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RHINO VALUES

HISTORY

There were said to have been 100 white rhino in South Africa in 1910. With great care and good management these have increased to 19,000 today. There are also 2,000 black rhino in SA. In 1960 there were 100,000 black rhino in Africa outside SA but by 1970 that population had fallen to 65,000, and today there are only 3,150. If there had been no poaching from 1970, the black rhino population in the rest of Africa, at their natural growth rate of 6% p.a., would have increased to 700,000 today. (There would not have been the habitat to accommodate that number of rhino, but the arithmetic is interesting.)

2011

There were 448 rhino poached in SA in 2011 of which 252 were killed in the Kruger National Park. To this number can be added about 200 rhino shot in SA by pseudo-trophy-hunters for the horn trade, and also rhinos poached in Zimbabwe of 28, Kenya 27 and Swaziland 2. This makes 705 rhino out of a total African population of 26,000 rhino, or 2.7%. The net growth of rhino is about 6% p.a. so the current level of poaching has not meant a decline in the total population. The concern is that the level of poaching in SA has increased by 35% over the past year (333 in 2010) and if the growth in poaching continues at that rate then SA is looking at 805 (3.8%) being poached and pseudo-trophy-hunted in 2012 and 1,017 (4.7%) in 2013. (I have assumed that the levels of pseudo-hunting will remain the same.) In 2015 the levels of poaching in SA may exceed the population's natural growth rate.

Some commentators are surprised at the current high level of poaching but it is relatively low when compared with the 1960s, when more than 8,000 animals p.a. must have been poached outside SA. (This calculation takes into account that the rhino were breeding at the same time as their numbers were being reduced by poaching.)

KRUGER NATIONAL PARK

Kruger has increased the amount of anti-poaching effort in 2011 by about 50% over the 2010 level. Also, the army were co-opted and now patrol the border with Mozambique. Nevertheless, rhinos poached have increased from 146 in 2010 to 252 in 2011, or by 73%. Twenty one poachers were shot dead in skirmishes in 2011 and 82 arrests were made. (Nationally the rate of rhino poaching convictions relative to arrests is less than 5 %.) While there have been some notable successes, Kruger are clearly not winning the war. They have

some 10,000 rhino or 48% of the national herd and with rhino having been wiped out in countries to the north of SA, Kruger has become the focus for poachers.

Kruger is 20,000 sq.km in extent and has a 400 km border with Mozambique. It would be prohibitively costly to patrol effectively. Kruger currently has 400 rangers who patrol the park i.e. 50 sq.km per ranger. I doubt that one ranger could effectively protect more than 10 sq.km per day. This implies a force of 2,000 rangers or five times the current force. Assuming only half the park needs to be patrolled intensively, because rhino are concentrated in one half, then 1,000 rangers would be needed. The cost, including overheads, of an additional 600 rangers would approximate \$10 million p.a. (R80 million) or more than the annual surplus of SA National Parks, which was R52.6 million for the year to March 2011. It is not possible for SANParks to finance 1,000 rangers and even if it were, there would still be a weakness that undermines law enforcement efforts in most parks in Africa: corruption among the law enforcers.

The rewards to poaching are high and at the bottom level, can be as high as US\$20,000 (R160,000) for a horn-set of 4 kg. (African rhino have two horns but for the sake of ease a horn-set in this paper is referred to as "a horn".) This prize can be won in one night by two poachers armed with a rifle or dart-gun or poisoned cabbage, and an axe, and it represents six years of wages for each of the two poachers, at Mozambique rates. That is if they are lucky enough to have a job, which they may not. In the Zambezi valley the experience was that it did not matter how many poachers were shot and arrested, the rewards were so great that there were dozens of candidates to take the place of those shot or jailed. The rhino ran out before the poachers. 21 poachers shot in 2011 represents a ratio of 8% of the rhino killed and the five likely convictions a ratio of 2% of the rhino shot, assuming the national average. These numbers suggest that there is a 90% chance of a poacher avoiding any penalty.

HUNTING

There are only about 15 rhino shot in true rhino trophy hunts in SA every year. About 200 rhino are shot per annum, mainly by Vietnamese, in pseudo-trophy-hunts where the hunter is solely interested in the horn for on-selling into the Far Eastern market for horn. The Convention on International Trade in Endangered Species (CITES), to which SA is a Party, allows trophy hunting. However, it is clear to everybody including the CITES Management Authority in SA, that the majority of those horns are for the trade and not to hang on a wall. The Department of Environmental Affairs, embarrassed by the loophole, has offered to close down these Vietnamese hunts but the game-farmers are opposed to the closure because it is a source of revenue of about \$6 million p.a. (R48 million) to them and they argue, convincingly, that they need the revenue in order to justify keeping and growing rhino numbers and paying for their security. These farmers own 5,000 rhino, or 23% of the national herd. There is also a valid

argument that if these hunts were not allowed, the level of poaching would simply increase by 200 p.a. which would then transfer income from farmers to criminals and not reduce the overall number of rhino deaths.

MARKET

Rhino horn is sold into the Far Eastern traditional medicine market where it is used in a cocktail of other substances to cure a wide range of ailments such as fevers. The main market is China and while there is some comment on Vietnam being a major market, Vietnam will also be a conduit into China. The Chinese have believed in rhino horn for centuries and although somewhat flimsy western medical research, paid for by a wildlife donor agency, claims that rhino horn is of no medicinal value, the Chinese buy it and pay no attention to western views. It is exotic, expensive, illegal (China banned its trade in 1993) and prestigious.

Only about 2 grams are used in each dose so in a course of 5 doses 10 grams would be used. It can be calculated that, in effect, less than 0.1% of the Chinese population use it and that is because of the very high price, which is prohibitive to 99.9% of the population.

The traditional doctor demands to see the retailer shave the horn in front of him as he fears substitutes. This suggests that there would be no market for artificial substitutes.

PRICE

The Vietnamese "trophy hunter" pays \$10,000 (R80,000) per kg for horn. This price probably doubles to \$20,000 by the time it reaches the wholesale market and doubles again to \$40,000 in the retail market. Over the years there has been comment that horn trades at approximately the same price as gold, by weight. The current price of gold is \$52,000 per kg. The poacher, who might be a peasant, is being paid a maximum of \$5,000 per kg so there is a spare \$5,000 per kg that can be used to pay a collecting agent and to bribe parks staff to stay away from a hunt and/or to inform on the whereabouts of rhino, and/or bribe the police or army, before the total price of an informal hunt exceeds the cost of horn obtained in a formal Vietnamese hunt.

The gold price has risen by 6 times over the past 10 years so the price of rhino horn might well have risen by a similar amount. The horn market is an imperfect market spread over a large area and there will be many different prices at any one time.

VOLUME

Rhinos live for about 38 years so, on average, about 2.6% die every year. With that assumption, about 676 animals died of natural causes last year in Africa as a whole. Africa has a total rhino population of 26,000. While most of the horns collected from dead animals find their way into official stocks, some would have been collected and sold illegally to the trade. 20 % collected

illegally or stolen from stocks, would amount to 135 horns. In addition game farmers in SA are known to be selling horns illegally and this is estimated at a further 100 horns. Add these horns to the original estimate of 705 and the total becomes 940. The purpose of this calculation is to estimate the total annual supply of horn. While we have no specific statistics on the demand, we can derive demand from the supply, as supply and demand must be equal. Supply and demand are brought into equilibrium by the price of \$40,000 per kg. Above that price volumes sought decline and below that price sellers are reluctant to sell. Thus, in approximate terms there were 940 horns sold last year for an average price of \$40,000 per kg at the retail level. Assuming the average weight per horn was 4 kg, then 3,760 kg was sold for \$150 million at the retail level and \$75 million (R600 million) at the wholesale price.

With the price having increased strongly in recent years along with other commodities, it is probable that speculators are buying and hoarding horn in the expectation of selling it at higher prices in the future. If speculators bought 20% of the volume, then the balance of 3,008 kg was sold into the medicinal market. At 10 grams for a course of treatment there were 300,800 patients that used horn, or 0.02% of the Chinese population of 1.3 billion. It is a miniscule proportion of the Chinese population that use rhino horn.

TRADE

CITES which is made up of 175 Parties, or countries, banned international trade in rhino horn in 1977. While well intentioned, the ban has been a miserable failure. All it did was to push the trade underground where it has thrived and made money for criminals. In the process it has impoverished parks, where the money rightfully belongs.

Southern Africa could supply the market with 676 horns p.a. from natural deaths alone. There are also stocks of 5,000 horns collected over many years. Southern Africa could easily supply the market with 940 horns p.a. and increase this by 40 horns p.a. from the increment of natural deaths, provided poaching was controlled. It would be 19 years before existing stocks were exhausted. In addition private farmers in SA could provide the equivalent of 1,000 horns or 4,000 kg p.a. by cropping their rhino. The horn re-grows at the rate of 0.8 kg p.a. The cropping process appears not to harm the animal provided about a third of the horn at the base is left behind when it is cut, which is the normal practice. In theory Southern Africa could provide the market with 1,940 horns p.a., or more than twice the current demand.

This greatly increased supply could be achieved without the need for the killing of one rhino.

CITES

In order to trade internationally, CITES need to approve a change in the rules and for that to happen 66% of the 175 member countries, or 116 countries, need to vote in favour of the

change. The argument in favour of trade is compelling but CITES can be driven more by political game playing than logic. The wildlife donor agencies, who attend the meetings and have their own agenda, often shape the debate. The next meeting, or Conference of the Parties (CoP 16), is due in March 2013 and a proposal needs to be made 6 months before then. South Africa, being the owner of 80% of Africa's rhino, is the obvious choice to put the proposal. SANParks have asked the Department of Environmental Affairs to put the proposal to the next CoP and there has been a resolution from the SADC Rhino Management Group asking for the same action.

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

DEA have asked for 2 studies, as a result of a Ministerial Rhino Summit held in October 2010. The terms of reference were only published 9 months later and the contract for one study awarded towards the end of 2011.

The awarded study concerns SA's internal trade in rhino horn, over which CITES has no control. There was a moratorium placed by DEA on internal trade in February 2009 because horn was finding its way on to the illegal market. There is no end-user market for horn in SA and without external trade being possible, internal buyers would be confined to speculators who would buy horn in the expectation of international trade being allowed by CITES at some stage in the future. This horn would need to trade at a large discount to the (illegal) market price because of the uncertainty over when it might become tradable. Yields required on venture capital investments approximate 25% p.a. As there is only a CoP meeting every 3 years, speculators would require a discount of at least 50% if they anticipated having a waiting period of 3 years before disposal. At that discount there will be a temptation for the originators and speculators to sell in to the illegal market for a quick profit and in order to prevent this, there will need to be a set of cumbersome controls and audit procedures.

It is difficult to see why a study on the internal market in horn should be an issue worthy of costly delay.

The other study, which has not yet been awarded because of a lack of a suitable candidate, has to do with international trade and the terms of reference ask for estimates of the size of the market, prices, why people buy, whether there is a trading opportunity (!) and how trade might operate. All these issues are covered in this paper and are, in any case, well known. Of course there are "nice to knows" but there is very little that we need to know that we don't already know.

I fear that these largely irrelevant studies are a delaying tactic because the DEA are anxious about putting a controversial proposal to CITES that the donor agencies and their followers will oppose. The argument needs to be presented by top SA lawyers who would be a good

investment: We are losing 448 rhino p.a. which is worth \$14 million p.a. and we could be making \$75 million from the sale of 940 horns. The differential is \$89 million p.a. (R712 million) or R2 million per day. If this loss continues for a further 4 years, which it looks set to do unless there is more urgency, the country will lose \$356 million or R2.8 billion. The Ministers for Finance, Trade and Industry, and Planning must surely support greater urgency.

CENTRAL SELLING ORGANISATION

Rather than a free for all, it would make sense to have all sales of horn conducted through a CSO where the volumes can be controlled and the legality of the origin of the horn can be assured. The CSO would act as a broker and receive a small commission of, say, 5% on the value of the horn sold. The plan would be for it to make a small profit but for most of the proceeds to go to the suppliers. An essential component is to have market expertise to manage the sales and there should be scope to replace managers when and if that becomes sensible.

The CSO could be owned by the owners of rhino, pro rata, approximately, to the number of animals they own or are custodians of e.g. SANParks 45%, EKZN Wildlife 20%, SA Private Farmers 20%, Namibia 10%, Zimbabwe, Botswana, Kenya, Tanzania and Swaziland 5%. The structure should probably not allow for one organisation to have control. The inclusion of Namibia, Zimbabwe, Botswana, Kenya, Tanzania and Swaziland is necessary because they need to be in the net and not selling independently against the best interests of the whole. Monthly sales could be held at Johannesburg International airport. The managers could assess the demand in the market and call for a specific amount of horn in accordance with a quota system. Horn would then be offered to a selected range of buyers at a particular price per parcel on a “take it or leave it” arrangement like De Beers used to have in the diamond market. It would not be an auction. All horn would be properly marked and have a DNA signature. Payment would be made to the undoubted suppliers and the horn immediately loaded on to an aircraft for export. There would be no room for laundering of illegal horn or corruption.

The buyers would mainly be Chinese state pharmaceutical companies with whom the CSO had a partnership arrangement and who would buy and expect to retail at a 100% profit. Having a profitable investment in the industry, these pharmaceutical companies would see that the Chinese government closed down the illegal operators. In order to prevent collusion, there should be scope to include buyers other than China, such as Vietnam, Taiwan, Korea and Yemen. Given a legal trade, these countries would need to close down their illegal trade and partnership arrangements would help with this.

Over the long term the CSO needs to be able to sell as much horn as is sustainably possible at as high a price as possible. Initially they might drop the price below \$20,000 in order to clear out

the speculators and also damage the illegal trade. Inevitably there will still be some illegal trade (200 horns p.a.?) but the risks will be much higher because Africa will have more money for law enforcement and China will be harsh with the illegal trade. Profits to the criminals will also be much lower because illegal goods typically trade at a discount of some 30% and if the Chinese police are severe, it will be more.

PROFITS

If Southern Africa was to sell 1,200 horns p.a. or 4,800 kg at \$20,000 per kg it would produce income of \$96 million (R768 million) p.a. which is substantial in conservation terms and approximates the total annual tourism, retail and concession income of SANParks.

DONOR AGENTS (NGOs)

There are hundreds of donor agencies that profit from rhino being in crisis. Their outputs are seldom measured and there are far too many that are accountable to no one.

Their main strategy is to change the Chinese mindset away from the belief that horn is a useful medication. How much success have they had? The Chinese are not going to listen to the west on this subject. The strategy is futile.

Another major focus is on encouraging increased law enforcement. This is unaffordable in Africa given the more important priorities such as food, health and education. Conservation comes way down on the list. Law enforcement is important but it is undermined by corruption in Africa and at currently affordable levels is not winning, even in rich and well managed parks such as Kruger.

The agents like to say that demand is insatiable and that there are too few rhino left to satisfy the demand. They ignore price and the fact that price brings whatever level of demand there is into balance with supply.

They suggest that the introduction of a legal trade will stimulate the illegal trade whereas the reverse is probable. A legal trade will satisfy the market and there will be little room for the illegal trade. The criminals will be left to trade at low prices and high risks and disruption by the CSO. It is unreasonable to believe that the Traditional Chinese Medicine (TCM) market and the Chinese government would accommodate an illegal market run by criminals, given a legal trade.

At present the only way to satisfy demand is to kill the animal. This will become unnecessary given a legal trade.

The agencies say that trade will benefit only a few wealthy individuals. The reality is that governments own 80 % of the rhino and national and provincial parks will be the beneficiaries of 80% of the profit. Governments will also collect taxes from private sector profits.

They suggest that if Africa trades, then endangered populations of rhino in the rest of the world will come under increased pressure. In fact, pressure will be taken off those animals because Africa will fill the market with legal goods at cheaper prices and there will be fierce policing of the illegal trade in China.

The experience in the crocodile, ostrich and vicuna markets is that commercial farming has taken poaching pressure off wild populations.

The agents refer to the “precautionary principle” which means that because we don’t fully understand the illegal trade and the prices and the routes and the people involved, we can’t risk a legal trade. The current trade is secret and by definition we are never going to know all the details, but we know enough. If for some unexpected and unlikely reasons a regulated trade does not reduce poaching, then it can be closed down. Hiding under the precautionary principle in the past has been at great cost to the rhino.

Some agencies suggest flooding the market with horn from stocks in order to bring down the price to a level where poachers find poaching no longer profitable. This cannot work on a sustainable basis as 100 grams for only 200,000 Chinese would eliminate the entire stockpile in one year. In all probability speculators would buy all the cheap supply knowing that it could not be sustained and that there would be a large profit to be made when stocks ran out.

De-horning as a solution has also been widely advocated but all de-horning does is move poaching from populations that have been de-horned to populations where they have not been de-horned. Furthermore, de-horning is expensive and has to be done every 2 years because horn grows at the rate of 0.8 kg p.a. and some 1.2 kg is left behind in the stump after cropping. Thus the horn has a total weight of 2.8 kg after 2 years, which is attractive to a poacher. Consider regular de-horning of the Kruger population of 10,000 rhino. It is not practical or desirable or affordable.

Burning horn stocks is also a suggestion that the agencies make in order to help the rhino. Destroying stocks reduces potential supplies to the market and will encourage speculators to stockpile which will increase prices and increase poaching. It makes no sense. Selling one horn from stocks may save the life of one rhino. Kenya was keen to destroy stocks and put a proposal to the last CoP that they later withdrew because there was no support for it.

Most donor agents appear not to like the idea of a regulated trade; maybe because it is the most likely solution and a solution is not what they are seeking?

The public should be cautious about donating money to these agencies. They may be perpetuating the crisis.

POISONING HORN

Filtering poisoned horn on to the illegal market would have a dramatic effect on demand if the TCM market began to fear that there was a chance of horn doing more harm than good. While this has been discussed there has been very little support for it but in the absence of trade and increased poaching, it may well happen.

SALES OF LIVE RHINO TO CHINA

Some 150 live rhino were sold by SA to China on the understanding that they were for educational purposes and not for commercial purposes. This was allowed within the CITES rules. However it was later found that the horns were being shaved and that there was a business plan for commercial use. The exports were stopped by DEA. Selling live rhino to other countries is the wrong strategy and undermines Africa's competitive advantage...one of the best that we have.

THE OPPORTUNITY

Poaching will never be totally stopped but if poaching is reduced to about 200 rhino p.a., the current population of 21,000 rhino in SA will double to 42,000 over the next 12 years. SA could sell the annual increment to parks in Southern Africa. Selling 1,260 rhino p.a. would produce income of \$39 million (R312 million). This would then increase SA's total income from rhino to R1billion p.a. Assume that the World Bank, or some other organisation, or even a wealthy individual, financed these sales over 12 years for a total investment of \$500 million. The financier could retain ownership of the animals and their increment of 6% p.a. If the parks farmed the horn from half the animals, they would produce 8,400 kg of horn p.a. with a current wholesale value of \$168 million. Typically, this would pay for the anti-poaching and operational costs of 168 parks. There would need to be an assurance that the rhino would be protected in these parks and part of the transaction would need to be that an organisation like African Parks or Frankfurt Zoo managed the protection of the rhino using existing park rangers. (There are often sufficient numbers of rangers, but they are poorly managed.) The operation would be self financing and while the rhino were being protected, other animals in the park would also be protected. For a park to thrive all that needs to happen is for poaching to be controlled. In most of Africa's parks this is not happening and most of the parks are in decline. One good man and a reasonable budget can make a big difference to a park.

The whole of Africa has fewer tourists visiting every year than Spain, about 46 million. Parks and wildlife are Africa's competitive advantage and if we could attract an additional 1 million

tourists p.a., and they stayed for an average of 10 days at \$200 per day, then that would generate income of \$2 billion p.a.

We have the opportunity for turning around a conservation tragedy into the biggest contribution to conservation in Africa imaginable, with rhino as the catalyst.

CONCLUSION

It is hard to believe that the world, as represented by CITES, can choose to continue with a failed strategy (the ban on trade), sacrifice 705 rhino p.a. and fund criminals, when there is the potential from a regulated trade to produce annual profits of billions for African conservation and secure 168 parks, all without the need to kill one rhino.

SA should not waste time collecting more data. We have enough and the time has come to put a proposal to CITES.

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