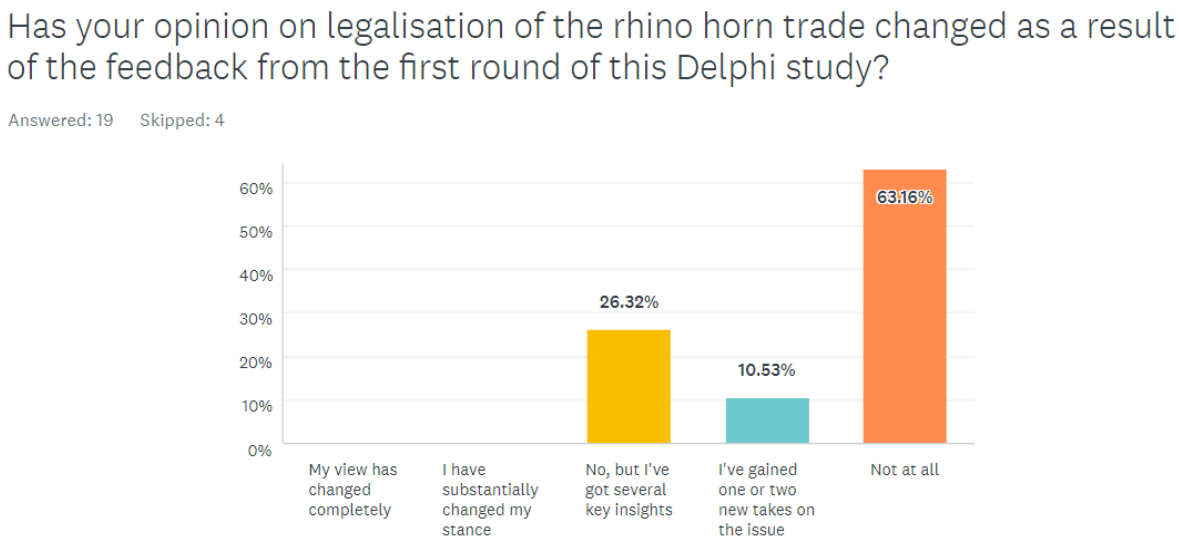
- Scenario Formulation showed a degree of consensus (measured by the ratio of the overall mode to the local mode) of 18X which was 10X that for the traditional debate (1.8X on the same measure); and
- the proportion of 'Neutral/Don't know/Undecided' participants at the end of the traditional debate were 3.4X that of the scenario formulation participants.

This provided strong indication that scenario formulation (or perhaps some variant of this process) should be considered in preference to the traditional debate format for building consensus.

6.3.4 Respondents' self-assessment of the degree by which their opinions had been altered by the process of scenario formulation

The final question asked of participants was whether they had changed their opinion. Below, the results of this question are shown.

Figure 29: Has Your Opinion on Legalisation Changed?



It is noteworthy that only 19 responses to this question were received (which was the number of respondents who had completed both Rounds). Therefore, the author judged that the assumption, that the answers were from respondents who had completed the whole process, was justified.

While over 60% of the respondents maintained that they had not changed their opinion at all, almost 38% had gained new understanding or insights. In an area of highly polarised views (which could therefore be presumed to be refractory to modification or change), this is a significant percentage of movement, even if it is in the nuances or rationale for a position.

6.3.5 Overall assessment of Consensus Building by Scenario Formulation Using a Delphi Survey

This combination of techniques:

- Increased consensus amongst stakeholders 6.4X over the process (2.8X vs 18.0X);
- modified the opinions of 37% of participants; and
- must therefore be considered to be likely to be useful in building consensus in highly polarised debates and should be included in the 'consensus building' toolbox of those wishing to resolve other highly contentious issues.

7 Conclusion

7.1 Research Question

Can decision support tools used in disciplines other than wildlife conservation, contribute meaningfully to building consensus in the debate on the legalisation of the international rhino horn trade?

As discussed in the Literature Review, the author found few studies of consensus building in wildlife conservation and none of those provided measureable results of the consensus built and therefore, too, no pre and post engagement consensus in order to impartially gauge consensus built. This study has provided such measurement.

The exercise detailed in this study indicated strongly that consensus was built:

- Empirically, in that consensus increased markedly over the process; and
- Comparatively, in that the final consensus was markedly better than for a tradition debate process.

In addition, several interesting and new insights were revealed.

7.2 Sub-questions

7.2.1 Are Scenario Building and a Delphi Survey Suitable Decision Support Tools for Building Consensus Amongst Stakeholders?

The author chose scenario formulation via a Delphi Study as the two most suitable decision support tools. She was familiar with both and had used both previously (although not together). Of the many decision support tools she had utilised in the past in business decisions, civil war conciliation interventions and municipal service transformation, she judged the structure of these two techniques to have the best a priori chance of success in consensus building. The reasons for this choice and the outcome are detailed below.

7.2.2 Is a Delphi Survey a Suitable Decision Support Tool for Building Consensus Amongst Stakeholders?

A Delphi Study had the following advantages:

- It could be administered via an online questionnaire that:
    - Did not require respondents to travel and so was cost effective;
    - could reach a large number of potential participants quickly and almost costlessly; and
    - the turnaround time between rounds was relatively rapid in that, once sufficient responses to the first round were collected, the timing of the despatch of the next round depended only on the researcher:
        - Analysing the first round results; and
        - designing and despatching the second round questionnaire.
- It interposed the researcher between parties who held very different opinions and who had often built up antipathy to some people holding different views, ascribing ulterior motives and self-serving agendas to them.
- It enabled ideas to be separated from their originator so providing a forum where ideas could be considered without the lense of bias against the originator's overall position.

The Delphi Study had the following disadvantages:

- It requires at least two rounds.

- It requires application and time for respondents to fill in the questionnaire;
- so finding sufficient potential informed participants was challenging; and
- although the first round respondents of 53 and respondents who completed both rounds (19) were sufficient for the '10…to several hundred' quoted by Kezar, as being needed for a Delphi Survey, some stakeholder groups were only represented by one or two respondents and several shareholder groups were not represented at all.

Overall:

- The Delphi Study needs a framework within which to be positioned;
- therefore, its inclusion in scenario formulation fitted both processes well and provided synergy.

7.2.3 Is Scenario Formulation a Suitable Decision Support Tool for Building Consensus Amongst Stakeholders?

Scenario Formulation requires considerable advance work in determining pre-determined elements and key uncertainties as well as a careful definition of the Key Focus Question.

Thereafter, the scenarios need to be built into coherent, plausible futures that will encourage participants and audiences to gain new insights and greater understanding.

Scenario Formulation is often the product of a team of experts in diverse fields, all of which are relevant to the subject being addressed. This is time consuming and, even for a panel of experts, is difficult as they often need to re-frame their own biases as they go through the process.

Scenario Formulation and subsequent dissemination has been successful in providing new insights and building consensus in business, politics and other conflict situations.

7.2.4 Do the two Support Tools (Delphi Study and Scenario Formulation) Used Together Provide a Better Tool Than Either Tool on its Own?

In this study, Scenario Formulation provided the overall framework and raison d'etre for the participation in the exercise and the Delphi Study provided the details to enrich the scenarios.

This combination provided a good consensus building methodology as:

- The incorporation of the discipline of multiple rounds interspersed by analysis dictated by the Delphi Technique ensured that participants gave additional thought to the 'statements' accompanying each scenario that had been synthesised from first Round comments and the author's further research; and
- the overall framework of Scenario Formulation contextualised the process.

Overall, this Research Methodology provided significant consensus building and useful scenarios that could be used to provide a thought provoking framework for wider dissemination and consensus building.

7.2.5 Who are the Principal Groups of Entities (stakeholder groups) Affected by the Trade Ban?

Figure 30: How do Stakeholders Fare Under the Different Scenarios?

	STAKEHOLDER ANALYSIS			
	Besieged	Fort Knox	Arms Race	Gold Circle
	Ban		Legalisation	
Curbing Poaching	**Fails**	**Succeeds**	**Fails**	**Succeeds**
Private Rhino Ranchers	1,44	2,42	2,79	4,87
'Big 5' Reserves	1,27	3,15	1,96	4,80
Other Private Rhino Owners	1,36	2,70	2,27	4,80
Kruger & Hluhluwe Imfolozi Parks	1,18	3,30	1,67	4,82
Smaller State Protected Areas	1,24	3,07	1,74	4,75
Providers to Rhino Custodians & Owners	1,59	3,82	2,24	4,60
Animal Rights NGOs	2,40	3,70	2,38	2,93
Biodiversity NGOs	2,00	3,53	2,08	4,05
Other NGOs	2,51	3,38	2,35	3,55
Rhino SIOs	1,90	3,34	1,97	4,05
Border Communities	2,19	2,91	2,25	4,33
Protected Area Managers/Game Rangers	1,75	3,24	2,03	4,56
Poachers	2,24	2,68	2,32	1,57
Middlemen	2,45	2,72	2,61	1,93
Syndicates	2,56	2,72	2,80	1,98
TEM horn consumers	2,33	2,82	2,76	3,69
Jewellery buyers & Owners	2,55	2,80	2,88	4,02
Speculative Hoarders of Horn	3,00	2,74	3,54	3,07
Tourism Operators	2,00	3,47	2,05	4,17
Media	2,60	3,40	2,59	3,43
South African Fiscus	1,91	3,05	2,33	4,19
Trophy Hunting Outfitter/Hunter	1,84	2,96	2,20	4,31

Mean Effect on Each Stakeholder of the Various Scenarios

On a scale as set out below:

Category	Nominal Ordinal Value
Catastrophic	1
Serious	2
No change	3
Improvement	4
Major improvement	5

Either Ban or Legalisation has clear benefits for this stakeholder group

Anomalous result

Noteworthy result

‘Agnostic’ result

7.2.6 Stakeholder Groups unambiguously affected by the ban

7.2.6.1.1 Stakeholder Group with Clear Benefits from the Ban

Whether the ban succeeds or fails in limiting poaching to below the natural growth in rhino population, AR NGOs are better off with a ban in place than they would be with legalisation (even if that succeeds in limiting poaching). They are the only stakeholder group for which this holds true.

7.2.6.1.2 Stakeholder Groups with Clear Benefits from Legalisation

All stakeholder groups (with the exception of AR NGOs (dealt with above) and poachers, middlemen and syndicates (dealt with below) are clearly better off if the international trade in rhino horn is legalised even if this fails to curb rhino poaching sufficiently to bring poaching of rhinos below natural recruitment.

7.2.7 Stakeholder Groups for Which There is an Anomalous Result

For Poachers and Middlemen (***even if the ban succeeds in its stated intention of curbing poaching)*** the result from a ***Fort Knox*** scenario is considerably better than if legalisation fails to curb poaching. This result is initially counter-intuitive. There is a possible explanation which is expressed below in section 7.2.7.

As there is often a strongly expressed antipathy for Poachers (and less often expressed for Middlemen), it would be expected that stakeholders wishing to ‘punish’ Poachers and Middlemen would opt for a legalisation of trade as this analysis indicates that legalisation which succeeds in curbing poaching is the worst result for Poachers and Middlemen, with legalisation which fails to curb poaching being significantly the same as either outcome under a ban. If the purpose of efforts by stakeholders is to make life more difficult for Poachers and Middlemen, then legalisation is always at least no better for Poachers and,

in one case, far worse for them. These results clearly point to a ban being worse for Poachers and Middlemen than legalisation.

7.2.8 Stakeholder Group for Which There is a Noteworthy Result

Syndicates seem to fare substantially the same under all scenarios **except *Golden Circle*** (where legalisation succeeds in curbing poaching). Here they fare substantially worse than in the other 3 scenarios. Once again, if stakeholders wish to 'punish' syndicates for driving the Poachers and Middlemen, then legalisation is at least no worse than and, in one case at least, substantially better at achieving this goal.

7.2.9 Stakeholder Group Which is 'Agnostic' or Indifferent to the Ban or Legalisation

The effect on the media is substantially the same whether trade in rhino horn is banned or legalised. The only difference is that

7.2.10 How is Each Stakeholder Group Likely to Fare Under Each Scenario?

The effect on each shareholder of each scenario is summarised in **Figure 30: How do Stakeholders** , above.

The research results show that only one stakeholder group unambiguously benefits in both the 'ban' scenarios (***Besieged*** and ***Fort Knox***) – the AR NGOs.

Both Poachers and Middlemen benefit unambiguously from only one 'ban' scenario (***Fort Knox***). This is puzzling as the ***Fort Knox*** scenario has poaching being curbed to below the natural growth in rhino population while the ban remains in place. However, a rationale for this better outcome than that for the status quo or ***Besieged*** scenario could be argued as follows:

For the ***Fort Knox*** scenario (ban in place, poaching curbed to below natural increase in rhino numbers):

The Poachers and Middlemen would retain their monopoly over the supply of horn.

The rhino numbers would increase so providing the Poachers (and Middlemen) with an expanding supply.

As anti-poaching efforts would be made more effective, only the more professional Poachers and Middlemen would be able to stay in business, so reducing competition.

These remaining Poachers and Middlemen would then be more highly remunerated for their horn.

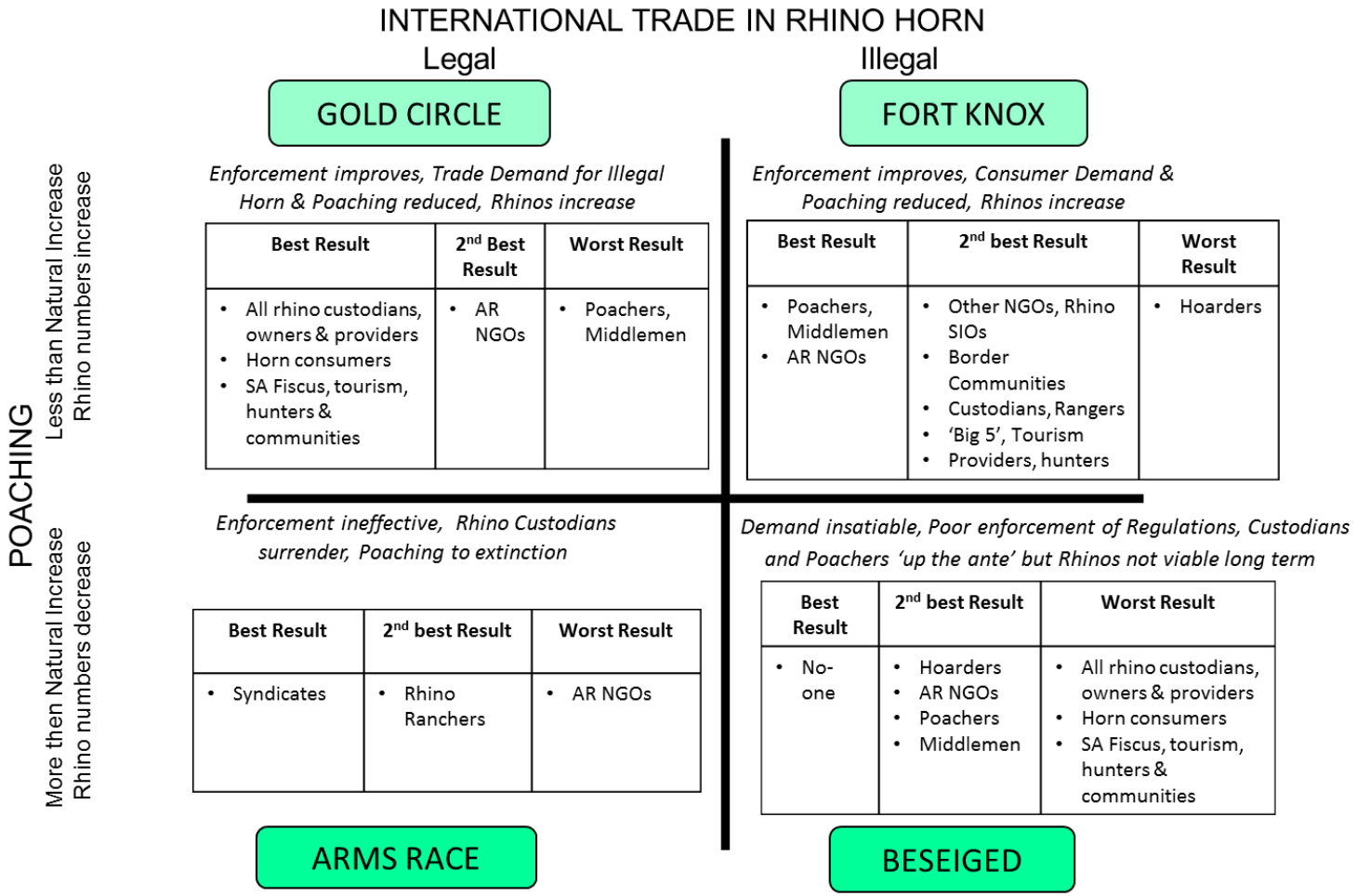
Whereas, for the status quo Besieged scenario:

Rhino numbers would fall until they were effectively extinct in the wild;

as rhino owners become more discouraged and/or run out of funds and/or the will to continue protecting their rhino to the then existing levels decreases, for a short period, it would become easier to obtain rhino horn by poaching so rapidly increasing supply and most probably dropping the prices achieved.

Below, the scenarios with the best and worst effect on each stakeholder group are depicted.

Figure 31: Graphic Depiction of the Best and Worst Scenarios for Each Stakeholder



This indicates that the Besieged scenario which most closely resembles the status quo is not the best result for any stakeholder group and is the worst scenario for almost all stakeholder groups, except those whose activities appear to be inimical to the continued existence of rhinos as an evolutionarily viable species — Poachers, Middlemen, Hoarders of Horn (whom, it is presumed are 'banking on extinction' or at least greatly increased scarcity) and initially, surprisingly, the AR NGOs.

A rationale for this divergence between publicly stated aims of AR NGOsand this result could be crafted around the AR NGOs' large donation fund raising efforts (de Lapointe, E. estimates that just three such organisations, PETA, IFAW and HSUS (Lapointe, 2018) raised over $1billion in the year 2016/2017. It could be argued that a large part of this funding was driven by the heart-rending plight of mega herbivores and that pictures of rhinos left alive in agony with half their face cut away and blood pulsing out with every heartbeat are powerful donation drivers – 'if it bleeds, it leads' as the old newspaper adage goes.

The ***Fort Knox*** scenario where enforcement and demand reduction are posited to succeed in curbing poaching is best only for AR NGOs, Poachers and Middlemen. There were many comments that this scenario is improbable, practically, as the money to curb poaching and mount an effective demand reduction campaign would not be available.

This anomalies between the effects of legalisation or continued ban shown by this research and what would be intuitively expected were explored further in the charts below.

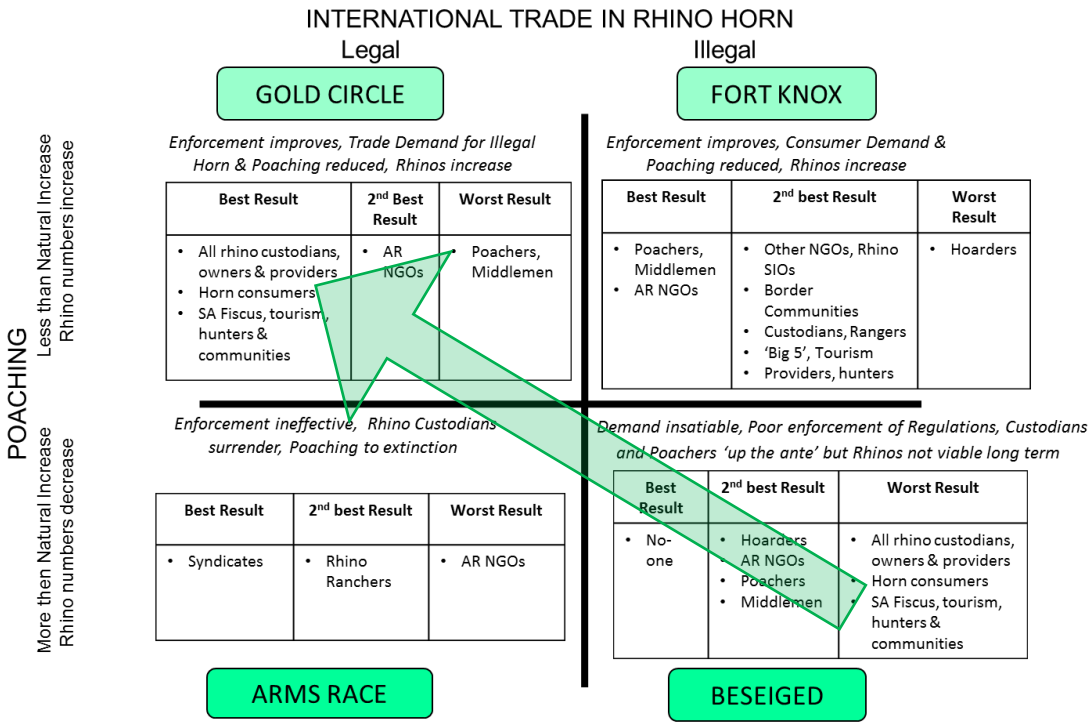
7.2.10.1.1 Effect of Legalisation on Stakeholder Groups

Figure 32: Stakeholder Groups for Which Legalisation has the Greatest Negative Impact

This chart bears out the comments in the previous section about AR NGOs.

It additionally highlights that for Poachers and Middlemen both scenarios where trade continues to be banned are preferable to any scenario with legalisation of international trade. Therefore, there is a prima facie case that an unwitting alliance exists between AR NGOs and Poachers and Middlemen as posited in the following papers ('t Sas-Rolfes, 2015; A. Kasterine, Bazzola, M., 2015; B. Yandle, 1983). These contend that activists who support a ban on moral grounds can often help keep criminal suppliers in business by stopping legitimate traders from participating in the market and so handing the criminals a monopoly, albeit often unwittingly.

Figure 33: Stakeholder Groups for Which legalisation has the Greatest Positive Impact



The other groups for whom legalisation of international trade make a pivotal difference, encompasses almost all the other stakeholders who have their worst conditions under the ban and their best with legalisation.

The standout result depicted here is that the only stakeholder group to find their best outcome ***Besieged***.is the syndicates.

There were several respondents that argued that a properly enforced ban with a major demand reduction campaign, that was not hobbled by conflicting messages coming from different direct rhino rhino stakeholders, would produce a good result all around. This is borne out by the chart above where most of the stakeholders have their second best result under the Fort Knox scenario. However, there were a large number of respondents who felt this scenario was entirely improbable in practice and they offered the following arguments in support of this point of view:

Private rhino owners and ranchers (with the exception, perhaps, of reserves offering very high-end ‘Big 5’ experiences) would not have the funds to continue combatting poachers nor, eventually, the will to continue to put their families’ staff’s and their own lives at risk in an unwinnable ‘Vietnam’ style war.

The costs of mounting a successful demand reduction campaign across the multiple geographic markets and market niches driven by differing demand drivers would be prohibitive.

Donor fatigue was a strong possibility.

The South African Fiscus had more pressing demands of the available funds and so would scale back on their anti-poaching and law enforcement efforts thus rendering the effective law enforcement unlikely..

8 Recommendations

- That these decision scenarios be more fully fleshed out to ‘discussion scenarios’. That the resulting scenarios be discussed with wider audiences, with as many as possible face-to-face focus groups to facilitate further debate, better understanding of this complex problem and general consensus building around the course of action South Africa should adopt.
- That, generally, decision support tools from other disciplines should be considered for their possible use in addressing complex, multifaceted, wildlife conservation problems. In particular, scenario directed discussions should be considered in preference to traditional debate formats.
- That South Africa should urgently address the issue of legalisation of the international trade in rhino horn, in the light of its strongly positive effect on all the ‘good’ rhino stakeholders and deleterious effect on, particularly, Poachers and Middlemen.

- That the existence of a convergence of interests between AR NGOs, Poachers and Middlemen (albeit possibly unwitting as outlined in the *'Baptists and the Bootlegger'* hypothesis) be urgently researched.

9 Limitations of the Study

The major limitation of this study was that of persuading sufficient stakeholders to respond and, particularly, to respond to both rounds of the Delphi Study. As each Round required a time investment of between 25 minutes and 55 minutes (depending on the amount of comments the respondent wished to include), this method does require respondents who have sufficient interest and/or 'skin in the game' to ensure that they complete both rounds of the questionnaire. Fifty-three respondents representing 14 stakeholder groups completed the first round. Twenty-three respondents (of whom 19 had taken part in Round I) completed Round II. The 53 first Round respondents permitted the author to use simple statistics for a small sample and these results have enabled the insights summarised in sections 7.2.5 and 7.2.10 (answers to sub questions 2 and 3) to be presented.

The comparative analysis of consensus building by traditional debate formats was incomplete due to the fact that in the only instance where the author was able to find out its imminent presentation, the facilitator was reluctant to conduct both an entrance and an exit poll — which would have allowed the author to properly gauge consensus building via a traditional debate format and more rigorously compare the consensus building to that achieved with this Scenario Formulation via a Delphi Study.

This thesis is limited to the South African arena although CITES is an international body which has 184 signatories (Parties), all of whom have an equal vote. In particular, the European Union (which has heretofore voted as a block), and the United States (which by virtue of its substantial aid to third world countries, has a large influence on the decisions

of many third world nations), both have a major impact on the outcome of any vote. The mechanisms by which these two major influencers reach their positions and influence the votes of other parties, is an area for further study.

This research is also mainly limited to the trade in rhino horn, although trade in meat, hides and other body parts is also feasible.

10 Key Operational Definitions

10.1 African Rhino

The Southern White Rhino and the Black Rhino are the only two species of African rhino still existing in the wild (R. Emslie, Miliken, T., Talukdar, B, 2013).

10.2 Definitions

10.2.1 Stakeholder

Stakeholders in the rhino horn trade have ‘an interest, financial or otherwise’ ("Economics A-Z,") in this area. Although stakeholders often refer to persons or groups of persons, in this thesis the definition will be broadened to include African rhinos themselves, as well as the South African government and its affected organs.

10.2.2 Stakeholder Groups

Stakeholder groups will be determined (Redmond, 2008). Stakeholder Groups have significant properties in common and behave or are impacted in a similar fashion in each of the four scenarios, but behave or are impacted significantly differently from other stakeholder groups in at least one of the scenarios.

10.3 Skin in the Game

This is the term used for the amount that an entity has invested or has at risk in a goal i.e. 'to have incurred risk (monetary or otherwise) in pursuit of a goal' (Wikipedia) (2018). Stakeholder groups will be assessed to estimate their 'skin in the game' by either number of rhinos of which they are custodians or the amount of money directly invested in or earned from rhino poaching or conservation each year.

10.4 Extinction

Extinction in the wild of a species is one which has been categorized by the IUCN as known only by living members kept in captivity or as a naturalised population outside its historic range.

10.5 Growth

An increase in numbers of rhinos in South Africa.

10.6 Scenarios

Scenarios are coherent, well-reasoned, easily understood narratives of possible futures.

10.7 Impact

Respondents will be asked to assess impact both on nominal ordinal basis and qualitatively via comments.

10.8 Recruitment

The annual rate of net increase in a population i.e. births minus deaths.

11 Appendix 1 : Abbreviations

AfRSG African Rhino Specialist Group – a subsidiary of IUCN

CITES The Convention on International Trade in Endangered Species of Wild Fauna and Flora

CoP17 Conference of the Parties of CITES held in Johannesburg in 2016

CoP18 The next Conference of the Parties to be held in Sri Lank in 2019

IUCN International Union for Conservation of Nature and Natural Resources

PROA Private Rhino Owners Association, South Africa

Range States A range state is a country where rhino are currently or have recently been present in the wild

KNP Kruger National Park, South Africa

SANParks South African National Parks

KZN Ezemvelo Wildlife

KwaZulu-Natal Ezemvelo Wildlife – governmental organisation responsible for maintaining wildlife conservation areas and biodiversity in KwaZulu-Natal Province.

African Rhinos The African Rhino is divided into two species, the Black Rhino (Diceros bicornis) and the White Rhino (Ceratotherium simum simum). White Rhinos mainly live in South Africa, but they have also been reintroduced to Botswana, Namibia, Swaziland, and Zimbabwe.

Extinction in the Wild Extinction in the wild of a species (EW) is one which has been categorized by the International Union for Conservation of Nature as known only by living members kept in captivity or as a naturalised population outside its historic range.

TCM Traditional Chinese Medicine

TRAFFIC The Wildlife Trade Monitoring Network – an NGO working globally on the trade in wild animals.

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13 Appendix 5: Conventional Debate Format of a Pro- and anti- Trade Legalisation Forum