



**Wildlife Justice
Commission**

Rhino horn trafficking as a form of transnational organised crime 2012-2021

2022 GLOBAL THREAT ASSESSMENT

Preface

The Wildlife Justice Commission acknowledges the immense challenges facing law enforcement agencies that are investigating the transnational organised criminal networks trafficking in rhino horn. These challenges include legislative deficiencies, insufficient resources, mandate, technical capacity, intelligence sharing issues, and of course, the scourge of corruption. We also pay our respects to those officers and rangers who have paid the ultimate price and those who continue to risk their lives on the frontline preventing the poaching of rhinos and investigating these criminal networks.

The Wildlife Justice Commission is committed to continuing to support law enforcement agencies as they work to end the trafficking of rhino horn.

It is with this mission that we produce this threat assessment. It aims to share strategic intelligence that identifies and provides insights on present and emerging organised crime threats relating to rhino horn trafficking. It interprets and analyses intelligence holdings and information from open sources to build the global intelligence picture, propose hypotheses about the immediate or imminent threats, identify where intelligence gaps exist, and highlight vulnerabilities that could become potential threats in the future.

We hope that this assessment will go some way towards assisting law enforcement agencies working across the illegal rhino horn supply chain to maximise their response and impact in addressing this issue, and to continue to build on the important progress and achievements that are being made.

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Acronyms

AIS	Automatic Identification System
ANAC	National Administration of Conservation Areas
ASB	Anti-Smuggling Bureau
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DFFE	Department of Forestry, Fisheries, and the Environment
DRC	Democratic Republic of Congo
EEFC	Environmental Enforcement Fusion Centre
FRELIMO	Liberation Front of Mozambique
HAWKS	Directorate for Priority Crime Investigation
KLIA	Kuala Lumpur International Airport
OBK	Operasi Bersepadu Khazanah
PDR	(Lao) People's Democratic Republic
PERHILITAN	Department of Wildlife and National Parks Peninsular Malaysia
RMB	Chinese Renminbi
SANParks	South African National Parks
SAPS	South African Police Service
SAR	(Hong Kong) Special Administrative Region
SERNIC	National Criminal Investigation Service
TCM	Traditional Chinese medicine
UNODC	United Nations Office on Drugs and Crime
USD	United States Dollar
VND	Vietnam Dong



Synopsis

Rhino horn trafficking remains a severe problem that needs to be addressed with a new sense of urgency as transnational organised crime. Over the past 10 years, the illegal killing of rhinos and trafficking of their horns has grown as a global criminal enterprise, comprising multiple criminal components dominated by greed and the pursuit of substantial profits.

This threat assessment presents a comprehensive analysis of rhino horn trafficking during the decade from 1 January 2012 to 31 December 2021.

It was compiled following analysis of 674 rhino horn seizure incidents collected from open-source reports that occurred globally during this decade, in addition to seven years of criminal intelligence and findings from Wildlife Justice Commission investigations into rhino horn trafficking conducted since 2015, and other open-source research.

This assessment aims to examine the driving forces behind the trade and changes in the criminal landscape. It also considers the threat to rhinos in 2022, with recommendations to help inform interventions to address this issue and ensure the global response is commensurate and appropriately targeted to current and future needs.

1. Overview of the past decade of rhino horn trade

In 2012, South Africa and Vietnam were identified as forming the nexus of a rhino poaching crisis with new criminal dimensions that had not been previously observed, involving unscrupulous wildlife professionals, complicit government officials, and Asian criminal networks. At that time, insight into the potential role of other countries was hazy, there was scant data available on the rhino horn market in Vietnam, and little understanding of the structure of the criminal supply chains.¹

Ten years on and the intelligence picture is now considerably richer, changing much of what was known about the illegal trade in rhino horn. Yet, despite extensive interventions in many countries to tackle crimes relating to rhinos, none have led to a sustained decline in the illicit trade or value of rhino horn as a criminal commodity.

Poaching rates across Africa have decreased by more than 50% since the peak in 2015, but they remain high, at equivalent levels seen at the start of the crisis.² Poached horns from South Africa continue to be a key source for the illicit supply chain. Investigations indicate the main consumer market is China where rhino horn is in demand primarily as luxury carved products sought-after for their rarity as collectable items and for the prestige of ownership. Vietnam continues to be a key market, while also being a crucial gateway for

rhino horn trade into China. Only a small proportion of horn is in demand for medicinal purposes, usually sourced from the offcuts and leftover pieces following the carving process.



1. Milliken, T. and Shaw, J. (2012), *The South Africa – Vietnam Rhino Horn Trade Nexus*. TRAFFIC, Johannesburg, South Africa.

2. CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.

2. Key findings on criminal dynamics

① Rhino horn seizures increased significantly in number and weight, despite a reduction in poaching

Seizure analysis found more than 7.5 tonnes of rhino horns were seized from illegal trade globally during the past 10 years, highlighting the enormous scale of this issue. Specific analysis of shipments of African rhino horns found the average shipment weight increased markedly after 2017, growing by 52% to 28.7 kg in the 2018-2019 period, and then by another 55% to 44.5 kg in 2020-2021 (Figure 1). This trend occurred despite an overall

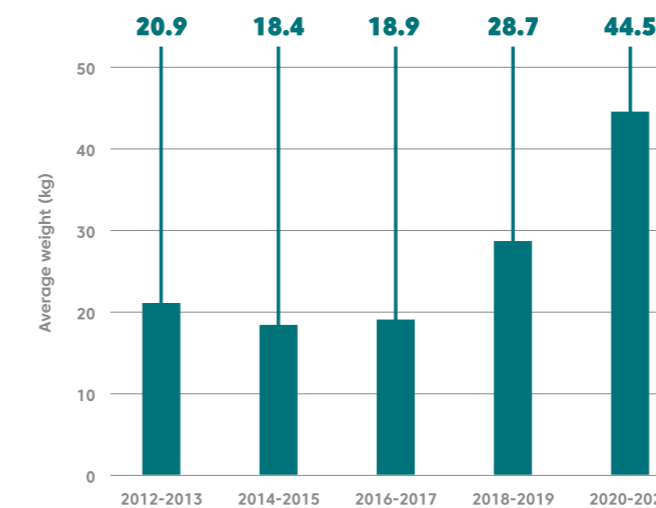


Figure 1: Average weight of smuggled shipments of African rhino horns, 2012-2021.

reduction in rhino poaching across Africa during these years, and persisted throughout the COVID-19 pandemic, even though the disruption to supply chain logistics is suspected to have resulted in an overall reduction in global wildlife smuggling.³ The continued expansion in the size of shipments in the face of these events could indicate a larger involvement of transnational organised crime groups as the trade is monopolised by a fewer key networks rather than many disparate actors, while higher volumes of product are moved to increase the profit margins per shipment.



Image 1: image: In August 2017, a major Vietnamese trafficker offered the Wildlife Justice Commission 76 rhino horns via WeChat in a single transaction, highlighting the huge volume of product he was able to move. Source: Wildlife Justice Commission.

3. As suggested by the reduction in illegal wildlife seizures and intelligence collected from wildlife traffickers stating their struggles to move shipments of product across borders: Wildlife Justice Commission (2020), *Rapid assessment of the Impact of COVID-19 on Wildlife Trafficking*.

II Six countries and territories have dominated rhino horn trafficking routes

Although more than 50 countries and territories were implicated in rhino horn trafficking routes over the last decade, six dominated the supply chain throughout these years as source, transit, and destination locations:

- South Africa,

- Vietnam,

- Mozambique,

- China,

- Malaysia, and

- Hong Kong SAR.

From 2018 onwards, there was a notable shift towards more direct trafficking routes to Vietnam and China with fewer transit points, while the 2020-2021 period saw the highest level of consistency and simplification in the routes. This shift was assessed to be due to the limited availability of transportation options during the pandemic.

III South Africa and Vietnam continue to be the two countries most consistently implicated in rhino horn trafficking

South Africa was linked to half of all rhino horns seized globally over the past 10 years and Vietnam to just over one quarter. Although these results may be expected given South Africa has the world's largest rhino population, the consistent level of trafficking implicating these two countries could indicate the extent to which criminality is embedded in both. Barring a few recent and notable exceptions, the lack of prosecutions and convictions of high-level criminals has allowed the transnational organised crime networks to continue their operations with minimal disruption.

IV Malaysia is playing an increasingly important role as a transit point for shipments from Africa to Asia

While the trafficking routes involving Malaysia as a transit point have changed regularly over the years, the volume of seized horns linked to Malaysia has grown substantially since 2018. During the last two years in particular, the country emerged as the dominant transit point linked to 32% of all rhino horns seized globally, displacing Hong Kong SAR as the major Asian transit point for rhino horn shipments. This could be related to factors such as the perceived reliability of corrupt elements in Malaysian air and seaports to guarantee protection of shipments and the presence of key transport facilitators in the country.

V Significant amounts of harvested horns from legal stockpiles are diverted into illegal trade

Since 2016, at least 974 kg of rhino horns seized in 11 incidents were confirmed as originating from the theft or illegal sale of horns from legal stocks, including both privately-owned and government-owned stockpiles. These incidents represent 18% of all rhino horns seized during the period from 2016-2021. The seizures included high profile cases such as 181 horns seized in South Africa in 2019 from private rhino breeder John Hume's stocks;⁴ 19 horns seized in South Africa in 2021 linked to game farmer Dawie Groenewald but originating from a government stockpile;⁵ and a 250 kg shipment of rhino horn in China in 2019 that included 70 microchipped horns.⁶ Further analysis of the seizure data indicated an additional 1,546 kg of rhino horns across the entire 10-year period could also potentially represent diversion from legal stockpiles, which together with the confirmed instances would amount to up to 2,520 kg, or up to one third of all rhino horns seized globally.



Image 2: A rhino horn shipment weighing 82.5 kg confiscated in Hong Kong SAR in April 2019, which appears to contain a mix of poached and harvested horns. It contains several horns displaying a smooth, flat top and a flat base (commonly referred to as "bread loaves" in the illegal trade), indicating they could have resulted from a second or subsequent dehorning procedure. **Source:** Hong Kong Customs.

IV Criminal groups are routinely exploiting weaknesses in stockpile systems to access harvested rhino horns for the illegal trade

Intelligence collected during the Wildlife Justice Commission's investigations indicates that criminal groups routinely access stockpiles of harvested rhino horns for the illegal trade. Some suppliers send mixed shipments comprising 20-40% poached horns with 60-80% harvested horns, suggesting they have connections to rhino poaching networks. This is evidenced through the seizure of such shipments (Image 2) and is indicative

4. <https://www.iol.co.za/pretoria-news/news/breeder-fails-to-get-back-181-confiscated-rhino-horns-worth-r10-million-1fbdcfce-e764-4f55-937c-a63e4338393f>

5. <https://www.iol.co.za/pretoria-news/news/game-farmer-businessman-caught-with-rhino-horns-get-bail-f82fb080-f018-4949-92d0-649f7efdbae6>

Additionally, according to intelligence the horns originated from a government stockpile at a North West reserve and were supplied to Dawie Groenewald by a corrupt conservation official.

6. <https://www.chinanews.com.cn/sh/2021/07-19/9523130.shtml>

of entrenched and organised criminality. An estimation of the volume of harvested horns entering supply compared with horns from poached rhinos suggests the possibility that this avenue of supply may have increased since the moratorium on the domestic trade of rhino horn in South Africa was lifted in 2017 (Figure 2).⁷

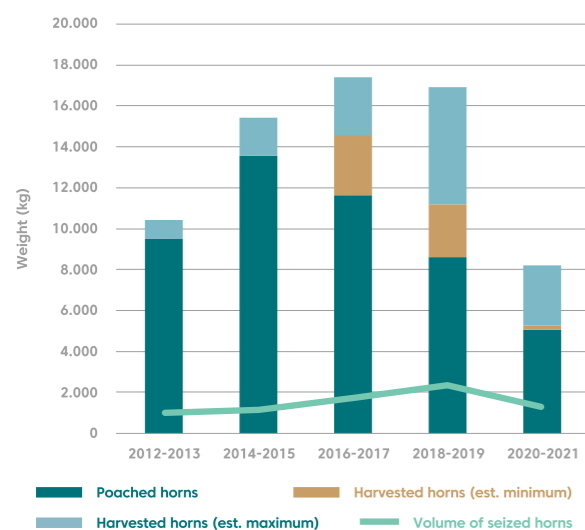


Figure 2: Estimated supply of African rhino horns entering illegal trade 2012-2021 based on reported rhino poaching in Africa and estimated diversion from legal stockpiles, compared to the volume of horns detected and seized globally by law enforcement authorities. (Based on data and calculations in this report.)

(VII) One-third of rhino horns are smuggled unconcealed, suggesting a potential reliance on corruption to move shipments along the supply chain

Analysis of concealment methods described in seizure reports found that rhino horn is most often smuggled with no concealment at all. This is a notable point of difference from other wildlife products with a similar Africa to Asia supply chain, such as elephant ivory and pangolin scales, which are almost always hidden within a cover load of legal commodities. It is also a departure from the broader norm, as organised crime groups of any type usually invest a lot of effort in concealing their illicit activities in order to maximise their operational potential. This could indicate that traffickers are more reliant on corrupt elements to move rhino horn shipments through the supply chain, rendering it unnecessary to disguise the products.

(VIII) Rhino horns are most frequently smuggled on commercial airlines, but the trend is shifting from small shipments in passenger luggage to larger shipments by air cargo

Horns smuggled in passenger luggage accounted for 143 cases totalling 1,920 kg, peaking in the 2016-2017 period with 48 cases then declining to just six cases in the 2020-2021 period, likely due to COVID-19-related travel restrictions.

Although air cargo seizures remained comparatively low during the decade, with 17 cases totalling 854 kg, the volume of horns seized from this modus operandi increased markedly since the 2018-2019 period. These trends began prior to the pandemic and coincided with other major changes such as the use of more direct smuggling routes for these shipments, potentially pointing to the greater involvement of transnational organised crime groups and their ability to move large volumes of product through more streamlined supply chains. Although there were no notable trends in the number of seizures or weight of horns smuggled by sea (12 seizures totalling 676 kg during the decade), several large seizures highlight the threat this transportation method poses, including the seizure of 250 kg of rhino horn en route from Mozambique to China by fishing vessel in 2019.⁸ Wildlife Justice Commission investigation findings suggest that many major shipments of rhino horn have been successfully transported by sea over the years, but the fact that few shipments have been intercepted could suggest that maritime transportation is an under-represented threat.

(IX) Poor rates of detecting rhino horn smuggling in transit locations

Law enforcement detection of illegal rhino horn shipments in key transit locations is generally low. This finding is particularly the case for Malaysia in relation to the largest illegal rhino horn shipments

during the last two years, as well as United Arab Emirates and Qatar. Seizure data indicate the latter is one of the most frequently used transit locations, yet Qatar has only ever made one publicly reported rhino horn seizure. There may be less incentive for authorities to profile or inspect transiting shipments that are destined for another jurisdiction, but this finding points to an opportunity where law enforcement efforts could be improved.

(X) There is a declining trend in the trafficking of Asian rhino horns, but Myanmar could pose a potential threat

Asian rhino horns are much less frequently seized in illegal trade compared to African rhino horns, representing 14.4% of the number of global rhino horn seizures but only 0.8% of the total weight of contraband seized. A consistent declining trend was observed in the number and weight of Asian rhino horn seizures since the 2014-2015 period. However, a smuggling route from India into Myanmar and then onwards into Southeast Asia and China appears to be increasing in relevance. Along with socio-political factors that provide ideal conditions for criminal activity to flourish, there is a risk that trafficking through Myanmar could grow as a potential threat to Asian rhinos.

7. https://www.dffe.gov.za/mediarelease/molewa_notes_constitutionalcourtdecision

8. <https://www.chinanews.com.cn/sh/2021/07-19/9523130.shtml>

XI Rhino horn is most frequently smuggled as a sole wildlife commodity

Analysis of the reported seizures suggests that rhino horn is most frequently smuggled out of Africa as a sole wildlife product (representing 80% of seizures), rather than in mixed shipments with other species. This finding could reflect the more specialised nature of the rhino horn supply chain, or that it needs to be moved quickly along the supply chain to maintain “freshness” so shipping it as a sole commodity by air transportation is the preferred method. Despite these particularities in the modus operandi, rhino horn trafficking is not controlled by dedicated criminal networks. Intelligence and investigation findings show that transnational organised crime networks will deal in whichever commodities are lucrative and



Image 3: This photo taken on March 14, 2017 shows smuggled rhino horns in a suitcase after they were seized at a customs office in Hanoi, Vietnam. **Source:** AFP Photo/STR, <https://theasianpost.com/article/rhino-horn-seizure-thailand-leads-major-trafficking-syndicate>

in demand, with the same networks often dealing in rhino horn along with an array of other wildlife products and illicit commodities.

XII There are various types of crime convergence associated with rhino horn trafficking

Several high-profile cases of crime convergence with rhino horn trafficking have been documented over the past decade. Examples include a criminal network in East Africa trafficking rhino horn and ivory alongside heroin, and a criminal network involved in various fraudulent schemes that stole rhino horns from museums, zoos, and auction houses across Europe. Global seizure data indicate there could be crime convergence with firearms, illicit drugs, and other commodities in approximately 10% of cases. Further information and intelligence analysis are required to enhance our collective knowledge of this threat.

XIII Fake rhino horns are rarely detected by law enforcement authorities

Only three reports out of the total of 674 seizures indicated the potential involvement of fake horns. In these cases, authorities had questioned the authenticity of the seized horns and sought forensic tests to verify the products. This finding suggests it is rare that law enforcement authorities detect fakes compared to genuine rhino horn and there is very little data to indicate the extent to which fake products circulate in the black market.

3. The criminal supply chain

Poaching and supply of rhino horn

Prolific Vietnamese and Chinese criminal networks are driving rhino horn trafficking throughout the global supply chain. The decade witnessed the rising prominence of Mozambican poaching networks and deeper entrenchment of Vietnamese trafficking networks operating in both South Africa and Mozambique, and an increasing prevalence of large quantities of harvested horns in the illegal trade. The sourcing and supply of poached rhino horn from locations other than South Africa and Mozambique – such as Kenya, Namibia, and Botswana – generally involves much smaller quantities of contraband. Several rhino horn traffickers are based in Democratic Republic of Congo (DRC), with some apparently using Zambia as a location to store and consolidate horns, while Angola is emerging as a key trafficking hub for Vietnamese criminal networks.

At this early stage of the supply chain, there are three main facilitating roles in the supply of poached rhino horn:



Poaching coordinators who organise teams to poach rhino horn on their behalf.



Facilitators/brokers who support rhino horn transactions by brokering introductions and meetings with traffickers to facilitate the onward movement of products through the criminal supply chain.



Traffickers who sell and/or smuggle larger quantities of products to the international market. Their role involves the acquisition, storage, and consolidation of rhino horns for packing and smuggling to Asia.

Transportation and trafficking of rhino horn

After being smuggled out of Africa, whether by air or by sea, rhino horn shipments generally move through one or more transit points before reaching the intended destination. During this middle stage of the supply chain, the primary role of transporters is to facilitate the international trafficking of the products, ensuring that shipments are cleared through seaports and airports by utilising their connections in customs authorities, freight forwarding agencies, airlines, and shipping and logistics companies.

To avoid detection, transporters often smuggle goods to a specific location under the cover of one bill of lading, from where the shipment will then be smuggled to the destination or to additional transit points under a “new” bill of lading. Complicit clearing agents may switch the bill of lading while shipments are unloaded and repacked, perhaps with new cover materials or in different shipping containers. Transporters may also utilise front companies with existing access to shipping routes and other useful business infrastructure to facilitate the passage of contraband.

Sale of rhino horn in destination markets

Seizure data indicate that rhino horn shipments are primarily destined for Vietnam and China. However, Wildlife Justice Commission investigations found that a substantial proportion of rhino horn entering Vietnam is sold to Chinese buyers and smuggled overland into China. This direction of trade is also borne out in court case judgements from China, which show that rhino horn products are most frequently smuggled into mainland China using overland routes from Vietnam, or via transcontinental flights from Africa transiting through Hong Kong SAR. Small retail markets for rhino horn also exist in Cambodia, Lao PDR, Myanmar, Thailand, Japan, South Korea, and Taiwan.

At this stage of the supply chain, the structures in both Vietnamese and Chinese criminal networks have been found to comprise a similar range of distinct roles to facilitate the trade at wholesale level:



Sellers are the true product owners at the top of the supply chain who have provided the investment and finance for the smuggling operations. They are deliberately removed from the day-to-day operations and often remain anonymous.



Brokers play a key facilitating role as the intermediary between the sellers and the buyers and are responsible for product pricing, quantity, quality, security, storage, price negotiations, and payment.



Storage owners provide a safe physical space to store the products after they are imported and waiting to be sold.



Caretaker/packers clean, prepare and briefly process products prior to them being shown and sold to buyers.



Transporters/couriers deliver the rhino horn products to the location specified by the buyer and bear responsibility if the products are seized.



Currency converters are suspected to be Vietnamese nationals who are based in China and hold Chinese bank accounts, which are used to receive payments in Chinese Renminbi (RMB) directly from the buyers. Chinese networks also appear to rely on payments to Chinese bank accounts, which could be held by third parties to conceal the identity of the product owner.



Buyers at the wholesale level in both Vietnam and China are identified as predominantly Chinese customers.

“If you know who to talk to, you’ll find there’s a lot of rhino horn available in Vietnam.”

— VIETNAMESE TRAFFICKER, MAY 2021.

Nhi Khe village near Hanoi was identified as a key physical market for rhino horn trade in Vietnam from as early as 2012. Wildlife Justice Commission investigations found the market supplied an almost entirely Chinese clientele with carved rhino horn products, with prices quoted in RMB, interpreters playing a pivotal role in connecting Chinese buyers with Vietnamese traders and facilitating negotiations, and payments made to Chinese

bank accounts. From 2016 onwards, law enforcement inspections in Nhi Khe increased as a reaction to many media and NGO reports on the extent of illegal trade that was openly occurring in the village, including the Wildlife Justice Commission’s Public Hearing in November 2016 presenting evidence from its investigation findings. In response, the trade became progressively covert and displaced to other locations in Vietnam.



Image 4: Wildlife Justice Commission covert footage of one of the key traffickers inside her shop in Nhi Khe; visible are two rhino horn tips and a wide range of ivory products. **Source:** Wildlife Justice Commission.

4. Distribution in the marketplace

Wildlife Justice Commission research found extremely low levels of rhino horn trade occurring on e-commerce platforms (for example, GUCN, Alibaba, 1688, Taobao, Tmall, etc.), suggesting that these sites do not pose a substantial threat as facilitators of this particular crime. Illegal rhino horn transactions mostly take place through close, trusted contacts, with traders preferring to use messaging and social media apps that provide greater levels of privacy and security for conducting their business.

“You, you look at my WeChat Moment, then you will know what products I do. Rhino horn, tiger, ivory, and a lot.”

— CHINESE TRAFFICKER, 2017.

The Wildlife Justice Commission has observed widespread use of WeChat among rhino horn traders during its investigations in Vietnam, Lao PDR, Cambodia, South Africa, Malaysia, Mozambique, and Nigeria. Analysis of court judgements from convicted rhino horn trafficking cases in China between 2017 to 2021 also shows that WeChat continues to be one of the preferred methods for Chinese criminals to communicate and arrange deals for this type of commodity, commonly featuring in the modus operandi of these cases.

Chinese law enforcement monitoring of criminality on WeChat is having a clear impact on the way traders are using it as a means of communication. During investigations, the Wildlife Justice Commission has observed traders only using voice messages to discuss products and some refusing to post pictures on WeChat Moments. Several high-level brokers in Vietnam now deliberately avoid WeChat, instead using WhatsApp, Telegram, or Signal, which are banned in mainland China.

In Vietnam, Facebook appears to be the preferred online platform for brokers to advertise their products for the Vietnamese market. Facebook is also widely used elsewhere in Southeast Asia. WhatsApp is commonly used by traffickers globally, with many opting to move communications to WhatsApp after initially making contact with buyers via a social networking platform such as Facebook.



5. Key findings on value of rhino horn

A set of wholesale price data (price per kilogram) of raw rhino horns was collected during Wildlife Justice Commission investigations from January 2016 to February 2022 in eight African and Asian countries, corresponding to various points of origin, transit, and destination in the illegal supply chain, and analysed to provide insight into value trends and changes over time (Figure 3).

① Wholesale rhino horn value is consistently less than one third of the commonly reported USD 65,000/kg value

Investigations have consistently found the rhino horn value at wholesale trade level in all countries to be less than one third of the USD 65,000/kg value that is commonly cited in the media and public sphere. At source locations in South Africa and Mozambique it can be one tenth of this

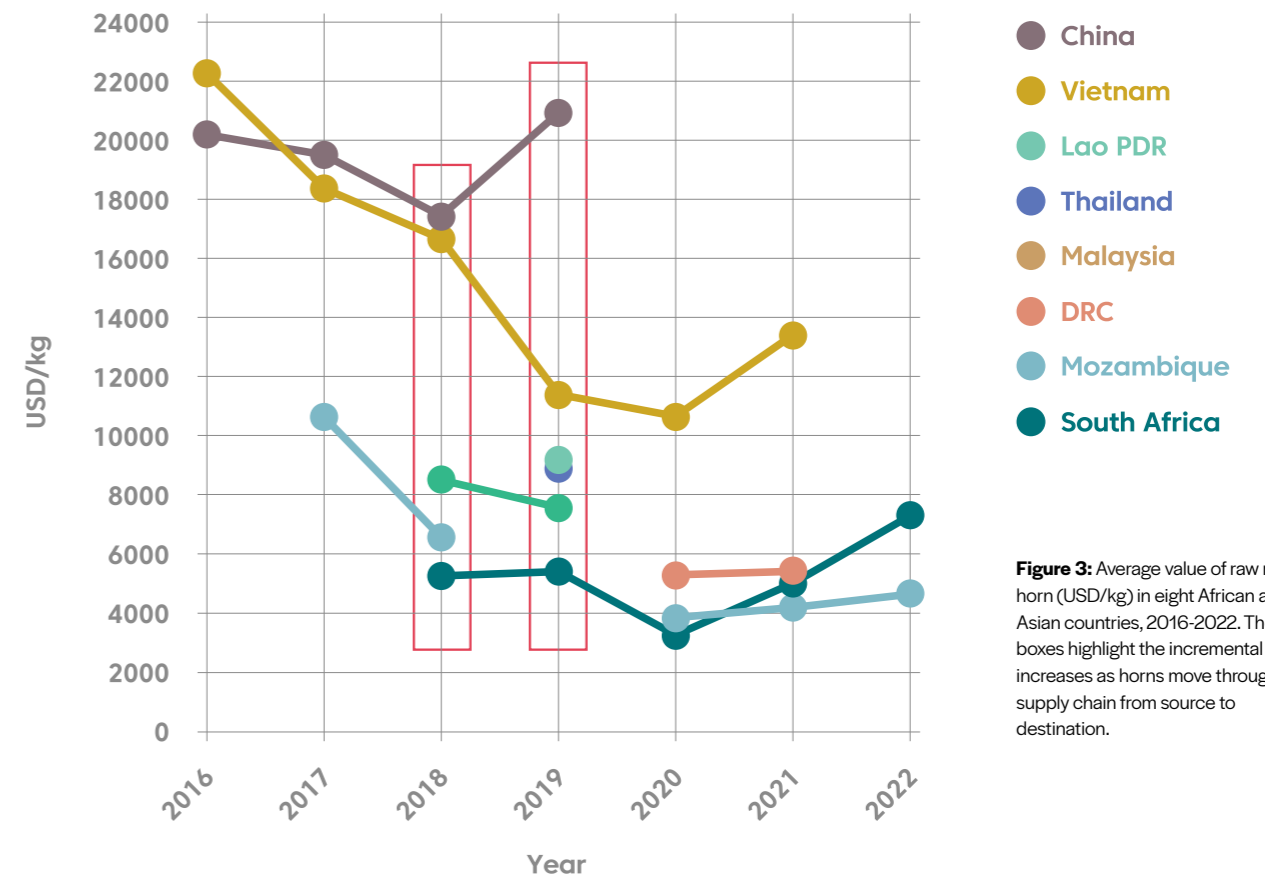


Figure 3: Average value of raw rhino horn (USD/kg) in eight African and Asian countries, 2016-2022. The red boxes highlight the incremental value increases as horns move through the supply chain from source to destination.

amount. Despite actual values being substantially lower than the commonly quoted amount, rhino horn is nonetheless still regarded in criminal circles as being very profitable.

II Values in African source locations dropped to their lowest levels in 2020 but are now increasing again

Rhino horn values at source locations reached their lowest levels recorded by the Wildlife Justice Commission in 2020 (USD 3,382/kg in South Africa and USD 3,987/kg in Mozambique), but they have subsequently started to rise again. The highest value yet in South Africa was recorded in February 2022 at USD 7,529/kg. The rise could potentially reflect increased law enforcement risk, as the rate of detection of shipments has increased in the last two years and traders tend to increase their profit margins when the risk becomes greater. It could also potentially indicate that demand is now exceeding supply, although the price elasticity of demand for rhino horn is unknown.

III Price data suggests Malaysia is an initial transit point before horns are shipped elsewhere in Asia

Similar values were recorded in Thailand and Lao PDR that were approximately USD 2,000/kg higher than values in Malaysia, suggesting that Malaysia could be an initial transit point in Asia before horns are shipped to Thailand and Lao PDR, or that the transportation and other costs associated with

delivering directly to Thailand and Lao PDR are higher than in Malaysia. This finding corroborates intelligence collected from wildlife traffickers discussing Malaysia as their preferred transit point for moving rhino horn shipments into Asia.

IV Values in destination locations mirror the corresponding trends in source locations

The highest values were recorded in China at the end of the supply chain, ranging from USD 17,545/kg to USD 20,881/kg. Value trend patterns in destination countries mirror those in source locations, which is especially evident in the close symmetry between the trend lines for Vietnam and South Africa (Figure 3). This suggests that price fluctuations are replicated across the supply chain.

V Average mark-up increases along the supply chain by 33-60% between origin and transit points, and 66-98% between transit and destination points

Comparison of the price data demonstrates that rhino horn becomes more expensive as it moves from origin to transit and destination locations, accumulating additional transportation costs, facilitation fees, and each handler's profit margins at every stage of the supply chain. The cumulative price increase as horns move from South Africa to China can be most clearly observed in 2018 and 2019 when the most data points were collected across the supply chain (as highlighted by the red boxes on Figure 3).

Other factors influencing rhino horn prices

○ **Smuggling costs:** Intelligence on the smuggling costs associated with shipping rhino horns from Mozambique to Vietnam via Malaysia using air transportation was collected in 2018 and provides an indication of how clearance fees and facilitation costs affect prices at various stages of the supply chain (Figure 4).

○ **Front vs. back horns:** The smaller size of back horns limits the type and quantity of products they can be processed into, rendering them less preferable and therefore cheaper per kilogram than the front horn in illegal trade.

○ **Poached vs. harvested horns:** On different occasions, Wildlife Justice Commission investigators have been quoted both higher and lower prices in source countries for harvested horns compared to poached horns, making it difficult to draw any conclusions about how the provenance of horns influences the price.

○ **Retail price factors:** Several factors affect the final retail price of carved rhino horn products, including the quality and artistic value of the carving, the colour of the horn whereby the blacker-coloured products are the most expensive, and factors relating to size, weight, and product type. Horn powder is the cheapest product and is usually derived from offcuts in the carving process.



Figure 4: Example of smuggling costs to ship rhino horn from Mozambique to Vietnam via Malaysia in 2018 (not including additional costs to move horns into China).

Payment methods

To protect and hide their money, criminals use different payment methods to move funds through the supply chain and evade detection, some of which are more complex than others. The four methods most frequently encountered are cash payments, bank transfers, alternative funds transfer systems (such as hawala or feiqian) and mobile payment services. Improved understanding of the nature of this threat is necessary to tackle the financial flows, which is a key principle in targeting a transnational organised crime network.

Illicit income generated from rhino horn trafficking

Comparing the rhino horn price data with poaching and seizure data allows for an estimation of the value of the illegal rhino horn trade at the wholesale level and the potential income generated by criminal networks. The overall gross illicit income⁹ generated by rhino horn trade at the wholesale level during the 10 years from 2012-2021 is estimated to be between USD 874 million – 1.13 billion.¹⁰ This is believed to be a conservative estimate of the trade in raw rhino horn only and does not account for any retail trade of processed products to consumers, which is substantial and could generate considerably more than this amount.



Estimated gross illicit income generated from wholesale trade of raw rhino horn from 2012-2021.

USD 874 million

TO

USD 1.13 billion

⁹ Gross illicit income is the estimated revenue generated from the trade at Asian destination locations. It is not equivalent to the profit generated by the trade, which is what would be remaining after subtracting all costs and expenses from the gross income.

¹⁰ This estimation followed the methodology described in the UNODC World Wildlife Crime Report 2020. For detailed explanation and full calculations, refer to section 5.4 of this report.

6. Use and consumption of rhino horn

The rhino horn trade in Asian consumer countries appears to centre on two distinct markets: one which uses the horn as a luxury product and status symbol, and the other for its purported medicinal properties for dispelling heat, detoxification, cooling the blood and treating *wenbing* or warm-heat infectious diseases.¹¹

Since 2015, the Wildlife Justice Commission's investigations in Vietnam have found the majority of rhino horns are being used to carve luxury products for a predominantly Chinese clientele, with only a small amount of horn in demand for medicinal purposes, usually the offcuts and leftover pieces following the carving process. Other studies also report rhino horn to be mainly sought-after in both China and Vietnam for its rarity as a collectable item and for prestige of ownership. Although Vietnam plays a major criminal role in driving the trafficking of rhino horn throughout the supply chain, these findings contradict the current narrative that the market for rhino horn is driven by Vietnamese demand for medicinal use in health tonics and hangover cures and as a status symbol.

A different group of stakeholders is involved in servicing the demand for carved rhino horn products, such as antique dealers, art collectors, investors, speculators, auction houses, investment companies, and museums. Cases have emerged of raw rhino horns being processed into fake antiques (coined 'zuo jiu', meaning 'to make old')¹² and there is concern that the legal trade in antique rhino horn artefacts could be used to launder new horns.¹³



Image 5: Carved rhino horn libation cups, bracelet, and bangles. **Source:** Wildlife Justice Commission.

¹¹ Cheung, H., Mazerolle, L., Possingham, H. P., & Biggs, D. (2018). *Medicinal use and legalized trade of rhinoceros horn from the perspective of traditional Chinese medicine practitioners in Hong Kong*. *Tropical Conservation Science*, 11, 1940082918787428.

Cheung, H. (2021). *Rhinoceros Horn and Traditional Chinese Medicine: Demand in China*. Doctoral dissertation, University of Queensland.

¹² For example: <https://www.justice.gov/usao-nj/pr/ringleader-international-rhino-smuggling-conspiracy-pleads-guilty-new-jersey-wildlife>

¹³ Hübschle, A. (2016). *A game of horns: transnational flows of rhino horn*. Doctoral dissertation, University of Cologne. <https://www.savetherhino.org/our-work/reducing-illegal-trade/rhino-horn-could-be-laundered-in-uk-antique-trade/> ; <https://animalsurvival.org/trade-and-legislation/criminals-may-be-using-antiques-as-a-way-to-launder-rhino-horn/>

7. Impact of law enforcement efforts

To address the persistent problems of rhino poaching and illegal rhino horn trade, all countries affected along the supply chain need to step up their efforts to ensure that wildlife crime is tackled in an effective and enduring manner. There are several common areas where countries can enhance their law enforcement efforts, particularly in conducting investigations after seizures are made to identify the owners or facilitators of those shipments, and focusing on the prosecution of cases involving higher-level suspects to have a greater impact in disrupting the trade.

At the same time, examples of good law enforcement practice can be found in each of the six most prominent countries and territories which should be adopted and implemented systematically across all jurisdictions in the supply chain.

- **South Africa:** Establishing the Environmental Enforcement Fusion Centre as a national facility providing analytical capacity and integrating intelligence-led enforcement to boost tactical and strategic anti-poaching efforts.
- **Mozambique:** Appointment of special prosecutors in each province who are mandated to deal with environmental crimes, assisted by technical experts in the responsible investigating agencies.
- **Malaysia:** Establishing a multi-agency task force to address wildlife crime, involving national and state-based law enforcement agencies and environmental authorities.

- **Hong Kong SAR:** Policy reform to recognise wildlife trafficking as a form of serious organised crime, enabling the use of wider investigation powers, confiscation of proceeds of crime, and heavier sentences for convictions in such cases.
- **Vietnam:** Taking steps to target the investigation, arrest, and prosecution of high-level wildlife criminals, with successful convictions of two of the country's biggest wildlife traffickers and the recent arrest of the leader of another criminal network.
- **China:** Implementing a strategy to target investigations on entire criminal networks, including national citizens who are committing wildlife crimes in foreign jurisdictions, and engaging in international cooperation to bring them to justice.



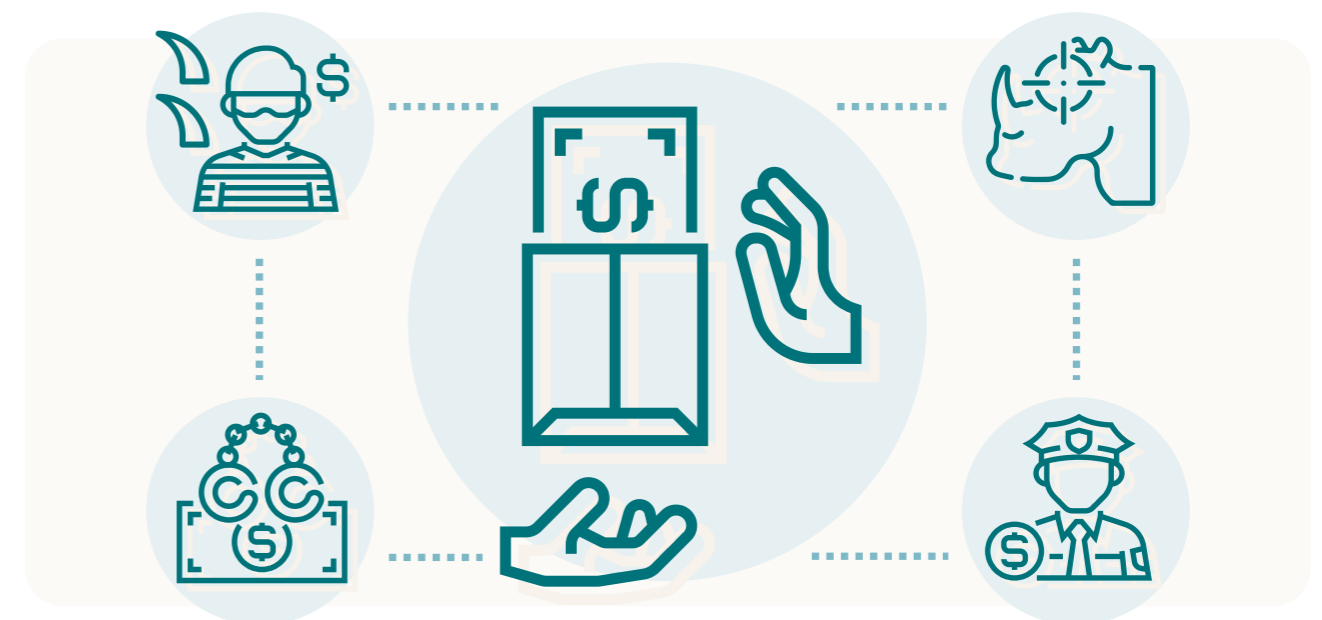
Image 6: Nguyen Mau Chien, the first high-profile wildlife criminal to be convicted in Vietnam, in relation to smuggling 36 kg of rhino horn.
Source: Education for Nature – Vietnam.

8. Role of corruption in illegal trade

Corruption is a crucial enabler of all forms of wildlife crime, and rhino poaching and rhino horn trafficking are no exception. It facilitates criminal operations to acquire and move rhino horns throughout the supply chain and undermines the criminal justice system. Corruption can occur in any location and involve public or private sector actors. All other efforts to combat rhino poaching and illegal rhino horn trade will fail unless corruption is tackled.

There are many illustrative examples of how corrupt acts such as bribery, embezzlement, and

abuse of office are playing out across the illegal rhino horn supply chain, including park rangers providing tip-offs to poachers, criminal groups paying bribes for law enforcement protection, to facilitate customs clearance to move their shipments, to secure bail or release from custody, and government officials stealing from rhino horn stockpiles. While some countries such as South Africa¹⁴ and China¹⁵ are taking important steps to address corrupt behaviour and treat corruption risks, the absence of cases in other key countries suggests a lack of focus and effort on this critical issue.



¹⁴. Targeted investigations in South Africa have resulted in growing numbers of arrests and convictions of police and rangers in relation to rhino poaching and rhino horn trafficking offences. For example, DFFE reported that 21 officials were arrested in such cases in 2017.

¹⁵. Analysis of Chinese court case judgements between 2019 and 2021 found at least 10 cases involving government officials facilitating rhino horn smuggling, accepting rhino horn bribes, or purchasing rhino horn.

9. Impact of COVID-19

Sharp reductions in both the number of rhinos poached across Africa and global rhino horn seizures during 2020 underline the abrupt impact of COVID-19 prevention measures in strangling criminal operations. However, this was only a temporary lull as criminal networks adapted to the new operating environment, with poaching rates increasing again in 2021 and into 2022.¹⁶

Seizure analysis shows that the average weight of African rhino horn shipments increased to their highest levels during the COVID-19 pandemic era, more horn was smuggled by air cargo, and trafficking routes became more consistent and simplified.

This was presumably due to the limited availability of transportation options. It is suspected that larger organised crime groups with more resources and connections are likely to have adapted better to the changing conditions than less relevant players.

Intelligence suggests that the lack of Chinese customers at physical markets in Southeast Asia may have boosted the online sale of rhino horn products in order to continue doing business, primarily on communication apps and social networking platforms.



16. https://www.dffe.gov.za/mediarelease/creecy_259rhinopoached

10. Recalibrating the response to tackle transnational organised crime

With 9,561 rhinos poached across Africa¹⁷ and 7.5 tonnes of rhino horns seized from illegal trade globally during the past 10 years, the scale of the rhino crisis has now likely eclipsed anything that was envisaged in 2012. Sadly, there are also few achievements that can be held up as demonstrating real, substantive progress in combating this issue. At this juncture, there is irrefutable evidence pointing to the involvement of transnational organised criminal networks that are driving rhino poaching and rhino horn trafficking, and it is clear that all six key countries and territories along the rhino horn supply chain have been too slow in shifting their response from “conservation crisis” to “crime problem”.

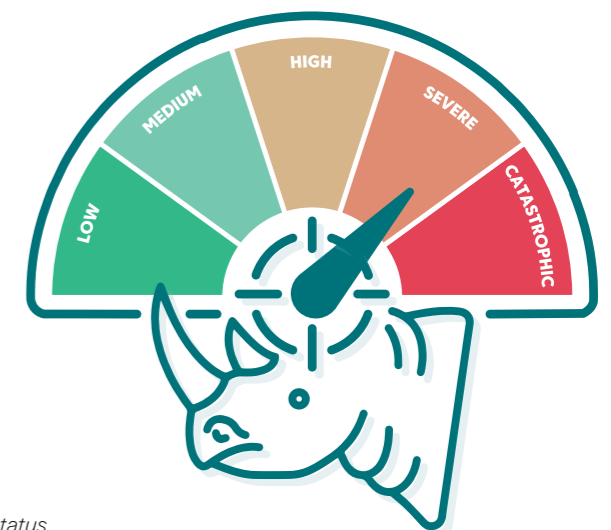
All jurisdictions – regardless of whether they are source, transit, or destination locations – need to step up and redirect their efforts to ensure crime is confronted in an effective, coordinated, and enduring manner.

Law enforcement on its own will not stop the poaching of rhinos or the trafficking of horns, but the full weight of law enforcement has not yet been applied to this issue.

Many standard law enforcement methodologies that should be common practice are still not being adequately used, such as conducting in-depth, intelligence-led investigations that focus

on the criminal network rather than the individual, conducting further investigations after seizure incidents to identify the product owners, using advanced investigation techniques, conducting parallel financial or corruption investigations, and seizing assets. This is the case for most types of wildlife crime, not just rhino-related crime.

The pace and energy of the law enforcement response has simply not matched that of the transnational organised crime networks and this status quo cannot be maintained for another decade. A more coordinated global effort using all available tactics, law enforcement methods, laws, and processes is required to respond better to the complex dynamics of the illegal trade, to dismantle the criminal networks behind it and protect rhinos for the future.



17. CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.



Policy implications and pending threats

The ongoing and dynamic nature of the threat to rhinos is clear and this situation continues to be compounded by uncoordinated and fragmented law enforcement action along the supply chain. The barriers to achieving coordinated, proactive law enforcement efforts must be overcome to have an impact in tackling the transnational organised crime behind rhino horn trafficking. Meanwhile, new threats to rhinos are emerging.

1. Low prioritisation of wildlife crime

Despite clear evidence of the involvement of transnational organised crime, there has been a relative global failure to combat rhino horn trafficking. Too often, wildlife crime is given low prioritisation and left to the responsibility of environmental authorities to handle alone. However, environmental authorities typically do not have the relevant law enforcement tools, expertise, or resources to investigate transnational organised crime; while the traditional law enforcement agencies that do have these powers and skill sets may have limited involvement in wildlife crime investigations. It is essential that traditional law enforcement agencies that have these powers and skill sets are engaged and given the mandate and necessary resources to lead investigations into rhino horn trafficking crimes.

The danger often facing authorities charged with handling these cases is nowhere more demonstrated than in the murder of one of South Africa's most successful anti-poaching detectives, Lieutenant Colonel Leroy Bruwer, while he was driving to work in March 2020.¹⁸ Bruwer was the investigating officer in the case against rhino poaching kingpins Petros “Mr Big” Mabuza and “Big Joe” Joseph Nyalunga, a former police officer turned

organised crime figure. The murder in July 2022 of Anton Mzimba, the Head of Ranger Services at Timbavati Game Reserve, South Africa at his home points to an escalating occurrence of these violent attacks.¹⁹

Until countries begin to act meaningfully on their commitments made in the United Nations and other international fora to treat rhino horn trafficking and other serious wildlife crimes as transnational organised crime, this situation is unlikely to change.



Recommendation

01

Countries need to act on their international commitments to treat wildlife crime as a form of transnational organised crime. The response across the entire supply chain must be geared towards tackling transnational organised crime in terms of resources and approach.

2. Tackling corruption is key

All efforts to combat rhino poaching and illegal rhino horn trade will fail unless corruption is tackled. Corruption creates resilient criminal networks due to its enabling and facilitating role,²⁰ but if the likelihood of corrupt practices can be minimised, then opportunities to engage in wildlife crime should also diminish.²¹ Identifying where corruption risks exist in the rhino horn supply chain can help authorities to develop targeted strategies and actions to prevent corrupt behaviour and make it more difficult for criminal networks to exploit regulatory systems.

Consideration must also be given to increasing the focus on corruption during investigations to identify and weed out those in the private and public sectors who are engaging in corrupt practices that enable rhino horn trafficking. For example, this could include analysis of a suspect's phone following arrest to identify the key members of their network and any corrupt contacts as entry points for further investigation. However, apart from South Africa and China, very few arrests and convictions of corrupt actors were found in other key countries and territories along the rhino horn supply chain, suggesting a dire lack of focus on this matter.



Recommendation

02

All countries and territories along the trafficking routes need to take coordinated action to address the insidious corruption that undermines law enforcement efforts. Corruption risks within the rhino horn supply chain must be addressed to strengthen regulatory systems, alongside an increased investigative focus to remove the corrupt elements enabling crime.



18. <https://lowvelder.co.za/537829/member-saps-mpumalanga-shot-r37-lydenburg/>

19. <https://www.news24.com/news24/southafrica/news/wildlife-warrior-and-game-ranger-anton-mzimba-shot-dead-20220727>

20. Ayling, J. (2012), 'What Sustains Wildlife Crime? Rhino Horn Trading and the Resilience of Criminal Networks', Working Paper 2/2012 Transnational Environmental Crime Project.

21. UNODC (2020), *Scaling Back Corruption: A Guide on Addressing Corruption for Wildlife Management Authorities*, p.7.

3. The growing allure for organised crime and evolving criminal methods

A great concern is that wildlife trafficking may become more attractive to transnational organised crime networks due to the profitability of high-value products such as rhino horn and the perceived lower risk of law enforcement action against this type of crime. Several observations of the use of non-traditional methods to commit crime can already be seen in the illegal rhino horn trade, such as trade on the dark web and use of cryptocurrency for financial transactions, which could indicate the growing involvement of organised crime. As wildlife crime increasingly moves online and criminal networks adopt or exploit new technologies to facilitate their operations, it creates a multitude of new challenges and hurdles for law enforcement authorities when it comes to investigations. The question lies in how to stay ahead of, or prepare for, these types of developments when there are still often inadequate responses to the well-known, traditional criminal methods.

The Dark Web

As part of ongoing efforts to monitor potential threats, the Wildlife Justice Commission has recently conducted research on the dark web where indications of rhino horn trade were identified.

- **Investigators found 27 mentions** of 'rhino horn' in the Gold & Diamonds dark web forum, posted between July 2016 and December 2021.
- **On one dark web forum**, six users sought to buy rhino horn, six offered to sell rhino horns in their possession, and four users indicated that they have previously bought rhino horns.

Illegal wildlife products are likely traded opportunistically by criminals already on the dark web due to their involvement in the illicit trade of other (non-wildlife) commodities. Given this, there is potential for convergence between wildlife crime and other forms of criminality facilitated by this platform that needs to be explored further.²² Use of the dark web may become a more relevant threat as law enforcement endeavours to mop up wildlife crime occurring on the open web. Furthermore, messaging apps such as WeChat have taken extensive efforts to eradicate criminal activities from their platforms, which will inevitably drive some core elements of criminality underground.

²² Other studies have also found indications of illegal wildlife trade on the dark web, such as research conducted by INTERPOL: <https://www.interpol.int/fr/Actualites-et-evenements/Actualites/2017/Research-identifies-illegal-wildlife-trade-on-the-Darknet>

Cryptocurrency

In ongoing investigations, the Wildlife Justice Commission has mapped the use of cryptocurrency as a payment method for wildlife crime for the first time through intelligence of over 1,000 financial transactions. Analysis of these transactions revealed a small number of prolific individuals and accounts suspected to be linked to wildlife trafficking in key countries. This presents a unique opportunity to disrupt organised trafficking through the use of coordinated international anti-money laundering interventions.



Recommendation

03

The perception of wildlife trafficking as a low-risk, high-reward crime must be quashed to counter its growing allure to transnational organised crime networks. Although the risks posed by both the dark web and cryptocurrency in the context of wildlife crime are currently assessed as low, government agencies mandated to respond to wildlife crime are encouraged to take pre-emptive action against these threats, which are likely to grow in significance as law enforcement efforts improve in tackling more serious and organised criminal elements.



4. Crime displacement

When law enforcement action effectively targets key crime areas and they become too “hot” to use, criminal activity will displace to other locations or use different methods that present a lower risk of detection. While the strengthened law enforcement approaches in some countries such as China and South Africa are encouraging, there are indications that spatial and tactical crime displacement are already occurring in response. To neutralise the threat of crime displacement, law enforcement approaches must be coordinated and intelligence-led across the supply chain. In the absence of international cooperation and with little likelihood of prosecution for high-level criminals, criminal activity could intensify in areas with weaker law enforcement.

Spatial displacement

- **Rhino poaching appears to be displacing** from Kruger National Park to other parks and provinces in South Africa (such as KwaZulu-Natal province)²³ as well as other countries in southern Africa (such as Botswana and Namibia).²⁴
- **Horns sourced from countries other than South Africa**, including Kenya, Botswana, and Namibia, are thought to be linked to traffickers

based in different countries including DRC and Angola. DRC is also suspected of being an alternative smuggling hub for ivory and pangolin scale traffickers previously operating from Nigeria, as Nigeria is now deemed to be too hot following a series of high-volume wildlife seizures and associated arrests. These factors may coalesce to present the risk of wildlife crime intensifying in DRC.

- **This analysis has identified the re-routing of the transportation of rhino horn shipments** from Hong Kong SAR to Malaysia, which is illustrative of how smuggling routes are changed to evade law enforcement detection. The recent arrest of a major Malaysian wildlife trafficker in June 2022²⁵ could have a significant influence on the criminal landscape and trafficking routes, with intelligence suggesting that crime displacement could potentially see Cambodia increase as a transit location of concern.
- **Several recent rhino horn seizures** suggest a potential return to the use of European countries as transit locations in trafficking routes, which may be a cause for future concern. These include two seizures in Germany of 3.8 kg of horn in December 2021²⁶ and 6.7 kg of horn in January

23. <https://maroelamedia.co.za/nuus/sa-nuus/102-renosters-al-vanjaar-in-kzn-gestroop/>

24. Namibian authorities discovered 11 rhino carcasses in Etosha National Park in June 2022: <https://www.reuters.com/world/africa/namibia-rhino-poaching-surges-june-ministry-says-2022-06-15/>

25. <https://www.bangkokpost.com/thailand/general/2337103/arrested-malaysian-wanted-for-worldwide-wildlife-trafficking>

26. <https://nordsachsen24.de/2022/am-flughafen-zoll-entdeckt-hornstuecke-vom-nashorn-in-paketen/>

2022,²⁷ and a seizure of two rhino horns in Portugal in July 2022.²⁸

- **Angola has been referenced as a source and transit country** in all the Wildlife Justice Commission’s ivory operations since 2015. The decline in ivory trade in recent years²⁹ and the sustained interest in rhino horn means Angola may become a country of increasing concern in rhino horn trafficking. Intelligence suggests that this threat is transpiring, with criminals indicating Angola is used as a transit country for wildlife originating from southern Africa (rhino horn, captive-bred tiger and/or lion items) and central Africa (ivory, pangolin scales) and it is reported to be where some consolidation of rhino horn to be moved by air takes place. For example, two Angolan men were arrested in the country in October 2021 for trafficking 10 rhino horns, likely sourced from poached rhinos in a neighbouring country.³⁰ Furthermore, the 2022 rhino horn seizures in Germany and Portugal mentioned above were both reported to have originated from Angola. The geographic positioning of Angola bordering Namibia and Zambia and close to Botswana as potential sources of horns, and bordering DRC as a known trafficking hub, may further add to this risk.

27. <https://www.newsweek.com/fifteen-pounds-rhino-horn-found-false-bottom-box-1712172>

28. <https://angolantimes.com/2022/07/23/two-rhino-horns-seized-in-lisbon/>

29. Wildlife Justice Commission (2020), *Rapid Assessment of the Illegal Ivory Trade in 2020*.

30. <https://novojornal.co.ao/sociedade/interior/pn-deteve-dois-homens-com-10-chifres-de-rinoceronte-que-pretendiam-vender-por-4-milhoes-kz--foi-preciso-matar-10-animais-em-risco-grave-de-extincao-para-os-obter-105161.html>

Tactical displacement

- **An increase in the average volume** of horn in shipments coincides with a change in smuggling from passenger luggage to air cargo and the use of more direct trafficking routes. This could point to the greater involvement of organised crime groups.
- **In response to increased airport security measures** during the COVID-19 pandemic, some traffickers appear to be prioritising the safer shipment of their products using maritime transportation over a fast turnaround time by air. However, the limited number of seizures of maritime shipments suggests this transportation method could be an underrepresented threat for rhino horn smuggling.
- **Investigations by the Wildlife Justice Commission have found ivory traffickers switching to rhino horn** due to the decline in demand for ivory and the higher profitability of rhino horn. This has been particularly prominent in Mozambique.



Recommendation

04

International cooperation and controlled deliveries are desperately needed to identify and further investigate network members located in other countries along the supply chain and involved in buying, transporting, and distributing rhino horn. Broader and more consistent use of advanced and sophisticated law enforcement practices typically applied in other types of transnational

organised crime must be employed to ensure a cohesive and coordinated global response to address rhino horn trafficking and to prevent the displacement of criminal activity from one place to another.

(See Appendix 2 of this report for some recommended tools and resources to support law enforcement efforts to combat illegal wildlife trade).



Image 7: Malaysian customs officers with a rhino horn seizure, March 2017.

Source: FP Photo/Manan Vatsyayana, <https://theasianpost.com/article/rhino-horn-seizure-thailand-leads-major-trafficking-syndicate>

5. Lack of systematic application of intelligence and analysis

The findings of this threat assessment point to the ongoing and growing exploitation by transnational organised crime to service a demand for rhino horn. In order to truly address this, an intelligence-led response is required. Intelligence is a crucial tactical asset when corruption and a lack of advanced investigative capacity exists, as it seeks to identify the most prolific elements of crime and enables the focus of limited law enforcement resources on the greatest criminal threats. An intelligence-led approach will:

- **Identify high-risk areas** of poaching, trafficking, distribution, and sale,
- **Identify the role** of transnational organised crime,
- **Identify the financial flows** that drive this crime type, and
- **Create opportunities** for tactical and strategic interventions.

Extensive intelligence analysis conducted by the Wildlife Justice Commission on large scale trafficking of wildlife between Africa and Asia revealed targets in Nigeria, DRC, and Mozambique with direct links to high-level Vietnamese targets sourcing ivory, pangolin scales, and rhino horn to be trafficked to Vietnam. These targets are integral to the management and control of transnational organised wildlife crime and the entry of products into Vietnam. Furthermore, criminal

networks are now funnelling a large volume of products through fewer concentrated channels, exposing locations such as South Africa, Malaysia, and Vietnam as potential choke points in the supply chain where law enforcement effort could be targeted to achieve major impact.

Intelligence capacity to address threats to rhinos have improved over the past few years, particularly within South Africa and China. However, this threat needs to be managed from a supply chain perspective, supported by better information sharing practices, both regionally and globally.



Recommendation

05

Intelligence analysis and organised crime group mapping are useful techniques to identify and map the members of a criminal network who may be dispersed across many countries and to tackle the problem from a transnational organised crime point of view. Applying analytical techniques such as crime pattern analysis to identify crime series will also provide more insight as to how such crimes may be further linked; for example, the attribution of shipments of rhino horns to a crime series, which may fit the profile of one offender or a network of offenders.

6. Implications of China's strengthened law enforcement strategy

China has significantly and meaningfully ramped up its efforts to address wildlife crime and trafficking, with a particular focus on organised criminal activity. While it is positive that investigations are targeting and arresting entire Chinese criminal networks,³¹ the downside is that uneven and fragmented law enforcement approaches from other countries in the supply chain present opportunities for other crime groups to take over. In Nigeria, DRC, South Africa, Mozambique, Angola, and Namibia, the Wildlife Justice Commission is finding that Vietnamese criminal networks are filling the void left by the removal of Chinese networks. Only in South Africa do Chinese networks still dominate the illegal rhino horn trade.

Accompanying the success of investigations, prosecutions, and convictions in China is the heavy sentencing which seeks to address the higher-tier of organised wildlife crime, rather than targeting lower-level players such as poachers or couriers, who are often easily replaced. Chinese court cases analysed by the Wildlife Justice Commission demonstrate China's commitment to tackle transnational organised crime, with the large number of participants charged in many of the cases, the volume of illegal products seized, and the amount of money and assets recovered from criminal proceeds.



Recommendation

06

Other countries along the supply chain should aim to mirror the law enforcement efforts of China, especially in terms of the level of prosecution, sentencing, and asset recovery that is now being applied to serious wildlife criminals. These core elements are proven to achieve a deterrent effect, with financial penalties associated with asset recovery known to be the most critical component in deterring crime.

Consideration should be given to greater use of financial investigations, conducted in parallel with criminal investigations:

- to map associated money laundering,
- to identify proceeds of crime to facilitate asset recovery, and
- to eliminate the perception of rhino horn trafficking as a low-risk, profitable activity.

³¹. For example, refer to the case study included in Chapter 3 of this report.

7. Growing presence of horns originating from legal stockpiles in illegal trade

This research finds that potentially up to one-third of rhino horns seized globally may have originated from legal horn stockpiles.³² Specifically within South Africa, incidents involving harvested horns from stockpiles can be perceived as a permitting issue and not as a criminal offence, disregarding the inherent link to transnational organised crime. It is suspected that this source of rhino horn is enabling crime, yet one that represents a much lower risk in terms of punishment from law enforcement than horn originating from a poached rhino. This ongoing supply, which is believed to be increasing, has the potential to be vast when considering the volume of horn in stockpiles held in many locations across several countries. Diversion of stockpiled horns into illegal trade must be curbed to ensure supply chain integrity of the legal domestic horn trade, to strengthen the stockpile regulatory system, and to support law enforcement efforts to manage the rhino poaching threat. Illegal trade of harvested horns only serves to benefit criminality and damages conservation efforts.

Image 8: Rhino horn stockpile. **Source:** S Milledge/TRAFFIC East/Southern Africa, https://www.traffic.org/site/assets/files/4060/rhino_horn_stockpile_management.pdf

³². Refer to Key finding (v) of Chapter 2 for full details of this estimation.



Recommendation

07

In any country with rhino horn stockpiles, domestic violations involving stockpiled horns should not be treated separately from international rhino horn smuggling offences. Given the links between the movement of horn from illegally killed rhinos and harvested horns, these two supply chains should be addressed and managed as a connected threat.



8. Gaps in knowledge on consumer drivers and use of rhino horn

The findings presented in this report indicate that the demand for rhino horns as a criminal commodity shows no signs of abating. If demand for a high-value commodity persists, criminality will find a way to service and monetise this demand for as long as customers are willing to pay. While law enforcement efforts are designed to remove the immediate threat, they should not be relied on as the sole means to eradicate crime. It requires a multi-faceted solution, one aspect of which must incorporate social science-based solutions such as behavioural change.³³ However, effecting behavioural change to reduce consumer demand is a long-term strategy and efforts have not yet been sufficient to drive a reduction in the ongoing illicit trade of rhino horn.

To date, such initiatives have focused primarily on Vietnam, seeking to reduce demand for rhino horn used for medicinal or recreational purposes and luxury gifts. The popular use of rhino horn as items of jewellery, libation cups, or the stockpiling of whole horns for its investment value in China or in other consumer markets has not received the same level of focus. These other types of rhino horn use in Chinese consumer markets may have indeed been the key driving force for rhino horn demand, but which has been serviced *predominantly* by Vietnamese criminals facilitating its entry into Asia, leading to a misunderstanding about where the core demand over the past decade has emanated.



Recommendation

08

Demand reduction and behavioural change initiatives should be fully informed about the various aspects that drive consumer choices. However, there is an apparent gap in knowledge about the nature and scale of Chinese demand for rhino horn, and accordingly more research and investment are needed to improve insight into these markets, especially concerning the carving process, market distribution, and the use of rhino horn as an investment product. In addition, there is a need to be proactive in identifying other countries where demand in various forms or markets could increase in the future.



Image 9: Six libation cups.
Source: Wildlife Justice Commission.

33. Duncan Graham-Rowe (2011). *Biodiversity: Endangered and in demand*. Nature 480, pp. S101–S103.

1.

Introduction: An overview of 10 years of rhino horn trafficking

In 2006, southern Africa saw the beginning of a new wave of rhino poaching that would sweep across the continent. By 2012, the rhino poaching crisis was unfolding in South Africa at an unprecedented scale and with new criminal dimensions that had not been previously observed. Unscrupulous wildlife professionals, complicit government officials, and Asian criminal networks were identified as the main players behind the escalation of sophisticated poaching and smuggling crimes. The poached horns were believed to be predominantly destined for Vietnam, where rising affluence was driving a new demand for rhino horn as a luxury product that represented wealth and status.¹

1. Milliken, T. and Shaw, J. (2012), *The South Africa – Vietnam Rhino Horn Trade Nexus*. TRAFFIC, Johannesburg, South Africa.

At that time, South Africa and Vietnam were identified as the two countries forming the nexus of the rhino poaching crisis, and insight into the role of other countries was hazy. Maputo in Mozambique was beginning to emerge as a new base to consolidate horns and move shipments out of Africa, but there appeared to be limited evidence that rhino horns were moving through Vietnam into China or other markets. Although the impact on rhino populations was clearly evident from the number of rhinos killed in South Africa and elsewhere, there was little data available on the rhino horn market in Vietnam or understanding of how the criminal supply chain operated to smuggle the horn across continents. Rhino horn usage was reported to range from traditional medicinal use to reduce fever and detoxify the body, to new applications as a hangover cure, cancer treatment, aphrodisiac, or high-value gift.²

Ten years on and the intelligence picture is now considerably richer, changing much of what was known about the illegal trade in rhino horn. Although South Africa and Vietnam remain principal source and destination countries, Mozambique, Hong Kong SAR, Malaysia, and China have joined their ranks to become the six countries and territories currently dominating the criminal supply chain. Intelligence has uncovered a previously hidden demand in China for rhino horn carved into jewellery, ornaments, tea sets, libation cups, and various other items. There is also a growing body

2. Ibid.

of evidence showing that the role of Vietnam has evolved since 2012, becoming a crucial gateway for rhino horn trade into China as well as the distribution channel for rhino horn products to retail markets in other Southeast Asian countries.

Yet, several misconceptions about the illegal trade in rhino horn persist and are regularly cited in the public sphere, particularly stating that the black-market value of rhino horn is “more valuable than gold”, that demand for rhino horn is chiefly related to consumption for medicinal or recreational purposes, and that Vietnam is the primary end point. These prevailing narratives do not fully reflect the real state of play and may be unwittingly contributing to a misdirection of effort and resources to address the issue.

Organised criminal groups target rhino horn specifically for its high value and profitability to service consumer demand in enduring and shifting international markets. Inadequate law enforcement focus on the elements of transnational organised crime and the underlying corruption that facilitates criminal operations has allowed these groups to become entrenched and operate with impunity. As a result, poaching continues to threaten key rhino populations across African range States. Despite extensive interventions to tackle this issue over the years, none have led to a sustained decline in the extent of illicit trade or value of the horn.

African rhino poaching

The vast majority of African rhinos (97% of white rhinos and 93% of black rhinos) occur in four range States: South Africa, Namibia, Kenya, and Zimbabwe. Other countries with smaller populations of white and/or black rhinos include Botswana, DRC, Eswatini, Malawi, Mozambique, Rwanda, Tanzania, Uganda, and Zambia. The reported data³ shows that rhino poaching in Africa escalated rapidly

after 2009, peaking across the continent in 2015, then declining sharply until 2020 and remaining steady in 2021 (Figure 5). South Africa and Zimbabwe have consistently reported rhino poaching losses every year throughout the period, although South Africa has experienced far higher losses than any other country. Poaching in Kenya peaked in 2013 then declined, but it has increased in Namibia (since 2014) and Botswana (since 2017).

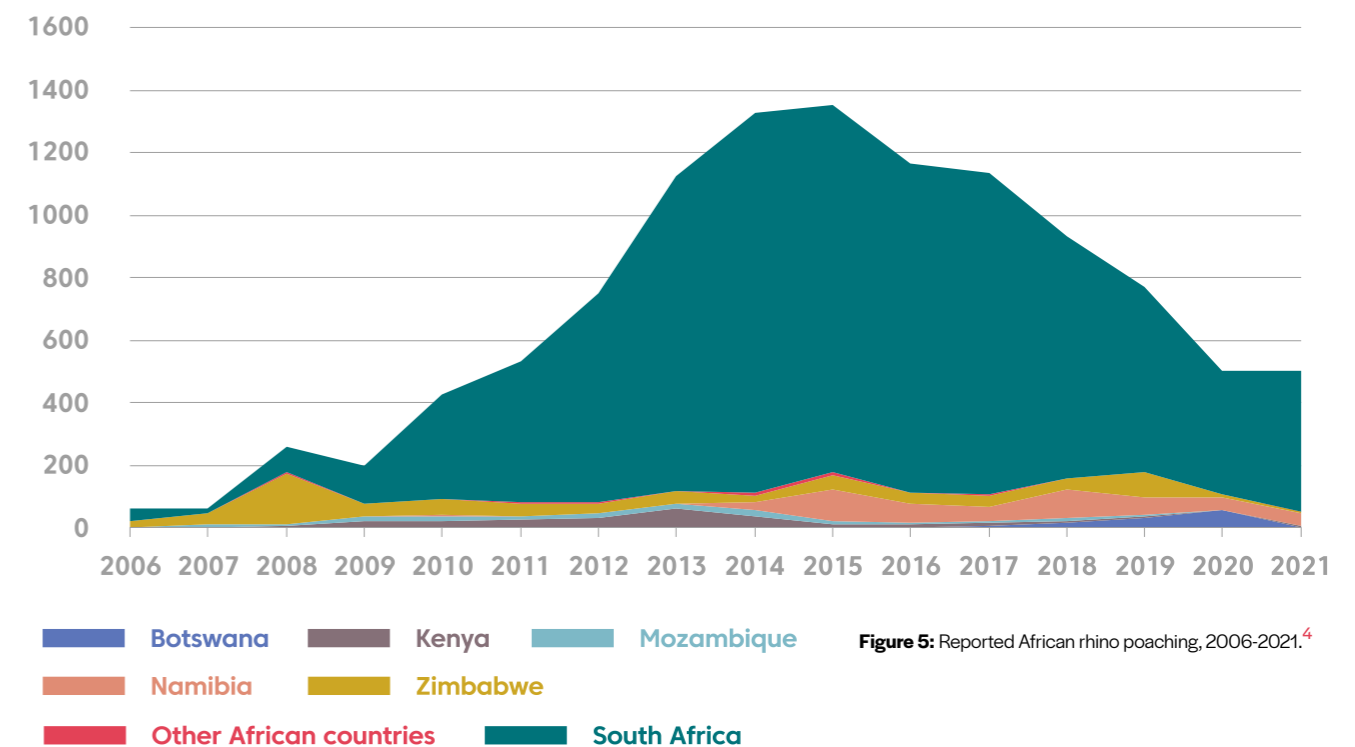


Figure 5: Reported African rhino poaching, 2006-2021.⁴

3. For detailed information on current African rhino population estimates and poaching data, refer to: CITES CoP19 Doc.75 (Annex 4), 'African and Asian Rhinoceros - Status, Conservation and Trade', prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.

4. Ibid.

Asian rhino poaching

The three Asian species of rhino were once distributed across much of South and Southeast Asia, but now occur in just three range States: the greater one-horned rhino is found in India and Nepal, while the Javan and Sumatran rhinos are both found in Indonesia in a few very small, isolated

groups. Reported data⁵ indicates a declining rate of poaching of greater one-horned rhinos that is well below poaching levels in Africa and is not deemed to be posing a significant threat to this species. Poaching data were not available for Javan or Sumatran rhinos but given the tiny population sizes of these two species, any amount of poaching will be a threat to their survival.

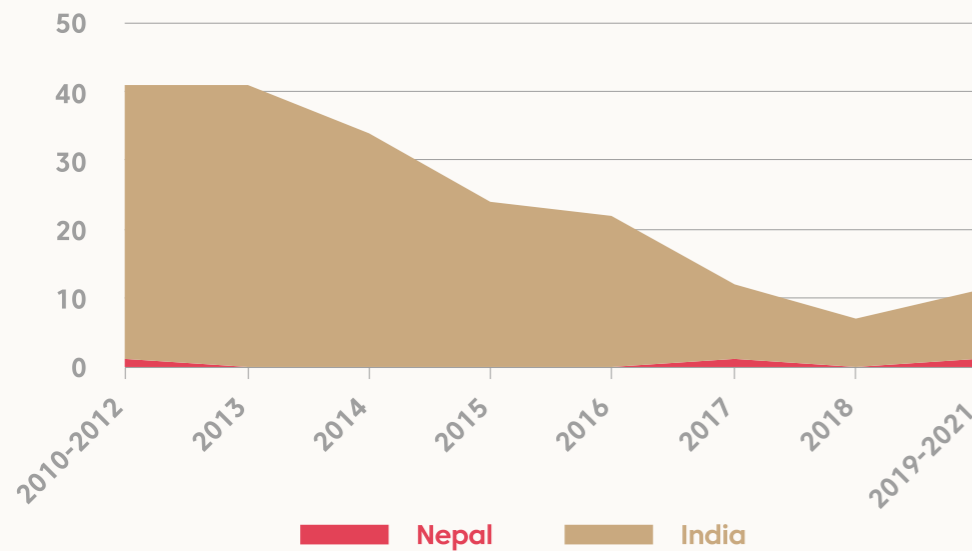


Figure 6: Poaching of greater one-horned rhino in India and Nepal, 2010-2021.⁵

⁵ For detailed information on current Asian rhino population estimates and poaching data, refer to: CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission’s African and Asian Rhino Specialist Groups and TRAFFIC, p.32.

⁶ CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission’s African and Asian Rhino Specialist Groups and TRAFFIC, p.32.

1.1. Purpose of this threat assessment

Rhino horn trafficking remains a serious problem that needs to be addressed with a renewed sense of urgency. This report aims to sharpen the focus on the threat of illegal rhino horn trade and the need to manage this threat as a transnational organised crime problem rather than a purely conservation issue. It presents a comprehensive analysis of the criminal dynamics of rhino horn trafficking during the 10 years from 2012 to 2021, based on seizure data, criminal intelligence and investigation findings from the Wildlife Justice Commission, and open-source research. It looks back to 2012 as the point when global attention was brought to bear on the escalating illegal rhino horn trade, and examines the driving forces behind this trade, the role of transnational organised crime, and changes in the criminal landscape over the ensuing decade.

As a threat assessment, the purpose of this report is to share strategic intelligence that identifies and provides insights on present and emerging transnational organised crime threats relating to rhino horn trafficking. It interprets and analyses intelligence holdings and information from open sources to build the global intelligence picture, propose hypotheses about the immediate or imminent threats, identify where intelligence gaps exist, and highlight vulnerabilities that could become potential threats in the future.

The report is set out in 10 chapters covering key criminal elements of the illegal rhino horn trade. Recognising the density of detail in the report, each chapter is written to be able to be read as a standalone topic with the aim of making the report



more accessible and useful for practitioners or researchers who may be interested in a specific aspect of criminality.

The report also provides an assessment of the current threat to rhinos in 2022 posed by transnational organised crime, with a view to inform law enforcement, conservation, and policy makers' interventions to tackle the illegal rhino horn trade and ensure the global response to this crime is commensurate and appropriately targeted to current and future needs. This assessment and recommendations are set out in the 'Policy Implications and Pending Threats' section of the report.

All law enforcement agencies deal with multiple crime types and face considerable public and

political pressure on a range of issues. In practice, they must prioritise their interventions to meet the extensive demands on their services in the best way possible, given the limited resources at their disposal. Recognising this, intelligence analysis is a valuable tool to identify where the greatest level of risk lies. It allows law enforcement to work smarter by allocating and prioritising resources in the most efficient way to manage the highest crime threats.

It is hoped that this assessment will go some way towards assisting law enforcement agencies in the six countries and territories currently dominating the illegal rhino horn supply chain to maximise their response and impact in addressing this issue by adopting a similar practice.



Image 10: Carcass of a poached rhino in Kruger National Park, South Africa.
Source: Foto24/Getty Images

1.2. Methodology

What is intelligence?

Intelligence is a value-added product that is formed from the collection and analysis of relevant information from various sources, and which is immediately or potentially significant to decision-making in investigations.

Intelligence is also a process, encompassing a continuous cycle of tasking, data collection, collation, analysis, dissemination, and feedback. This continuous process is responsible for the generation of an intelligence product, the purpose of which is to interpret the criminal environment and inform the thinking of decision-makers.

Investigations and intelligence

Sanitised intelligence and findings from the Wildlife Justice Commission's investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. The Wildlife Justice Commission's investigation approach is modelled on recognised and proven law enforcement methodology, and its team of analysts and

investigators are former law enforcement professionals. It uses a combination of undercover operatives, covert surveillance, and networks of trusted informants to collect intelligence and evidence across the supply chain, from source to destination.

The Intelligence Development Unit (IDU) is the in-house team of intelligence analysts that is the driving force of this work. The IDU analyses data and information to understand and identify transnational trends, map the criminal networks along the supply chains, and identify targets and new investigative leads. This intelligence guides the work of the undercover investigators to infiltrate trafficking networks and gather evidence, and the information they unearth feeds back into the intelligence cycle.

All intelligence is verified and corroborated to ensure it is as robust and accurate as possible, and it is documented to an evidentiary standard. This rigorous approach means the Wildlife Justice Commission can support law enforcement agencies to build solid cases for prosecution and it is willing and able to testify in court on the strength of the evidence it collects.

Since its formation in 2015, the Wildlife Justice Commission has worked on 16 different multi-year investigations involving rhino-related crimes in the following countries: Vietnam, China, Malaysia, Lao PDR, Namibia, South Africa, Mozambique, DRC, Thailand, Angola, and Cambodia. This work has generated almost 1,400 case notes concerning the criminal activity of over 1,200 persons of interest.

Following the dissemination of intelligence to law enforcement agencies in those countries, the Wildlife Justice Commission has supported the arrests of 36 high-level targets involved in rhino-related crimes in South Africa, Vietnam, DRC, Lao PDR, Mozambique, and Malaysia.

Table 1: Wildlife Justice Commission subject rating definitions.

Level of criminality	Definition
1	Low level of criminality is conducted. Subject is not assessed to pose a great threat.
2	Low- to mid-level trafficker who may play an enabling role to higher level subjects.
3	Mid-level trafficker who is likely operating at the international level and involved in some decision-making.
4	Mid- to high-level trafficker who may have access to corrupt contacts and legitimate businesses to facilitate their crimes.
5	A significant threat who orchestrates and finances the international movement of wildlife trade at a commercial scale.

Subject rating and targeting

The Wildlife Justice Commission has developed an internal risk rating system to assess a subject's level of criminality according to factors such as their role in the network, modus operandi, geographical range across which they operate, estimated conservation impact, among others. The system classifies subjects from Level 1 as the lowest level to Level 5 as the highest, as defined in Table 1.

Wildlife Justice Commission investigations target those mid- to high-level individuals (Level 3-5 subjects) who are pivotal to the criminal network, and whose removal would have the greatest impact in preventing the network from reorganising quickly, thereby causing disruption and slowing the trade. Crime is highly connected, and at the upper echelons a few key individuals are known to control a significant share of the illegal rhino horn trade. As such, verified, corroborated, and analysed intelligence on those high-level subjects can hold a lot of weight in building the overall intelligence picture and assessing the threat. Intelligence included in this report is collected on these higher-level individuals, their close associates and network members, and is considered to be illustrative of large portions of the illegal rhino horn trade. Due to the focus on higher level criminality, this threat assessment does not address low-level poaching.

Seizure dataset collection

Chapter 2 of this report on 'Criminal dynamics of rhino horn trafficking' is based on analysis of a dataset of rhino horn seizures over the past decade collected from open-source reports, primarily media articles, law enforcement press releases, court records, and other published reports, which were identified through keyword searches. The dataset consisted of 674 seizure incidents involving raw rhino horns, whole or in pieces, from any rhino species, occurring at any location globally, during the period from 1 January 2012 to 31 December 2021.

Although the dataset is substantial and as comprehensive as possible, it is limited by the fact that not all countries publicly report all rhino horn seizures, nor are there standard procedures in reporting seizures resulting in varying levels of detail available. The search methodology may not have detected all open-source reports and some records may only be available on request. This means there are gaps in the dataset, and as such, Chapter 2 is an indicative analysis of the major trends in rhino horn trafficking over the past 10 years. Furthermore, seizure data does not represent the complete picture as it only reveals detected illegal trade where there has been law enforcement effort. As such, intelligence and findings from Wildlife Justice Commission investigations have been integrated throughout this report where relevant as another source of information to assist with making inferences between seizure data and the realities of illegal trade.

There are several reasons why it is good practice for authorities to publicly report information on seizures at the appropriate time and in a way that will not compromise ongoing investigations. Public reporting increases transparency and accountability for the confiscated contraband, reducing opportunities for it to be re-sold back into the trade and it is crucial for sharing important information with other countries implicated in the trafficking route to support linked investigations. Timely reporting also facilitates more accurate studies and research, such as this report, in identifying and communicating trends and threats.

Price data analysis

Chapter 5 of this report on 'Value of rhino horn' is based on analysis of a dataset of wholesale black market prices per kilogram for raw rhino horns from January 2016 to February 2022. The data were gathered by Wildlife Justice Commission operatives during undercover dealings with traffickers and brokers in eight African and Asian countries corresponding to various points of origin, transit, and destination in the illegal rhino horn supply chain: South Africa, Mozambique, DRC, Malaysia, Thailand, Lao PDR, Vietnam, and China. Some price data for China was also collected from an assessment of published court judgements of rhino horn trade and trafficking cases in China. All prices were converted to USD to make them comparable across the supply chain.

When interpreting price data, it is important to note that wholesale prices can fluctuate depending on who is selling the horn (i.e. their role in the criminal network and how close they are to the source of the product) and the quantity of horns being negotiated. Other factors that contribute to wholesale prices include transportation costs, facilitation payments, law enforcement risk, and supply and demand dynamics. The Wildlife Justice Commission targets its investigations at subjects who are assessed as being mid- to high-level criminals (Level 3-5), and investigators always negotiate prices to ensure as far as possible that the final price offered reflects current street values.

In retail markets, traders usually quote prices for processed rhino horn products by the gram or by unit and prices can vary significantly according to a range of subjective factors such as horn colour, size, carving quality, artistic value, and product type. For this reason, extrapolating retail prices to obtain a price per kilogram for comparison across different markets or to the wholesale raw rhino horn prices will produce misleading results. The Wildlife Justice Commission does not consider retail price data to be relevant for the analysis of criminal dynamics and understanding threats at the higher criminal level, and as such it has not been included in this assessment.

Note on terminology: price and value

In this report, the term “price” is used when referring to specific price data and offers for rhino horn products that were collected during dealings with traffickers and brokers. When those price data are aggregated for analysis, such as determining annual average values collected at different points of the supply chain, the term “value” is used.

Note on referencing

A substantial portion of the information and analysis provided in this report is based on seven years’ worth of intelligence and findings from Wildlife Justice Commission investigations. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.



1.3. Other background and context

Transnational organised crime

Rhino horn trafficking meets the internationally recognised definition of organised crime,⁷ as there is clear evidence of:

- **a structured** group,
- **of three** or more persons,
- **that exists** for a period of time,
- **acting** in concert,
- **with the aim** of committing at least one serious crime,
- **to obtain**, directly or indirectly, a financial or other material benefit.



Furthermore, rhino horn trafficking is an offence that is transnational in nature,⁸ as:

- **it is committed** in more than one State,
- **a substantial part** of its preparation, planning, direction, or control often takes place in another State, and
- **it often involves** an organised criminal group that engages in criminal activities in more than one State.

CITES identification of Parties most affected by illegal rhino horn trade

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement that aims to ensure that international trade in wild animals and plants does not threaten the survival of the species.⁹ The CITES Secretariat’s most recent report on rhinoceroses in 2022 identified the following seven Parties as being most affected by illegal rhino horn trade during the period 2018 to 2020 in terms of illegal trade volumes: South Africa, China (including Hong Kong SAR), Vietnam, Malaysia, Mozambique, United Arab Emirates, and Qatar. In addition, the CITES Secretariat

7. Article 2, United Nations Convention Against Transnational Organised Crime.

8. Article 3, United Nations Convention Against Transnational Organised Crime.

9. <https://cites.org/eng>

includes Botswana due to a significant decline in the country's rhino population.¹⁰

Although this threat assessment analysed data and trends over a 10-year period from 2012 to 2021, it found similar results for the jurisdictions that feature most consistently in the seizure data: South Africa, Vietnam, Mozambique, China, Malaysia, and Hong Kong SAR. In total, more than 50 countries and territories have been implicated in the illegal trade since 2012 as source, transit, and destination locations, but this assessment is concentrated on these top six jurisdictions as representing the highest level of crime threat.

Harvested horns and legal stockpiles

This report refers to “harvested horns” as rhino horns that are obtained by legal means, namely through dehorning live rhinos or collecting horns from rhinos that have died from natural causes. Dehorning involves anaesthetising the rhino and sawing off the horn at the base, carried out as a security measure to reduce the risk of poaching. The horns grow back over time, so dehorning

10. CITES CoP19 Doc. 75, paragraph 35.

11. <https://www.savetherhino.org/thorny-issues/de-horning/>

12. White rhinos (*Ceratotherium simum simum*) are classified as CITES Appendix II species in South Africa and Eswatini and are allowed to be traded as live animals and hunting trophies (refer to <https://cites.org/eng/app/appendices.php>). Black rhino (*Diceros bicornis*) hunting trophies are allowed to be exported from South Africa and Namibia with an established annual quota, according to CITES Resolution Conf. 13.5 (Rev CoP18).

13. Milledge, S. (2005). *Rhino Horn Stockpile Management: Minimum Standards and Best Practices from East and Southern Africa*. TRAFFIC East/Southern Africa.

needs to occur every 1-2 years for it to be an effective deterrent measure.¹¹ As a result, parks or properties conducting regular dehorning procedures will rapidly accumulate horn stockpiles.

Most rhino range States have government-owned stockpiles of horns acquired through dehorning procedures and horns collected from natural mortalities, as well as horns confiscated from illegal trade incidents. In South Africa and Namibia, rhinos and subsequently their horns can be legally owned, so there are private stockpiles as well as government stockpiles in these countries. Horns can also be legally exported as hunting trophies from South Africa, Eswatini, and Namibia.¹² Any other countries that have made seizures from illegal trade will also have stockpiles unless those horns have been destroyed or returned to the country of origin. Guidelines for best practice in managing rhino horn stockpiles have been developed, including marking and registration of horns, storage, security, and auditing.¹³

It is difficult to quantify how much rhino horn is held in legal stockpiles as few countries publicly report their stockpile inventory. The most recent

figures indicate that more than 87 tonnes of rhino horns and pieces are held in 10 African range States,¹⁴ up from an estimated 52 tonnes at the end of 2017.¹⁵ As of August 2019, South Africa reported holding 27.7 tonnes of rhino horn in government stockpiles and 22.5 tonnes of rhino horn in private stockpiles.¹⁶ Zimbabwe indicated it has 6-7 tonnes of rhino horn stockpiled,¹⁷ while other countries with national rhino dehorning programmes including Botswana¹⁸ and Namibia¹⁹ also have significant stockpiles. In addition, 16 non-range States reported holding a combined total of 2 tonnes of rhino horns and pieces, the majority of which are likely to be African rhino horns seized from illegal trade.²⁰

Legally harvested horns can enter the black market as a result of thefts from government or private stockpiles, thefts from other sources (such as from museums or zoos), or horns being illegally sold from private or government stocks.

After they have been integrated into the illegal supply chain, identification of harvested horns is extremely challenging due to the limited physical characteristics that distinguish harvested horn from poached horns. Horn tips with perfectly flat bases can be recognised as the result of dehorning and plastic tags and codes written with indelible ink can clarify their registration, but once the horns are cut into pieces, these clues are obscured or lost. The second or subsequent rounds of dehorning results in pieces of horn with two flat ends, but these can appear similar to cut pieces. Likewise, horns recovered from natural mortalities or legally hunted animals do not necessarily present with a flat base and may appear similar to poached horns. DNA analysis can assist with identifying the origin of horns and is a CITES requirement for all rhino horn seizures.²¹ However, it is expensive and due to various challenges is not routinely applied by law enforcement authorities.

14. CITES CoP19 Doc.75 (Annex 4), 'African and Asian Rhinoceroses – Status, Conservation and Trade', prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.29.

15. CITES CoP18 Doc.83.1 (Annex 2), 'African and Asian Rhinoceroses – Status, Conservation and Trade', prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.18.

16. South Africa Department of Environmental Affairs, Response to Promotion of Access to Information Act (PAIA) 183968 dated 29 July 2019.

17. <https://africa.cgtn.com/2022/05/18/zimbabwe-urges-sale-of-stockpile-of-seized-elephant-ivory/>

18. Official announcement on the Botswana Department of Wildlife and National Parks Facebook page on 15 June 2020, also reported in the media: https://www.voanews.com/a/africa_poaching-forces-botswana-dehorn-translocate-rhinos/6191347.html

19. https://www.bloomberg.com/news/articles/2014-10-13/namibian-government-dehorns-rhinos-as-poaching-threat-escalates#disqus_thread

20. CITES CoP19 Doc.75 (Annex 4), 'African and Asian Rhinoceroses – Status, Conservation and Trade', prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.30.

21. CITES Resolution Conf. 9.14 (Rev CoP17), <https://cites.org/sites/default/files/document/E-Res-09-14-R17.pdf>



2.

Criminal dynamics of rhino horn trafficking²²

This chapter presents an indicative analysis of the criminal dynamics of rhino horn trafficking and major trends and changes that have occurred over the past 10 years. The analysis is based on a dataset consisting of 674 seizure incidents involving raw rhino horns, whole or in pieces, from any rhino species, occurring at any location globally, during the period from 1 January 2012 to 31 December 2021 (Table 2). *(Refer to section 1.2 of this report for a detailed description of the methodology used to collect the dataset).*

²² Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

- ✓ Between 2012 and 2021, rhino horn seizures increased significantly in number and weight, despite a reduction in poaching.
- ✓ Six countries and territories have dominated rhino horn trafficking routes as source, transit, and destination locations: South Africa, Vietnam, Mozambique, China, Malaysia, and Hong Kong SAR.
- ✓ South Africa and Vietnam continue to be the two countries most consistently implicated in rhino horn trafficking.
- ✓ Malaysia is playing an increasingly important role as a transit point for shipments from Africa to Asia.
- ✓ Large amounts of harvested horns from legal stockpiles are diverted into illegal trade.
- ✓ Criminal groups are routinely exploiting weaknesses in stockpile systems to access harvested rhino horns for the illegal trade.

- ✓ One-third of rhino horns are smuggled unconcealed, suggesting a potential reliance on corruption to move shipments along the supply chain.
- ✓ Seizure data indicates that rhino horn smuggling is most frequently detected on commercial airlines, but the trend is shifting from small shipments in passenger luggage to larger shipments by air cargo.
- ✓ Law enforcement detection rates of illegal rhino horn shipments in key transit locations are generally low.
- ✓ There is a declining trend in the trafficking of Asian rhino horns, but Myanmar could pose a potential threat.
- ✓ Rhino horn is most frequently smuggled as a sole wildlife commodity.
- ✓ There are various types of crime convergence associated with rhino horn trafficking.
- ✓ Fake rhino horns are rarely detected by law enforcement authorities.

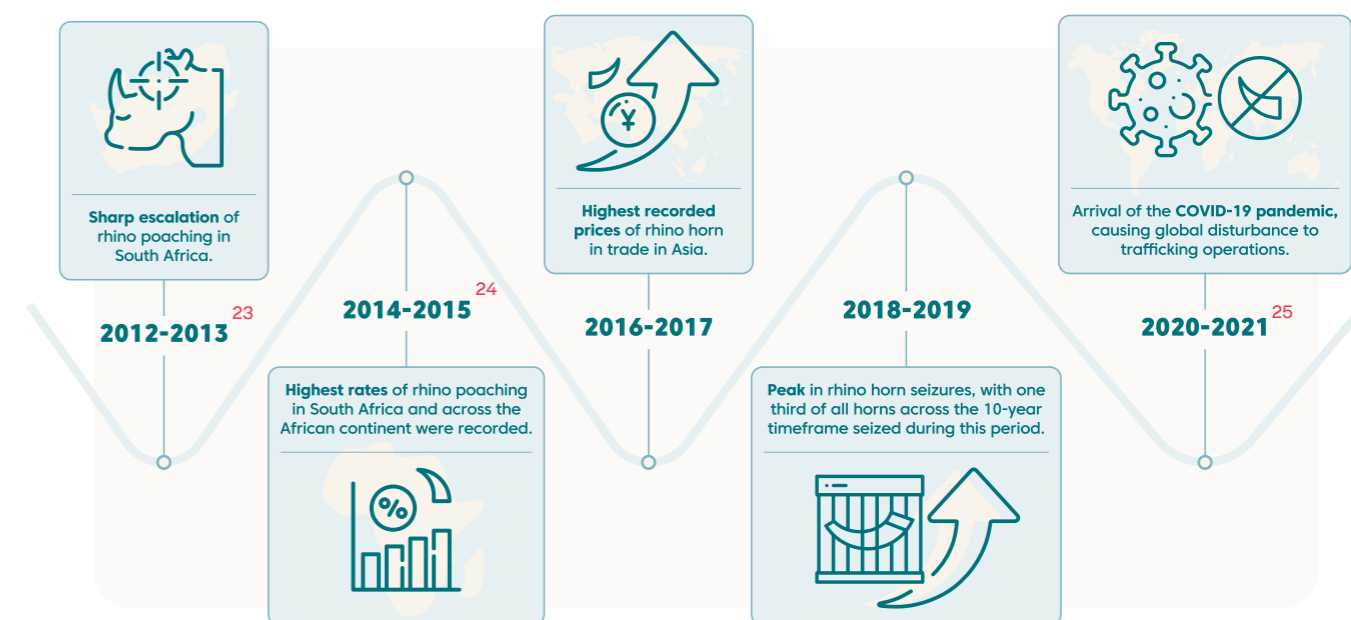
Table 2: Total number and weight of reported rhino horn seizures, 2012-2021.

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Overall total
No. of seizures	43	59	62	84	68	94	99	72	52	41	674
Total weight (kg)	426	524	494	655	843	926	969	1,467	464	818	7,586
Proportion of the overall weight (%)	5.6	6.9	6.5	8.6	11.1	12.2	12.8	19.3	6.1	10.8	100

Seizure data analysis

For the seizure analysis, the dataset was divided into five two-year periods to yield a broader view of the major trends over time. All subsequent tables and figures in this chapter of the report are thus

based on the synthesis of the five two-year periods. Key observations around rhino poaching and illegal trade in rhino horn can also be associated with each period and may correlate with some of the changes in criminal dynamics occurring during that time:



²³. As the country with the world's largest rhino population, including wild and farmed rhinos, the sharp escalation of poaching was significant as this population represents the largest potential supply of horn that could be exploited for illegal trade. Official rhino poaching figures for South Africa accessed at: <https://www.dffe.gov.za/progressonimplementationofintegratedstrategicmanagementofrhinoceros>

²⁴. Refer to Figure 5 of this report.

²⁵. Wildlife Justice Commission (2020), *Rapid Assessment of the Impact of COVID-19 on Wildlife Trafficking*.

Seizure data calculation notes

Where seizure incidents were reported with incomplete information, such as reports that specified the number of rhino horns seized without the corresponding weight of the contraband, the following guidelines were used to make the most accurate seizure weight estimate as possible:

- **For the calculation** of the weight of one African rhino horn, the method employed by Milliken (2014) was followed. Given that the mean weight of horn from white rhinos is 2.94 kg per horn and from black rhinos is 1.33 kg per horn, and based on the assumption that 90% of rhino horns in illegal trade are from white rhinos, an average of 2.78 kg was used to represent the weight of one unspecified African rhino horn.²⁶
- **The weight** of one Asian rhino horn is reported to average between 0.27 to 0.72 kg,²⁷ so the mean of 0.495 kg was used for unspecified Asian rhino horn. It is noted that this is a more conservative weight than some other reports have used for Asian rhino horn.

- **If the report** did not include a reference to the origin of the contraband in the text, description of trade routes, or in seizure images, then no weight was assigned.
- **If horn pieces** were seized and the weight was not reported, then no weight was assigned.

The entirety of the dataset was analysed to discern findings relating to all aspects of the criminal dynamics described in this chapter, except for the calculation of the average shipment weight for African rhino horn seizures (Figure 8).

The average weight of African rhino horn shipments over time is a particularly important metric to assess changes in trafficking methods, as a higher degree of organisation, criminality, and resources are required to successfully move larger volumes of product across transnational trafficking

routes. To calculate the average weight of African rhino horn shipments, only proven ‘shipments’ (i.e. African rhino horns identified as being in or having completed international transit at the time of seizure) were included in the analysis, so the following types of reports were excluded:

- **Seizures** with a reported detection location, but where no international routes were described. These mostly consisted of horns seized from poachers in or around conservation areas

and horns seized from consolidation locations such as private residences or storage warehouses (and therefore not yet in transit).

- **Reports** of total weights seized during an operation when the description did not separate the weight details of multiple shipments.
- **Asian rhino horn** seizures (where known) were assessed separately given the significant weight difference between the two types of horn.

26. Milliken, T. (2014), *Illegal Trade in Ivory and Rhino Horn: An Assessment Report to Improve Law Enforcement Under the Wildlife TRAPS Project*. USAID and TRAFFIC.

27. Leader-Williams, N. (1992), *The World Trade in Rhino Horn: A Review*. TRAFFIC International, Cambridge, U.K.



2.1. Key findings

I Rhino horn seizures increased significantly in weight over the past 10 years, despite a reduction in rhino poaching

During the 10 years from 2012-2021, more than 7.5 tonnes of rhino horns were seized globally from illegal trade in 674 incidents (Table 2).

Analysis of the amount of rhino horn seized showed an increasing trend until 2020 and the

start of the COVID-19 pandemic when there was an abrupt decline in the number and volume of seizures, likely associated with a general reduction in smuggling due to border closures and travel restrictions²⁸ and an overall reduction in the illegal killing of rhinos²⁹ (Figure 7). However, 2020 was an abnormal year, and the volume of rhino horn seized increased sharply in 2021 as illegal trade began to return to pre-pandemic levels.

Specific analysis of the seizures of African rhino horn shipments indicates that the average shipment weight increased markedly after 2017, reaching their highest weights yet during the COVID-19 pandemic (Figure 8). The average shipment weight increased by 52% between the 2016-2017 and 2018-2019 periods, and then by another 55% in 2020-2021.

The expanding size of rhino horn shipments could indicate a larger involvement of transnational organised crime groups as the trade is monopolised by a smaller number of key networks rather than many disparate actors and higher volumes of product are moved to increase the profit margins per shipment. Also, the fact that this trend persisted during the pandemic despite an overall reduction in smuggling due to global transportation challenges could further support this hypothesis.

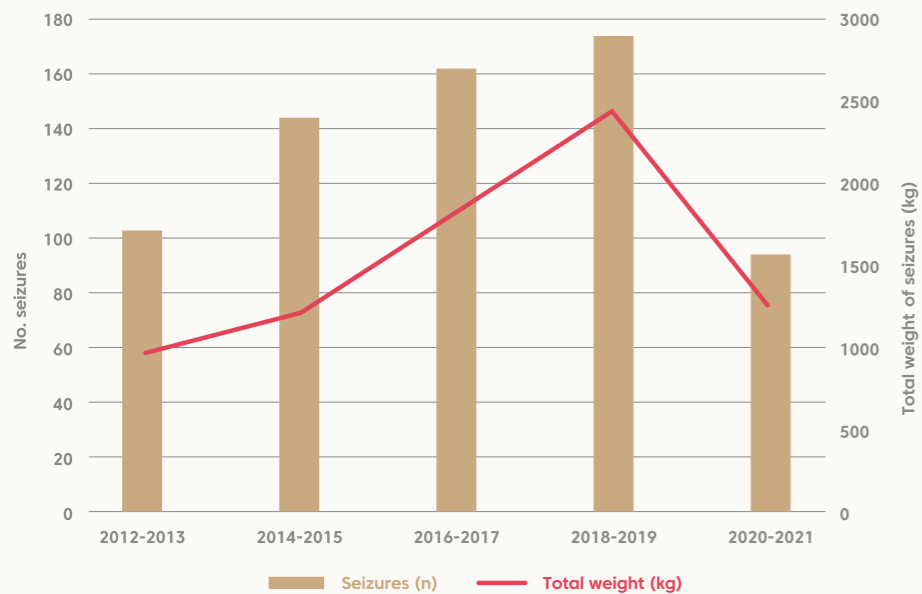


Figure 7: Total number and weight of reported rhino horn seizures, 2012-2021.

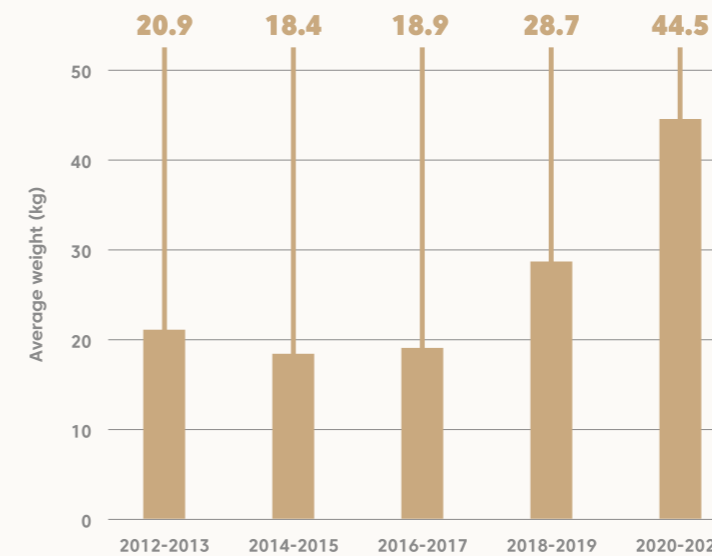


Figure 8: Average weight of smuggled shipments of African rhino horns, 2012-2021.

28. Wildlife Justice Commission (2020), *Rapid Assessment of the Impact of COVID-19 on Wildlife Trafficking*.

29. As shown in Figure 5 of this report, based on data published in CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros - Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.

The rising number of rhino horn seizures over the past 10 years against the backdrop of an overall reduction of rhino poaching rates across the African continent could indicate increased law enforcement effort or improved effectiveness of efforts to target rhino horn smuggling, resulting in a higher

proportion of the illicit trade being detected. Alternatively, another explanation for the increase in seizures could be a corresponding increase in the supply of horns from other sources entering illegal trade, such as harvested horns (discussed further in Key Finding (v) of this chapter).

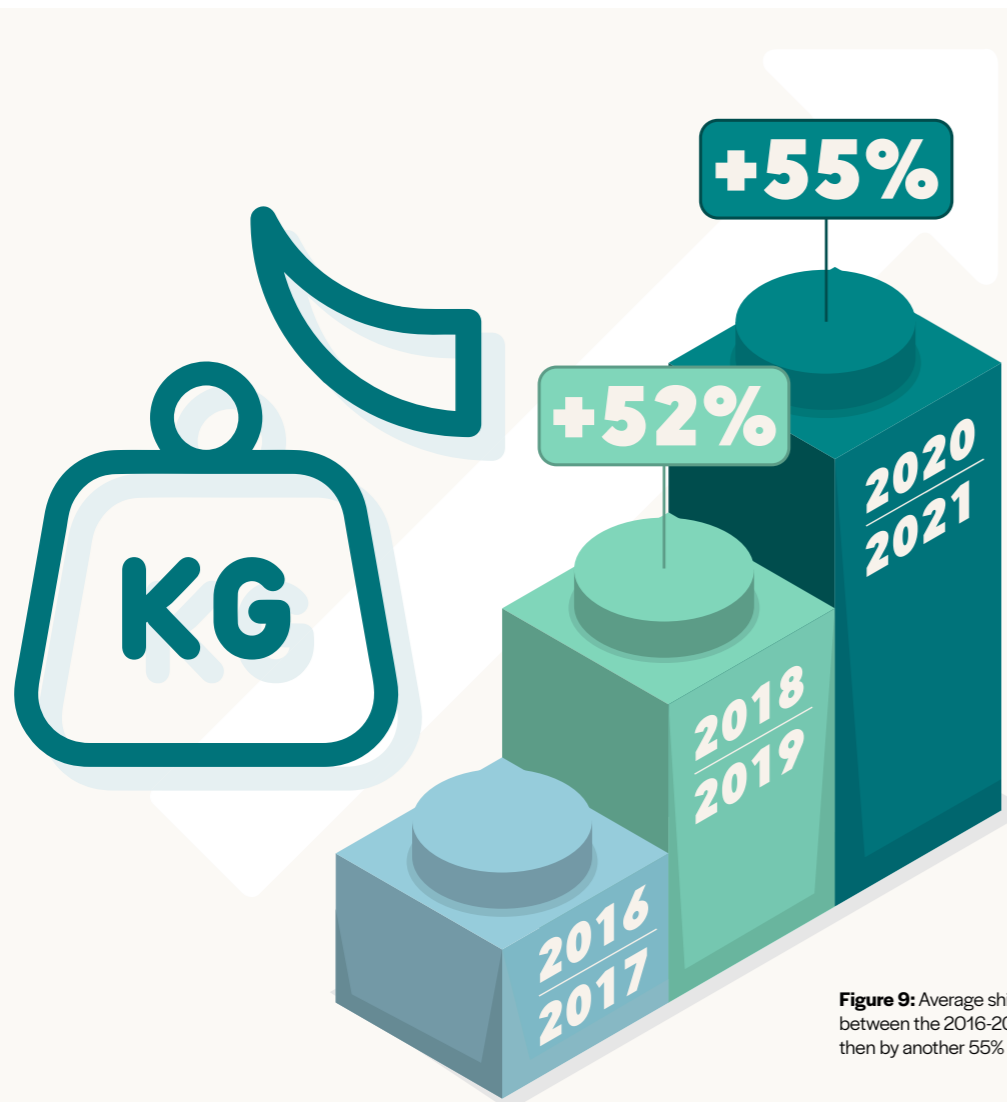


Figure 9: Average shipment weight increased by 52% between the 2016-2017 and 2018-2019 periods, and then by another 55% in 2020-2021.

II Six countries and territories have dominated rhino horn trafficking routes

The analysis identified 54 countries and territories linked to rhino horn trafficking routes over the

last decade, with six locations in particular dominating the supply chain throughout these years: South Africa and Mozambique at the entry point, Malaysia and Hong Kong SAR as transit locations, and Vietnam and China as destination locations.

Table 3: Countries and territories implicated in 100 kg or more of rhino horn seizures as origin, transit, or destination locations, 2012-2021.

Country/territory	Weight (kg) and proportion of horns seized (%) per period ³⁰											
	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		Total	
South Africa	424	(45%)	303	(26%)	975	(55%)	1,357	(56%)	695	(54%)	3,754	(49%)
Vietnam	284	(30%)	395	(34%)	307	(17%)	598	(25%)	431	(34%)	2,015	(27%)
Mozambique	169	(18%)	435	(38%)	240	(14%)	411	(17%)	39	(3%)	1,294	(17%)
China	122	(13%)	236	(21%)	167	(9%)	657	(27%)	42	(3%)	1,224	(16%)
Malaysia	42	(4%)	142	(12%)	51	(3%)	239	(10%)	414	(32%)	888	(12%)
Hong Kong SAR	70	(7%)	56	(5%)	270	(15%)	255	(10%)	3	(1%)	654	(9%)
Kenya	62	(7%)	33	(3%)	282	(16%)	3	(1%)	6	(1%)	386	(5%)
Qatar	70	(7%)	89	(8%)	90	(5%)	103	(4%)	15	(1%)	367	(5%)
United Arab Emirates	6	(1%)	22	(2%)	24	(1%)	273	(11%)	0		325	(4%)
Namibia	0		12	(1%)	107	(6%)	25	(1%)	83	(7%)	228	(3%)
Thailand	89	(9%)	42	(4%)	75	(4%)	2	(1%)	0		207	(3%)
Uganda	52	(5%)	122	(11%)	23	(1%)	0		0		197	(3%)
Malawi	0		15	(1%)	164	(9%)	0		0		179	(2%)
Nigeria	85	(9%)	62	(5%)	3	(1%)	0		5	(1%)	155	(2%)
Turkey	0		0		25	(1%)	117	(5%)	6	(1%)	148	(2%)
Angola	0		5	(1%)	15	(1%)	29	(1%)	87	(7%)	136	(2%)
Philippines	13	(1%)	0		0		0		113	(9%)	126	(2%)
Singapore	8	(1%)	22	(2%)	49	(3%)	15	(1%)	24	(2%)	117	(2%)
Czech Republic	101	(11%)	0		0		0		0		101	(1%)

³⁰ Note: In this table, rhino horn seizures were attributed to all the jurisdictions that were reported to be along the trafficking route, not only the jurisdiction that made the seizure. The % in this table represents the weight of rhino horn seizures each jurisdiction was implicated in as a proportion of the total weight of rhino horn seized globally during each period. Because a seizure can be counted more than once if it is attributed to multiple jurisdictions as source, transit, or destination locations, the % do not add up to 100%.



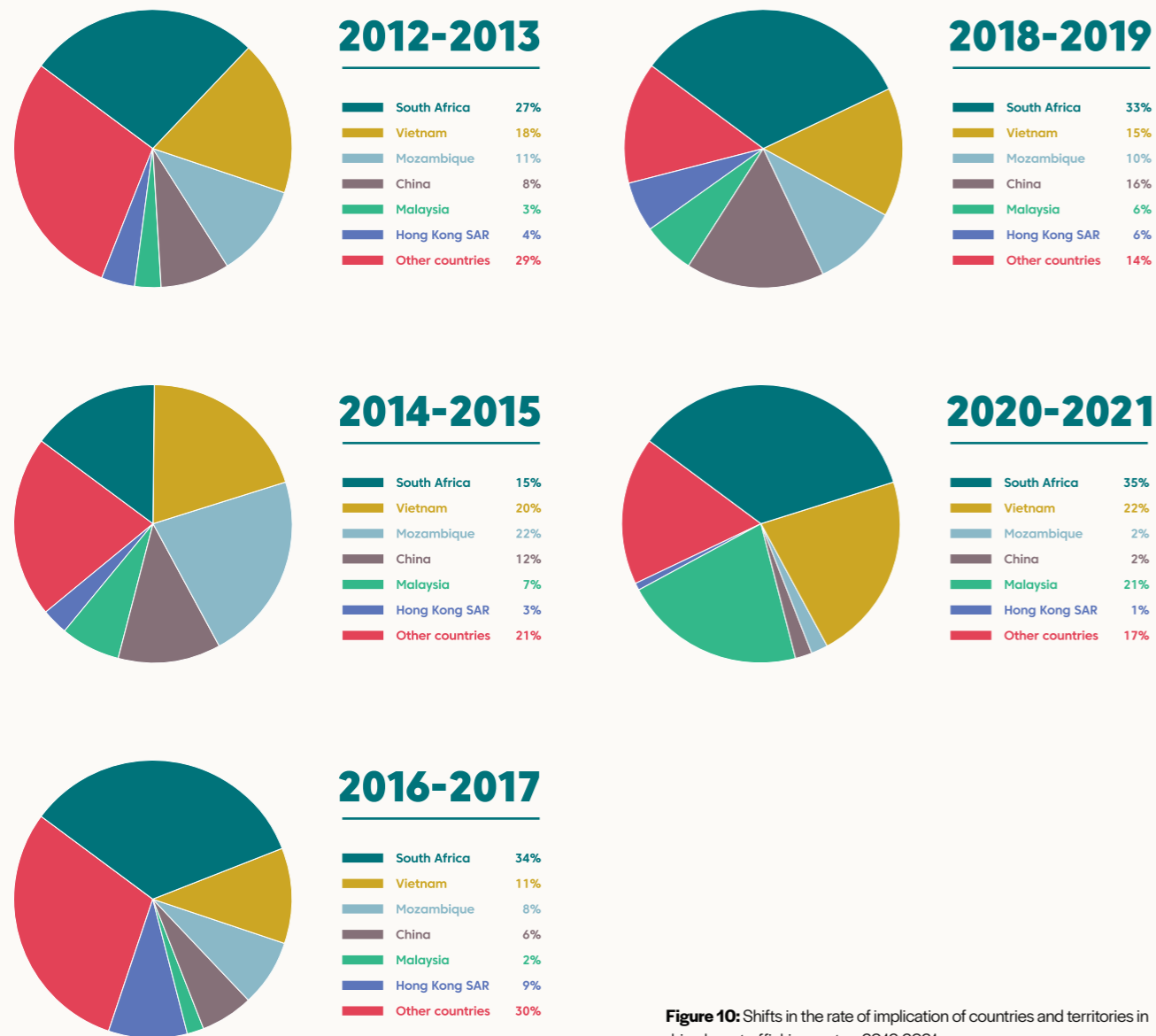


Figure 10: Shifts in the rate of implication of countries and territories in rhino horn trafficking routes, 2012-2021.

The shifts in routes chosen for shipments indicate that diversification and dynamic decision-making play an important role in the trafficking process. While the major origin and destination locations of the horns have remained constant, the transit points in between have frequently changed throughout the 10-year timeframe. The diversification recorded a peak in the 2016-2017 period when 46 trafficking routes were described, while the 2020-2021 period saw the highest level of consistency and simplification with only 15 trafficking route variations and few transit points, presumably due to the limited availability of transportation options during the COVID-19 pandemic.

Crime is highly connected, and syndicates facilitating the transnational trafficking of large-scale shipments are often shown to be utilising the same nodes to move their products along the supply chain.³¹ Crime series analysis on the reported rhino horn trafficking routes allows their grouping based on commonalities in the locations that could potentially be attributed to a single set of traffickers, as identified in Figure 11.



³¹ Wildlife Justice Commission (2021), *Convergence of Wildlife Crime with Other Forms of Organised Crime*.

2012-2013

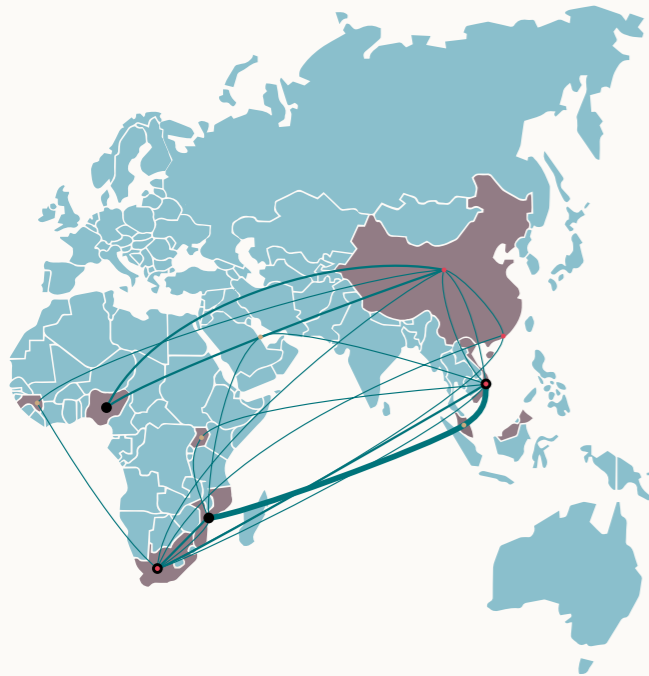


The most prominent routes during this period saw Vietnam as a destination country.

Shipments originating from South Africa used European transit points.

Those originating from Mozambique transited most frequently through Thailand.

2014-2015

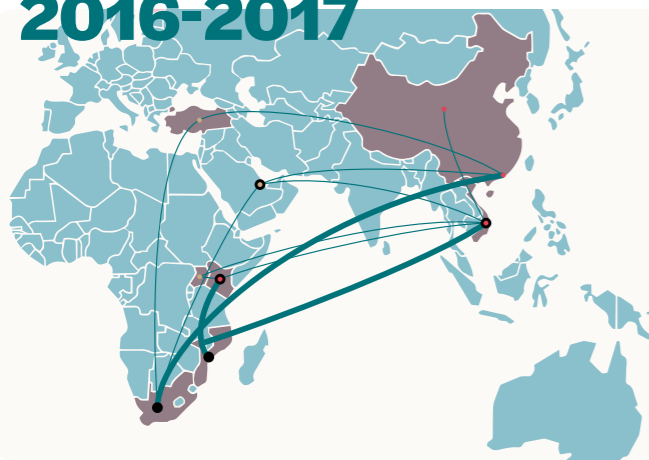


Vietnam continued to be the main destination for the largest seizures recorded during this period, with all routes originating in Mozambique and transiting the Middle East and/or Southeast Asia. Qatar established itself as a key transit location for air transportation of rhino horns and has continued to play a critical role to the present day.

The routes originating in South Africa shifted and were often sent direct to China during this period.

Western Africa – most notably Nigeria – was recorded as a key exit point or transit location for horns en route to China, which was not observed in any other period.

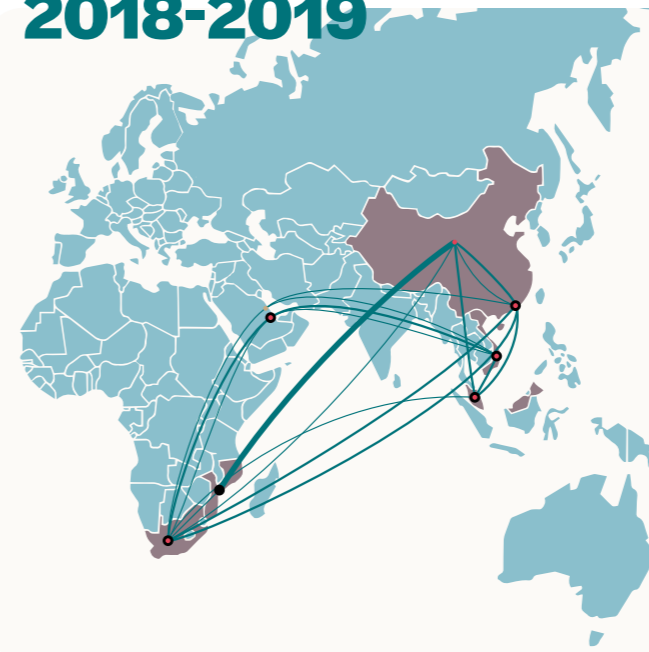
2016-2017



While the South African routes for large shipments continued to be sent to China (via Hong Kong SAR), they were no longer direct.

An important trafficking route during this period originated in Mozambique, exiting Africa through Kenya with the destination of Vietnam.

2018-2019



Origin countries remained constant during this period, while destinations switched: the South African routes were destined for Vietnam and the Mozambican routes for China.

Interestingly, one shipment originating in Mozambique transited South Africa on its way to China.

Malaysia emerged as the most critical transit point for horns from South Africa. Although the final destination of the Malaysian routes is unclear, one recorded seizure points to Vietnam.

2020-2021



South Africa became the most significant African exit point for large shipments and Vietnam remained the major destination country.

In an apparent exception, the Philippines was used to smuggle 113 kg of African rhino horns to Vietnam. The role of the Philippines in international trafficking routes for African rhino horns remains an intelligence gap.

Malaysia consolidated its role as a key transit country.

Figure 11: Variations of the most significant rhino horn smuggling routes by total weight, 2012-2021.

Between 2012 and 2017, it appears that routes included multiple transit points, likely to conceal the original departure location which in the majority of cases was South Africa or Mozambique. From 2018 onwards, more direct routes to Vietnam and China were observed with fewer transit points.

During 2012-2013, five routes originating in South Africa and with Vietnam as the destination involved European transit points in the Czech Republic, Germany, and/or Slovakia. This trend did not continue in subsequent periods and may have been linked to pseudo-hunting schemes in South Africa during those years involving “hunters” recruited from central European countries.³² From 2013 on, European countries have featured sporadically as originating or transit points for small quantities of contraband smuggled to Asia, mostly sent by airmail parcels. Countries associated with this modality have included Belgium, France, Germany, Italy, and Spain, and it is plausible that some of these shipments could be small amounts of antique rhino horn, either carved or from hunting trophies. None of the 95 rhino horns stolen from a spate of organised robberies at museums, zoos, and auction houses across Europe between 2010-2013 were ever recovered and all are believed to have been smuggled to Asia.³³ Furthermore, intelligence collected during Wildlife Justice Commission investigations in

Vietnam in 2016 indicated that rhino horn products occasionally came into the market from Europe, but traders stated they were less favourable than products from Africa as “they are a lot drier”, potentially supporting the inference that some antique horns from Europe may be entering illegal trade.

During 2018-2019, direct trafficking routes to China began to appear, specifically Mozambique to China and South Africa to China. The route from South Africa to Malaysia also began occurring in this period and went on to become the most significant route during 2020-2021 in terms of the total weight of rhino horns attributed to it. The use of more direct routes coincides with the higher volumes of product being shipped at this time, which could further suggest the growing involvement of transnational organised crime groups in rhino horn trafficking with better access and connections to facilitate the movement of their shipments and less need to devise elaborate smuggling routes or concealment methods.

Perhaps influenced by the quality of Chinese law enforcement during 2020-2021,³⁴ direct routes from southern Africa to China were not recorded in the seizure data during this period. Only one route with the destination China was found – South Africa to China via Vietnam – which was used to smuggle barely 3 kg of rhino horn.

³². Further details of the pseudo-hunting schemes and hunting permit irregularities are described in Chapter 8 of this report.

³³. <https://www.independent.ie/irish-news/europol-probe-into-crime-gang-linked-to-500k-rhino-horn-heist-29211791.html>; Wildlife Justice Commission (2021), *Convergence of Wildlife Crime with Other Forms of Organised Crime*.

³⁴. Refer to Chapter 7 of this report for more details on China’s law enforcement efforts to address rhino horn trafficking.

Notable intelligence gaps in trafficking locations

Analysis of trafficking routes based on the seizure data also identifies several intelligence gaps relating to the Philippines, Indonesia, and Japan, with very little known about the role of these three countries in rhino horn trafficking but some potential concerns that should be further investigated.

Firstly, although the Philippines is rarely seen in routings of Africa-Asia wildlife trafficking, there have been three reported rhino horn seizures in the last 10 years that used the Philippines as a transit point: the first instance occurred in 2012 when 13 kg of rhino horn originating from Mozambique was seized en route to China;³⁵ and then in the past two years, Vietnam seized 93 kg of rhino horn in December 2020³⁶ and 20 kg of rhino horn in December 2021³⁷ that had been sent from the Philippines. It is not clear whether the two recent seizures could potentially implicate the Philippines as an emerging transit point of choice for traffickers, or whether the eight years between the first and second seizures linked to the Philippines

suggests a low rate of detection and that many more shipments could be passing through the country undetected.

Secondly, neither Indonesia nor Japan are commonly linked to rhino horn trafficking routes identified through the seizure data, yet intelligence collected through Wildlife Justice Commission investigations points to both countries being used for the consolidation and transshipment of rhino horn products. In 2019, members of a Chinese criminal network operating in Nigeria told investigators they prefer to ship mixed rhino horn and ivory cargoes to Indonesia for transshipment to China. In 2020, a Nigerian trafficker named Japan and Malaysia as his preferred locations to change containers for transshipment of rhino horns, ivory, or pangolin scales to Vietnam. The fact that so few seizures have been connected to Indonesia³⁸ or Japan³⁹ could indicate their success in concealing shipments, that there is inadequate law enforcement effort to detect wildlife trafficking at these ports, or that traffickers have secured effective protection to enable uninterrupted passage of their products through these ports.

³⁵. <https://www.voanews.com/a/first-philippines-rhino-horn-seizure-highlights-smugglers-resilience/1557747.html>

³⁶. <https://e.vnexpress.net/news/news/93-kilos-of-suspected-rhino-horns-found-in-saigon-warehouse-4210405.html>

³⁷. <https://tuoitrenews.vn/news/society/20211202/vietnam-customs-seize-almost-20kg-of-rhino-horns-from-philippines/64496.html>

³⁸. Indonesia was linked to nine rhino horn seizures between 2012-2021, of which three seizures (in 2013, 2016 and 2017) involved a total of 27.18 kg of African rhino horns, and six seizures between 2016-2018 involved Sumatran rhino horn (less than 2 kg in total).

³⁹. Japan was linked to only one seizure in 2015 involving 11.3 kg of rhino horn, along with ivory and bear paws. The seizure occurred in China, with the shipment originating from Japan.

III South Africa and Vietnam are the two countries most consistently implicated in rhino horn trafficking over the past 10 years

As Table 3 shows, South Africa and Vietnam are the two countries most frequently implicated in rhino horn seizures over the past 10 years, with South Africa linked to half of all rhino horns seized globally and Vietnam linked to just over one-quarter. While these results may be expected for the primary source location of rhino horn and one of the major destination locations, it is significant that the volume of horns seized in connection to both countries has remained consistently high throughout the entire 10-year span. This is unlike other source locations such as Namibia, Kenya, and Zimbabwe, or other major destination locations such as China, which show more variable linkages to rhino horn seizures over the years.⁴⁰ The consistency of the level of trafficking through South Africa and Vietnam could indicate the extent to which criminality is embedded in both countries, enabled by favourable operating conditions and law enforcement that has so far insufficiently dealt with the problem.

That is not to say that South African and Vietnamese authorities are not responding to the issue, but that law enforcement efforts to date have not sufficiently targeted the root cause of the problem: transnational organised crime. In South Africa, significant resources are focused on detecting and preventing rhino poaching in parks and protected areas, or on private property, and arresting poachers who are often lower-level actors in the criminal network. However, there are other significant issues outside of the parks that are driving the poaching and not being adequately addressed, such as broader socio-economic issues as well as the organised recruitment and equipping of poaching gangs, the presence of transnational organised crime networks operating in the country, and corrupt facilitators allowing large volumes of rhino horn to leave the country. While harsh prison sentences are often dealt to poachers,⁴¹ the high-level organisers in the criminal networks are left untouched. Similarly in Vietnam, rhino horn seizures are made and low-level couriers sometimes arrested, but further investigations to identify and arrest the criminal bosses and ultimate owners of the contraband are rarely conducted. This scenario has enabled criminal networks to continue their operations with minimal disruption. (See Chapter 7 of this report for further discussion on these points and other law enforcement efforts.)

40. This is also demonstrated in the rhino poaching and rhino horn seizure data reported to the CITES Secretariat. Refer to: CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceroses – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.21 and 31.

41. For example: <https://www.timeslive.co.za/news/south-africa/2022-03-20-kruger-national-park-rhino-poacher-gets-25-years-in-jail-after-being-bust-twice/>

Both South Africa and Vietnam are among the main countries associated with smuggling routes for unconcealed shipments (see Key Finding (vii)), suggesting that traffickers can rely on corrupt facilitators at airports and seaports to provide safe passage for their shipments so that disguising or hiding horns is not necessary. Linked to these smuggling routes, the most frequently recorded airports associated with unconcealed shipments

were OR Tambo International Airport in Johannesburg, South Africa, Hong Kong International Airport, and Noi Bai International Airport in Hanoi, Vietnam (Table 4). When shipments linked to Tan Son Nhat International Airport in Ho Chi Minh City are also considered, Vietnam is the country whose airports are most frequently connected to the seizure of unconcealed shipments.

Table 4: International airports associated with reported seizures containing unconcealed rhino horn shipments, 2012-2021.

International Airports	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		Total weight (kg)	
	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases		
ORTambo (South Africa)	0	0	61	3	187	11	90	5	22	1	360	(5%)
Hong Kong SAR	34	2	42	4	110	10	147	5	0	0	333	(4%)
Noi Bai (Vietnam)	50	3	58	4	204	4	0	0	0	0	312	(4%)
Hamad (Qatar)	67	4	72	2	82	3	61	4	6	1	288	(4%)
Maputo (Mozambique)	40	2	41	1	117	4	28	3	4	1	230	(3%)
Jomo Kenyatta (Kenya)	20	1	22	1	177	3	0	0	0	0	219	(3%)
Suvarnabhumi (Thailand)	46	3	28	2	75	5	0	0	0	0	148	(2%)
Tan Son Nhat (Vietnam)	27	3	0	0	0	0	40	1	57	3	123	(2%)
Istanbul Ataturk (Turkey)	0	0	0	0	25	1	83	2	0	0	108	(1%)

Further analysis of the seizure data was conducted to understand the significance of OR Tambo International Airport as a key exit point to move rhino horns from Africa to Asia (Table 5). In addition to 46 confirmed reports of shipments that moved through this airport, an assessment was made to identify other seizures that could potentially have moved through the airport, due to references to:

- **“Johannesburg Airport”**, which likely means OR Tambo International Airport, although Lanseria International Airport is a secondary airport also serving the city.
- **Locations** where contraband was seized in the proximity of OR Tambo International Airport, a triangular area roughly formed by Johannesburg City, Springs, and Midrand (36 cases, including

those seized at “Johannesburg Airport” or an unnamed South African airport).

- **Seizures detected** at other locations where South Africa was identified as the origin without naming the exit point explicitly (22 cases). Since OR Tambo International Airport is the most frequently reported exit port in South Africa, it is likely that at least part of the contraband exited through it.

A total of 947 kg of seized rhino horns were confirmed to have moved through OR Tambo International Airport, representing 25% of all rhino horn seizures linked to South Africa and 12% of all rhino horns seized globally. An additional 978 kg of seized rhino horns were suspected to have moved through the airport based on the assumptions described above. This analysis suggests that up to

Table 5: Confirmed and suspected rhino horn seizures connected to OR Tambo International Airport, 2012-2021.

	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		Total weight (kg)	
	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases	Weight (kg)	No. cases		
Confirmed OR Tambo International Airport	20	3	82	7	272	17	276	13	297	6	947	(12%)
Unnamed airport or close proximity to OR Tambo	71	6	23	4	48	7	172	15	78	4	393	(5%)
South Africa (unspecified exit port)	135	5	52	3	41	4	219	8	138	2	585	(8%)
Total	226	14	157	14	361	28	667	36	513	12	1,925	(25%)

50% of all rhino horn seizures linked to South Africa, and up to 25% of all rhino horns seized globally, were or would likely have been smuggled through OR Tambo International Airport. Customs officers of the South African Revenue Service are focused on intercepting rhino horn shipments at the airport before they depart the country, and recent figures underscore the importance of their efforts – seizing 452 kg of rhino horn in seven incidents between July 2020 and December 2021.⁴² However, many other shipments still pass through undetected that are seized later on in the supply chain. This finding highlights the singular importance of this

one airport in the global rhino horn supply chain and exposes a potential chokepoint that law enforcement resources could more heavily target to stem the trafficking flow.

IV Malaysia is playing an increasingly important role as a transit point for shipments from Africa to Asia

Analysis of the seizure data shows that Malaysia has emerged as a key transit country for rhino horn trafficking from Africa to Asia, being the fifth most prominent country or territory implicated in the

Table 6: Trafficking routes linked to Malaysia and total attributed weight of rhino horns, 2012-2021.

Smuggling routes	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021
Uganda – Nigeria – Malaysia	42 kg				
Mozambique – Malaysia – Vietnam		142 kg			
Mozambique – Qatar – Malaysia			51 kg		
Namibia – South Africa – Malaysia			Unreported		
Malaysia – Vietnam				116 kg	
South Africa – Hong Kong SAR – Malaysia				83 kg	
South Africa – Malaysia				40 kg	275 kg
South Africa – Qatar – Malaysia					Unreported
Malaysia (route undescribed)					139 kg

⁴². <https://www.sars.gov.za/media-release/rhino-horn-found-in-luggage-at-or-tambo-international-airport/>

illegal trade across the decade. It has been linked to seizures originating from Uganda, Mozambique, Namibia, and South Africa, and while the routing has changed regularly over the years (Table 6), the volume of seized horns linked to Malaysia has grown substantially since 2018. During the last two years in particular, the country has emerged as the dominant transit point linked to 32% of all rhino horns seized globally. This finding is significant given the diversity of transit points that had been prevalent in smuggling routes during the preceding years, indicating that criminal networks are now essentially funnelling a larger amount of product through fewer channels.

The seizure data indicates Malaysia's dominance during 2020-2021 displaced Hong Kong SAR as the major Asian transit point for rhino horn shipments. To compare, seizures linked to Hong Kong SAR rose sharply in 2016-2017 and peaked with an attributed weight of 270 kg of rhino horns, followed by a slight reduction in 2018-2019 to 255 kg. However, in 2020-2021 there was only one minor seizure of 3 kg of rhino horn linked to the territory. Supporting this data, an analysis conducted by South African authorities of court cases resulting from rhino horn seizures at OR Tambo International Airport in Johannesburg between August 2016 and October 2018 found that Hong Kong SAR was implicated in 71% of the cases during this period.⁴³

43. CITES CoP18 Doc.83.1 (Annex 2) *African and Asian Rhinoceroses – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.11.



Image 11: Seizure of 18 rhino horns at Kuala Lumpur International Airport, Malaysia in April 2017. **Source:** TRAFFIC.

Crime displacement can occur when organised crime groups adapt to strengthening law enforcement efforts and key ports become too “hot” to use, shifting their operations to locations with weaker law enforcement capacity. It can also occur in response to changes in the reliability of the facilitators and corrupt officials who ensure

the safe smuggling of shipments through strategic ports and transport hubs, such as big increases in the handling fees or when access to key contacts is lost in staff rotations. The seizure data indicates that law enforcement detection rates of illegal shipments in both Malaysia and Hong Kong SAR have remained fairly consistent over the 10-year span (see Key Finding (ix)), so the more likely explanation for displacement in this instance may reside with the perceived reliability of corrupt elements in Malaysian air and seaports to guarantee the protection of shipments.

(V) Significant amounts of harvested horns from legal stockpiles are diverted into illegal trade

The seizure data and Wildlife Justice Commission intelligence records show that since 2016, at least 974 kg of horns originating from legal stocks were seized in 11 incidents of illegal trade (Table 7). This means 18% of all rhino horns seized between 2016-2021 were either stolen from stockpiles or illegally sold and smuggled out of Africa. This diversion includes high-profile cases such as the 2019 seizure of 181 horns in South Africa from John Hume's stocks, who is one of the largest

44. <https://www.iol.co.za/pretoria-news/news/breeder-fails-to-get-back-181-confiscated-rhino-horns-worth-r10-million-1fbdcfce-e764-4f55-937c-a63e4338393f>

45. <https://www.iol.co.za/pretoria-news/news/game-farmer-businessman-caught-with-rhino-horns-get-bail-f82fb080-f018-4949-92d0-649f7efdbae6>

According to intelligence, the horns originated from a government stockpile at a North West reserve and were supplied to Dawie Groenewald by a corrupt conservation official.

46. <https://www.chinanews.com.cn/sh/2021/07-19/9523130.shtml>

private rhino breeders in the world;⁴⁴ 19 horns seized in South Africa in 2021 linked to game farmer Dawie Groenewald but originating from a government stockpile;⁴⁵ and a seizure of 250 kg of rhino horn in China in 2019, which included 70 microchipped horns from South Africa.⁴⁶



Image 12: Harvested horns seized in Victoria Falls, Zimbabwe in December 2018. **Source:** Wildlife Justice Commission intelligence.

Table 7: Confirmed seizures involving harvested horns diverted into illegal trade compared to total amount of rhino horn seized, 2016-2021.

		2016-2017	2018-2019	2020-2021	Total
All seized rhino horns	Total weight (kg)	1,768	2,436	1,282	5,486
	No. seizures	2	8	1	11
Seizures of harvested rhino horns	Weight (kg)	359	563	52	974
	Proportion of all seizures	20%	23%	4%	18%



Image 13: In April 2019, 181 harvested rhino horns from John Hume’s stocks were seized from a vehicle in Skeerpoort, North West province, South Africa. **Source:** Simon Bloch.

Further analysis of the reported seizures indicated that an additional 1,546 kg of rhino horns seized during the 10-year period could also potentially represent diversion from legal stockpiles (Figure 12). This assessment was based on the detailed examination of contraband in images to identify flat bases, registration codes and other signs of cutting or trimming,

overlaid with analysis of narrative links to game farms and legal domestic trade in rhino horn in South Africa. For seizures that appeared to represent a mixed shipment of poached and harvested horns (such as Image 14 below), only the components that were identified as potentially originating from legal sources were counted in the estimation.

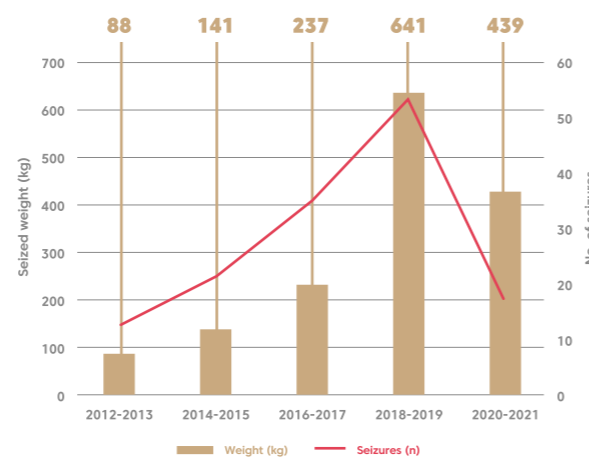


Figure 12: Seizures suspected to involve harvested rhino horns diverted into illegal trade, 2012-2021.

The trend of seizures suspected to contain horns diverted from legal stocks follows a similar trajectory to the total number and weight of rhino horn seizures illustrated in Figure 7, increasing over time to reach a peak in the 2018-2019 period, then declining in 2020-2021.



Image 14: A rhino horn shipment weighing 82.5 kg confiscated in Hong Kong SAR in April 2019 contains several horns displaying a smooth, flat top and a flat base (commonly referred to as “bread loaves” in illegal trade), indicating they could have resulted from a second or subsequent dehorning procedure. **Source:** Hong Kong Customs.

Considering the confirmed instances (974 kg) together with the additional suspected instances (1,546 kg), means up to 2,520 kg of rhino horns seized during the 10-year period could potentially have been diverted into illegal trade from legal stockpiles. This represents up to one third of all rhino horns seized during that time.

VI Criminal groups are routinely exploiting weaknesses in stockpile systems to access harvested rhino horns for the illegal trade

Although diversion of harvested horns into illegal trade could occur from legal stockpiles held in any country, the likelihood is highest in South Africa simply due to the number of rhinos, quantity of stockpiled horns and the large number of stockpiles. The South African government’s regulatory system includes requirements for all harvested horns to be registered, tagged with microchips, and DNA tested, and all activities including possession, transport and domestic trade in horns require a permit issued by the national Minister of Forestry, Fisheries and the Environment.⁴⁷



Image 15: Two harvested horns and five “bread loaves” were seized in South Africa in October 2019 from two men attempting to illegally sell them. **Source:** South African Police Service.

47. <https://www.dffe.gov.za/mediarelease/declarifiesrhinohorntrade>; https://www.dffe.gov.za/mediarelease/rhinohorn_internationalcommercialtrade_prohibited

Despite the strict regulations in South Africa,⁴⁸ intelligence collected during the Wildlife Justice Commission's investigations indicates that criminal groups are routinely exploiting weaknesses in the system to access harvested rhino horns for the illegal trade. Some Vietnamese traffickers operating in South Africa claim to buy their horns directly from private rhino breeders who arrange the shipments to go through OR Tambo International Airport in Johannesburg. They stated that contacting the farmers is "easy" and microchips can be destroyed by microwaving the horns for a few seconds. A major trafficker based in Malaysia who facilitates the transportation of rhino horn shipments from Africa to Asia, stated that his main supplier in South Africa is a "powerful white guy" who has a stockpile of around four tonnes of harvested horns. This supplier is also alleged to have access to poached horns and regularly sends mixed shipments of 20-40% poached horns with 60-80% harvested horns. Reported seizures such as Image 14 also demonstrate the presence of mixed shipments in the illegal trade. Joint shipments of illegally poached horn with legally harvested horns means diverting the latter into illegal trade is not a minor regulatory infringement but entrenched and organised criminality with connections to rhino poaching networks.

Furthermore, an estimation of the volume of harvested horns entering supply (based on the confirmed and estimated volume of harvested horns present in reported seizures) compared with the volume of horns from poached rhinos, suggests the possibility that this avenue of supply may have increased since the moratorium on the domestic trade of rhino horn in South Africa was lifted in 2017 (Figure 13).⁴⁹

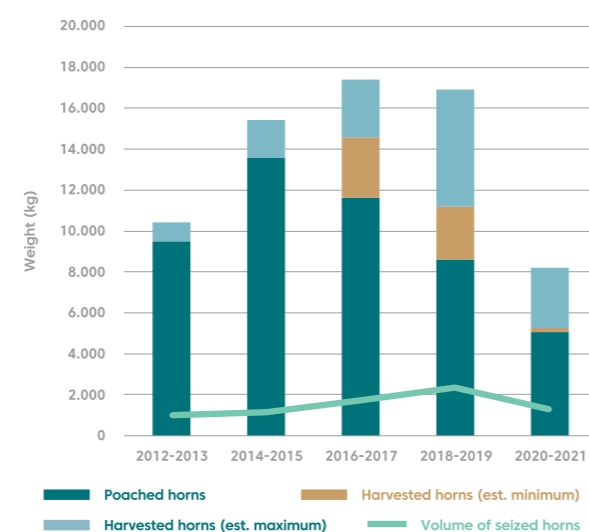


Figure 13: Estimated supply of African rhino horns entering illegal trade 2012-2021 from poached rhinos and diverted from legal stockpiles, compared to the volume of horns detected and seized globally by law enforcement authorities. (Based on the calculations in Tables 15-17 of this report.)

48. *Norms and Standards for the Marking of Rhinoceros and Rhinoceros Horn, and for the Hunting of Rhinoceros for Trophy Hunting Purposes*, issued by South Africa Department of Environment on 21 September 2018.

49. https://www.dffe.gov.za/mediarelease/molewa_notes_constitutionalcourtdecision

(VII) One-third of rhino horns are smuggled unconcealed, suggesting a potential reliance on corruption to move shipments along the supply chain

The analysis reveals that rhino horn is most often smuggled with no concealment at all, with one-third of all horns seized since 2012 showing no attempt to hide the presence of the contraband in the shipment. It is a notable point of difference from other wildlife products with similar supply chains from Africa to Asia, such as elephant ivory

and pangolin scales, which are almost always hidden within a cover load of legal commodities such as timber, plastic waste, beans, nuts, frozen meat or fish.^{50,51} It is also a departure from the broader norm, as organised crime groups of any type usually invest a lot of effort in concealing their illicit activities in order to maximise their operational potential. This finding indicates that instead of disguising or hiding rhino horns, traffickers could have confidence in corrupt elements to move their shipments through various control points along the supply chain, to the extent that it is not necessary

Table 8: Concealment methods of reported rhino horn seizures, with attributed contraband weight (kg) and proportion of seizures represented (%) per period, 2012-2021.

Concealment method	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		Total	
Not concealed	294	(31%)	445	(39%)	1,290	(73%)	419	(17%)	144	(11%)	2,591	(34%)
Modification of specimen appearance	29	(3%)	157	(14%)	97	(6%)	235	(10%)	4	(1%)	523	(7%)
Mislabelling	0		0		0		1	(1%)	482	(38%)	483	(6%)
Hidden amongst other goods	57	(6%)	7	(1%)	16	(1%)	162	(7%)	40	(3%)	282	(4%)
Irregular documentation	117	(12%)	11	(1%)	0		116	(5%)	2	(1%)	246	(3%)
Hidden under clothing	0		0		3	(1%)	0		0		3	(1%)
Other	28	(3%)	6	(1%)	8	(1%)	272	(11%)	0		314	(4%)
Unreported/Unknown	426	(45%)	522	(45%)	354	(19%)	1,231	(50%)	610	(46%)	3,144	(41%)

50. Wildlife Justice Commission (2019), *Snapshot Analysis on Ivory Smuggling 2015-2019*.

51. Wildlife Justice Commission (2020), *Scaling Up: The Rapid Growth in the Industrial Scale Trafficking of Pangolin Scales (2016-2019)*.

to conceal the products. In fact, Wildlife Justice Commission investigators have been approached by major trafficking networks looking to gain access to trusted insiders who could facilitate product movement within airports and seaports.



Image 16: Rhino horn pieces discovered at Leipzig/Halle Airport, Germany in December 2021, concealed inside a welding device.
Source: Nordsachsen24.de

The seizure data indicate that the movement of unconcealed shipments peaked in the 2016-2017 period when three-quarters of all rhino horns seized were unconcealed, also coinciding with the peak in seizures of rhino horns transported in hand luggage of air passengers (see Key Finding (viii)). The most significant smuggling routes associated with unconcealed shipments were found to be from South Africa to Hong Kong SAR and from Kenya to Vietnam as origin and destination locations (with varying transit locations) during 2016-2017, shifting to Malaysia and Vietnam as key destinations during 2018-2019, and from Mozambique to Vietnam during 2020-2021. This could indicate the favoured locations of criminal networks where they have the most reliable corrupt connections.

Other important concealment methods identified for rhino horn shipments included mislabelled shipments and shipments with irregular documentation, such as fraudulent bills of lading or ownership registrations to pass checkpoints. Together, these methods comprised 9% of the weight of seized rhino horns.

A variety of creative attempts to camouflage horns carried in air passenger luggage have been observed in seizures over the years, including disguising them as gifts or local edible products such as chocolates. Some cases discovered in air cargo or postal packages have involved elaborate efforts to conceal horns inside sculptures, toys, electrical devices, or industrial equipment. Rhino horns are often wrapped in aluminium foil in the false belief it will conceal them from x-ray scanners or packed with smelly substances or smell neutralisers to attempt to cover the odour of fresh horns from detection dogs.



Image 17: Rhino horns wrapped and packed in a wine shipment ready for export from South Africa to Malaysia in May 2019.
Source: South African Police Service.

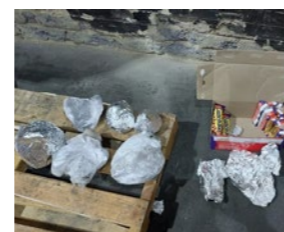


Image 18: Rhino horns wrapped in aluminium foil and camouflaged in boxes of chocolates, seized at OR Tambo International Airport in South Africa in December 2021, destined for China.
Source: South African Police Service.

(viii) Rhino horns are most frequently smuggled on commercial airlines, but the trend is shifting from small shipments in passenger luggage to larger shipments by air cargo

Rhino horn is typically transported by various methods from the time it is obtained from the source point, enters illegal trade, and moves through the supply chain to destination markets. Seizures occurred most frequently on air transportation via commercial flights throughout the decade, accounting for at least 198 seizures and 43% of the total contraband weight (Figure 14). According to intelligence, air transportation is often the preferred means of transportation for rhino horn shipments due to the significant upfront financial investment that product owners make, meaning they want to receive the horns

quickly so they can start selling them in the market to recoup their investment and do not want to wait for months for a sea shipment to arrive.

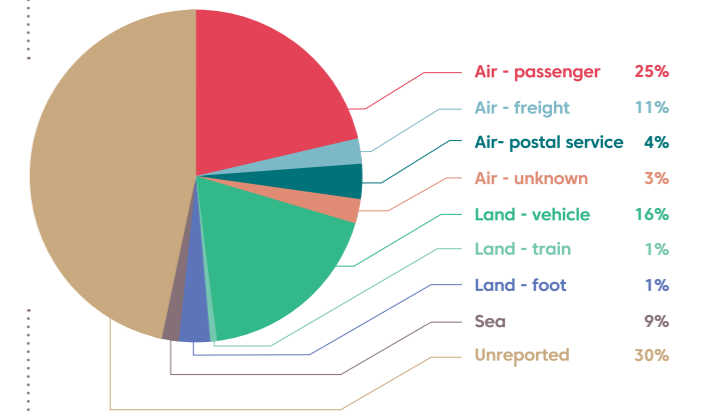


Figure 14: Breakdown of total weight of seizures for each transportation method, 2012-2021.

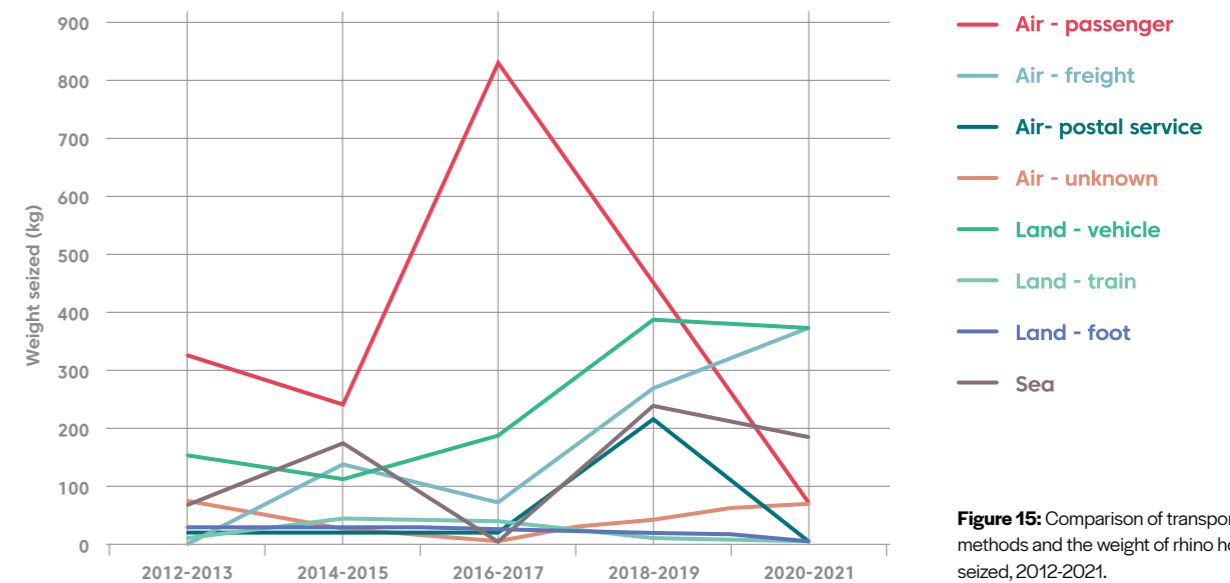


Figure 15: Comparison of transportation methods and the weight of rhino horns seized, 2012-2021.

The bulk of the air transportation seizures (143 cases) comprised horns smuggled in passenger luggage, which spiked dramatically in the 2016-2017 period with 48 seizures totalling 828 kg of rhino horn, then plunged to just six seizures totalling 70 kg of horns in the 2020-2021 period, likely due to COVID-19-related travel restrictions preventing the movement of people. While the number of air cargo seizures remained comparatively low across the 10-year span, the volume of horns seized in these shipments increased significantly since the 2018-2019 period, prior to the pandemic, as illustrated in Figure 15. The growth in the volumes of horn being shipped by air cargo coincides with other major changes such as the use of more direct smuggling routes for these shipments, which could potentially point to the greater involvement of transnational organised crime groups due to their ability to access other resources.

Land vehicle transportation was the second most frequently recorded mode of transportation with 127 seizures, although only 21 incidents described cross-border smuggling. The only land route persistently recorded in these cases was Vietnam to China, particularly at the Mong Cai border crossing in Vietnam. Several other seizures in vehicles occurred at the border between South Africa and Mozambique. The remaining land-based smuggling

incidents by vehicle, train, and foot were reported only in relation to domestic transport. This suggests that land-based transportation is most likely to occur during the process of consolidating horns prior to shipment and distributing horns to marketplaces after shipment.

Only 12 rhino horn shipments by sea totalling 676 kg were seized during the entire period, and there were no notable trends or changes in the number of incidents or weight of horns seized via this method. Most of these cases involved rhino horns hidden in shipping containers combined with elephant ivory and/or pangolin scales. One remarkable maritime seizure occurred in China in June 2019, when 250 kg of rhino horns were found hidden in a special compartment of a fishing vessel.⁵² The full details of this case are described in Chapter 3 of this report.

The larger volume of rhino horns that can be moved by sea compared to air transportation methods makes it attractive to organised crime, as does the fact that there are generally fewer security checks in maritime shipping compared to air transportation.⁵³ Intelligence also indicates that the use of maritime transportation for rhino horn shipments could be increasing, as security measures at airports increased during the COVID-19 pandemic,

and some traffickers appear to be prioritising security over turnaround time to receive their products. However, the fact that few shipments have been intercepted by this method could suggest that law enforcement efforts have not been adequately targeted at this modus operandi.

IX Poor law enforcement detection rates of rhino horn smuggling in transit locations

Law enforcement authorities in the countries and territories associated with rhino horn trafficking routes have the opportunity to detect and seize contraband passing through their jurisdiction and to investigate the transnational organised crime behind the shipment. This assessment calculated basic detection rates for the countries and territories most frequently used in rhino horn smuggling routes (those with links to more than 10 seizures) based on the number of times a shipment was detected in their jurisdiction as opposed to passing through undetected and then being intercepted elsewhere further along the trafficking route (Table 9).

While detection rates for rhino horn source locations and ultimate end markets are steadily high, particularly in South Africa, Namibia, India, Nepal, and China, there are generally low detection rates for many key transit locations. This is particularly the case for Malaysia in relation to the largest seizures of illegal rhino horn during the last two years, as well as United Arab Emirates and Qatar.⁵⁴ The seizure data shows Qatar to be one of the most frequently used transit locations, yet it has only ever made one reported rhino horn seizure.⁵⁵ There may be less incentive for national authorities to profile or inspect transiting shipments that are destined for another jurisdiction, but this finding points to an opportunity where law enforcement efforts could be improved. A recent case in Singapore where the owner and director of a shipping and logistics company was convicted for knowingly facilitating the importation of 3,480 kg of ivory⁵⁶ presents a rare but compelling example of the impact that transit countries can have in targeting the enablers of illegal wildlife trade.

52. <https://www.chinanews.com.cn/sh/2021/07-19/9523130.shtml>

53. An estimated 90% of global trade (by volume) is moved around the world by container ships. Due to the enormous volume of goods relying on maritime transportation and seaport facilities to move from source to destination, it is estimated that less than 2% of shipping containers are screened at ports worldwide. <https://www.unodc.org/unodc/en/ccp/Overview.html>

54. The CITES Secretariat also recognises United Arab Emirates and Qatar as among the main Parties most affected by illegal rhino horn trade during the 2018-2020 period: CITES CoP19 Doc.75 (paragraph 35).

55. However, the Wildlife Justice Commission is in receipt of intelligence of an additional rhino horn seizure made by Qatar in May 2022 that was not publicly reported, and it is possible there are other cases as well.

56. <https://mothership.sg/2022/03/woman-illegally-import-tusks/>

Table 9: Detection rates per period for jurisdictions most frequently linked to rhino horn smuggling, 2012-2021.

Country /territory	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		Total Links
	Links	Detection	Links	Detection	Links	Detection	Links	Detection	Links	Detection	
South Africa	43	79 %	47	74 %	80	71 %	79	61 %	27	81 %	276
China	25	60 %	41	80 %	21	57 %	50	82 %	18	67 %	155
Vietnam	26	54 %	34	41 %	29	59 %	37	35 %	20	45 %	146
India	11	64 %	26	81 %	27	74 %	18	61 %	13	77 %	95
Hong Kong SAR	6	50 %	7	43 %	28	43 %	26	54 %	1	0 %	68
Mozambique	12	58 %	18	56 %	16	38 %	18	44 %	3	33 %	67
Namibia	0	N/A	2	100 %	14	64 %	6	100 %	21	90 %	43
Qatar	7	0 %	4	25 %	6	0 %	8	0 %	3	0 %	28
Kenya	5	40 %	8	63 %	8	25 %	2	100 %	1	100 %	24
Nepal	0	N/A	7	86 %	3	67 %	3	100 %	10	90 %	23
Thailand	8	38 %	4	50 %	9	56 %	2	0 %	0	N/A	23
Indonesia	1	0 %	0	N/A	9	44 %	4	75 %	0	N/A	14
Malaysia	1	0 %	1	0 %	3	33 %	3	33 %	6	17 %	14
Singapore	1	0 %	4	50 %	4	25 %	1	0 %	4	50 %	14
Angola	0	N/A	1	0 %	4	0 %	4	50 %	4	25 %	13
Germany	6	33 %	1	100 %	3	67 %	1	100 %	2	50 %	13
United Arab Emirates	2	50 %	1	0 %	6	0 %	3	0 %	0	N/A	12

(X) There is a declining trend in the trafficking of Asian rhino horns, but Myanmar could pose a potential threat

Asian rhino horns (from greater one-horned, Javan or Sumatran rhino species) are less frequently seized in illegal trade compared to African rhino horns, accounting for 97 of the 674 seizure incidents (14.4%) but only 0.8% of the total weight of contraband seized during the 2012-2021 period (Table 10).

Analysis of the seizure data showed a spike in the number of incidents and weight of Asian rhino horns confiscated from illegal trade during the 2014-2015 period, which corresponds with the sharp increase in the overall number and weight of all rhino horn seizures seen at this time (Figure 7). Since this period, there has been a declining trend in Asian rhino horn seizures, with the weight of horns seized during 2020-2021 almost returning to the levels recorded 10 years ago. Asian rhino poaching rates have also showed a consistent declining trend over the decade (Figure 6).

The low seizure weights indicate that Asian rhino horns are seized in very small quantities, often as single horns, as opposed to African rhino horns which are seized in increasingly larger shipments. This could reflect the fact that their population numbers are lower than African rhinos, as well as the different modus operandi employed for trafficking this horn type, which can be moved overland from the primary source locations in India and Nepal (where the largest populations of Asian rhinos exist) to the destination markets in East Asia.

Very few international smuggling routes were described in the seizures, as the majority took place in the country where the rhino was poached, namely India or Nepal, although the data also included six seizures of Sumatran rhino horns that took place in Indonesia in 2016 and 2018. Only eight Asian rhino horn seizures involved cross-border smuggling, but from this scarce data it is possible to infer that the majority of Asian rhino horns likely move from India to Nepal, and perhaps also to Bhutan, for overland smuggling into China.

Table 10: Number and weight of reported Asian rhino horn seizures, 2012-2021.

Period	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021	Total
No. of seizures	7	27	25	18	20	97
Total weight (kg)	8	18.3	13.8	11.9	9.9	61.9

However, another smuggling route from India into Myanmar appears to be increasing in relevance. There have been several public reports of Indian rhino horns seized at border points in Myanmar and India.⁵⁷ Rhino horns and products have been observed for sale in the Golden Triangle region of eastern Myanmar at notorious wildlife markets in Mong La (bordering China) and Tachileik (bordering Thailand).⁵⁸ The Wildlife Crime Control Bureau in India is reportedly investigating international organised smuggling of rhino horn taking place in Manipur state (bordering Myanmar), in a network that extends from India to Myanmar and onwards into Southeast Asia and China.⁵⁹

Myanmar's geographic position nestled between India and China, and its access into Southeast Asia via borders with Thailand and Lao PDR, make it a convenient transit point along the smuggling route. Along with other factors that provide ideal conditions for criminal activity to flourish, including limited government control in the country's autonomous border territories, political instability, armed conflict, and sanctions since the 2021 military coup, there is concern that Myanmar could grow as a potential threat to Asian rhinos.

XI Rhino horn is most frequently smuggled as a sole wildlife commodity

Analysis of the reported seizures suggests that rhino horn is most frequently smuggled out of Africa as a sole wildlife commodity, rather than in mixed shipments with other species. Rhino horns were seized with one or more other types of wildlife products in 135 of the 674 seizures, representing 20% of the total cases over the 10-year timeframe. The majority of these cases were combined wildlife contraband seized while moving along the trafficking route, while 19% of cases were mixed items seized from consolidation or retail premises such as shops and market stalls either prior to or post trafficking.

Raw elephant ivory in the form of whole tusks or tusk pieces is the wildlife product most commonly associated with rhino horn seizures, representing 92% (124 cases) of the mixed shipments. Big cat parts including skeletons, claws, and teeth were present in 65 (48%) of the seizures, and pangolin scales and occasionally live pangolins or pangolin carcasses were present in 23 (17%) seizures, but overall, no consistent patterns were found. Other species combinations that occurred in just a few cases involved bovine horns, bear products, hippopotamus teeth, deer antlers, helmeted hornbill skulls, and abalone.

This finding could reflect differences in the rhino horn supply chain compared to ivory or other wildlife products, with poaching networks operating in a more limited number of source locations and traffickers accessing suppliers of harvested horns in locations with stockpiles. Other possible explanations could include the high value of rhino horn that means it is still profitable for traffickers to ship in comparatively smaller quantities than other wildlife products, or that it needs to be moved quickly along the supply chain so shipping it as a sole commodity by air transportation is the preferred method.

However, it is crucial to highlight that despite these particularities in the modus operandi, rhino horn trafficking is not controlled by dedicated criminal networks. Intelligence and investigation findings indicate that transnational organised crime networks are profit-driven and will deal in whichever commodities are lucrative, accessible, and in demand, with the same networks often dealing in rhino horn alongside an array of other wildlife products and illicit commodities. For example, high-level members of a criminal network who were arrested in Nigeria in May 2022 in relation to pangolin scale and ivory trafficking were also known to be prolific traffickers of rhino horn and lion bones from Mozambique and South Africa.⁶⁰ Similarly, the criminal network behind China's

largest ivory smuggling case was also known to have smuggled rhino horn and other wildlife products.⁶¹

XII There are various types of crime convergence associated with rhino horn trafficking

The Wildlife Justice Commission has previously documented examples of the convergence of wildlife crime with other forms of organised crime, where criminal networks are dealing in multiple types of illicit commodities or engaging in multiple crime types.⁶² Criminal groups may have a range of motivations to diversify their criminal activities, but it is believed to be ultimately driven by the desire to generate higher profits.

Two high-profile examples of crime convergence involving rhino horn trafficking during the past decade include the Kromah network in East Africa, which was primarily engaged in the large-scale trafficking of rhino horn and ivory from 2012 to 2019 while also opportunistically trafficking heroin,⁶³ and the Rathkeale Rovers organised crime network who have devised various fraudulent schemes internationally and were the masterminds behind a spate of organised robberies at museums, zoos, and auction houses across Europe targeting the theft of rhino horns

57. <https://www.thesangaiexpress.com/Encyc/2019/9/3/IMPHAL-Sep-2-One-rhino-horn-was-seized-by-a-combined-team-of-Senapati-District-Police-and-Senapati-Divisional-Forest-Office-from-Mao-Gate-as-it-was-being-smuggled-towards-Moreh-.html>

58. <https://wwf.panda.org/?315491/Top-10-Most-Wanted-Endangered-Species-in-the-Markets-of-the-Golden-Triangle>

59. <https://scroll.in/article/971322/rhino-poachers-in-north-east-have-links-with-manipur-insurgents-police-say>

60. <https://wildlifejustice.org/nigerian-authorities-arrest-8-suspects-from-major-network-trafficking-pangolin-scales-and-ivory/>

61. Wildlife Justice Commission (2022), *Bringing Down the Dragon: An Analysis of China's Largest Ivory Smuggling Case*.

62. Wildlife Justice Commission (2021), *Convergence of Wildlife Crime with Other Forms of Organised Crime*.

63. <https://www.justice.gov/usao-sdny/pr/members-african-criminal-enterprise-charged-large-scale-trafficking-rhinoceros-horns>

and mounted rhino heads worth millions of Euros between 2010 to 2013.^{64,65}

The seizure data analysis indicated some instances of crime convergence where rhino horns were confiscated alongside other illicit commodities on 68 occasions (approximately 10% of all seizures). The majority of these cases involved the seizure of firearms in conjunction with horns from poachers on the poaching grounds, nine cases involved the seizure of illicit drugs with horns, and several others involved counterfeit money and stolen vehicles. However, crime convergence is more likely to be detected through intelligence analysis techniques such as organised crime group mapping that focus on the criminal networks as a whole, rather than seizure data analysis which is focused on a specific commodity.

Intelligence from Wildlife Justice Commission investigations also points to further examples of crime convergence:

- **A rhino poaching boss in Mozambique** is known to have a history in the stolen vehicle industry and outstanding arrest warrants against him in South Africa for murder charges.

- **A major wildlife trafficker based in Malaysia** is also known to engage in drug trafficking.

64. <https://www.sundayworld.com/crime/world-crime/from-africa-to-iceland-norway-to-new-zealand-rathkeale-rovers-travellers-have-dealt-in-everything-from-tarmac-to-rhino-horn-40059841.html>

65. <https://www.theguardian.com/world/2021/sep/08/eight-men-convicted-in-french-court-for-trafficking-rhino-horn-and-ivory>

66. Al Jazeera Investigations (2016), *The Poacher's Pipeline*, accessed at: <https://www.youtube.com/watch?v=JMguWY99q6s>

- **In Vietnam**, a broker with access to rhino horn and elephant ivory has had multiple previous convictions for robbery and extortion and is likely a career criminal who recently transitioned to wildlife crime due to the perceived high profits and lower risk involved.

- **In an Al Jazeera investigation**, a Chinese businessman and rhino horn trafficker in South Africa was also allegedly paying regular bribes to immigration officials to employ illegal workers at his beauty and massage parlour and had previous convictions related to illegal gambling activities.⁶⁶

The data and case examples clearly show that crime convergence is occurring in relation to rhino horn trafficking, but further information and intelligence analysis are required to better understand the nature of this threat and infer trends.

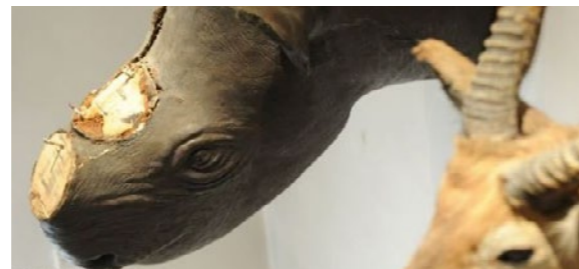


Image 19: The horn from a black rhino was stolen from the Museum in Ritterhaus in Offenburg, Germany. **Source:** AFP/Getty Images.

XIII Fake rhino horns are rarely detected by law enforcement authorities

The seizure analysis did not encounter many instances of fake rhino horns being smuggled or traded. Only three reports out of the total of 674 seizures indicated the potential involvement of fake horns. In these cases, authorities had questioned the authenticity of the seized horns and sought forensic tests to verify the products.

Table 11: Rhino horn seizure reports questioning the authenticity of the horns, 2012-2021.

Date	Location	Commodity seized
Nov 2015	West Bengal, India	One rhino horn ⁶⁷
Apr 2016	Guangzhou, China	Six rhino horns ⁶⁸
Oct 2018	Assam, India	One rhino horn ⁶⁹

That is not to say that the trade in fake horns is not a matter of concern, but that it appears to be relatively rare that law enforcement authorities detect it compared to genuine rhino horn, and there is

67. <https://timesofindia.indiatimes.com/city/kolkata/5-held-with-jumbo-tusks/articleshow/49742402.cms>

68. Content currently unavailable but was previously accessed at: <http://news.163.com/16/0408/06/BK41IAIN00014AED.html>

69. <https://nenow.in/north-east-news/two-held-jorhat-suspected-rhino-horn-seized.html>

70. For example, Ammann, K. (2011), 'The Vietnamese and Rhino Horn - a dealer speaks', accessed at: http://www.rhinosourcecenter.com/pdf_files/132/1321179326.pdf

very little data to indicate the extent to which fake products circulate in the black market.

For example, in Vietnam, it is widely reported that modified water buffalo horn is opportunistically sold as rhino horn to unsuspecting buyers in the retail market,⁷⁰ but it appears to be less commonly observed in wholesale trade. Fake horns made from cow horn have reportedly been discovered by police



Image 20: Counterfeit rhino horn seized in Ho Chi Minh City, Vietnam, in February 2021. **Source:** Vietnam Environmental Police.

in South Africa.⁷¹ This could indicate that fake horn is more of a domestic trade issue among small-scale retail traders rather than a transnational issue, likely linked to the fact that criminal networks involved in trafficking horns typically work within an established circle of suppliers, transporters, and buyers.

In February 2021 the Wildlife Justice Commission encountered one case in Vietnam that was ultimately

determined to be high-quality counterfeit horns. Intelligence on the sale of three rhino horns had been disseminated to law enforcement authorities in Ho Chi Minh City via a local NGO partner, but it wasn't until several days after the seizure that the horns were identified as fake. It was the first time that the Wildlife Justice Commission had witnessed such high-quality counterfeit horns circulating on the wholesale black market in Vietnam.



⁷¹ Moneron, S., Okes, N., & Rademeyer, J. (2017), *Pendants, Powder and Pathways*, TRAFFIC East/Southern Africa.

3.

The criminal supply chain⁷²

Since 2015, the Wildlife Justice Commission has collected extensive volumes of intelligence and evidence on the composition of criminal networks and the inner workings of the rhino horn supply chain from Africa to Asia. These investigations have focused on major source, transit, and destination locations of concern, primarily South Africa, Mozambique, Malaysia, Vietnam, and China. This chapter is largely based on a compilation of these findings over the past seven years, interspersed with additional information collected from open sources. While it does not provide a complete picture of the entire global supply chain, it does provide valuable insight into how a large proportion of rhino horns are moving via trafficking networks that operate as organised criminal businesses with clear roles and responsibilities of individuals facilitating the movement of goods from source to consumer.

⁷² Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

✓ The decade since 2012 saw the increasing prominence of Mozambican poaching networks operating in South Africa.

✓ Poached horns continue to be a key source for the illicit supply chain, primarily from South Africa where poaching rates remain high despite decreasing more than 50% since the peak in 2014, but also from other key range States including Botswana, Namibia, and Zimbabwe.

✓ Intelligence indicates that diverting harvested horns from privately-owned stockpiles in South Africa has also become a major source of rhino horns in illegal trade.

✓ Prolific Vietnamese and Chinese criminal networks are driving rhino horn trafficking throughout the supply chain.

✓ After export from Africa, rhino horn shipments generally move through one or more transit points before reaching the intended destination.

✓ Switching bills of lading, unloading and repacking products in new shipments, utilising front companies, and exploiting corrupt customs and transportation connections to facilitate the clearance of shipments are common trafficking modus operandi.

✓ A substantial proportion of rhino horn entering Vietnam is sold to Chinese buyers and smuggled overland into China, suggesting that although Vietnam plays a major role in the illegal trade, the significance of its domestic market may have been previously overstated.

✓ Small retail markets for rhino horn also exist in Cambodia, Lao PDR, Myanmar, Thailand, Japan, South Korea, and Taiwan.

3.1. Rhino poaching and supply of rhino horn



Poaching landscape overview

Although all the major African rhino range States have been affected by poaching to varying degrees,⁷³ South Africa and its largest wildlife reserve, Kruger National Park, have consistently been at the epicentre of the crisis. As the main target of rhino poaching networks since 2008, South Africa is the fundamental starting point for analysis of the criminal supply chain.

Up to 2012, rhino horn was sourced from the rapid escalation of rhino poaching, the sale of unregistered “loose” horns from privately owned stock-

piles, and through “pseudo-hunting” scams in South Africa involving non-traditional hunters from Vietnam and Thailand.⁷⁴ The early years of the poaching crisis in South Africa were understood to be largely led by South African poaching groups, with the involvement of a small proportion of corrupt game industry insiders such as game ranch owners and professional hunters, and the use of high-calibre weapons.⁷⁵ Although South Africa scaled up its law enforcement response, introduced a moratorium on domestic trade of rhino horn and policy changes to clamp down on abuse of the hunting permit system, poaching rates continued to worsen.

⁷³. CITES CoP19 Doc.75 (Annex 4), ‘African and Asian Rhinoceros – Status, Conservation and Trade’, prepared by IUCN Species Survival Commission’s African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.

⁷⁴. Milliken, T. and Shaw, J. (2012), *The South Africa – Vietnam Rhino Horn Trade Nexus*. TRAFFIC, Johannesburg, South Africa.

⁷⁵. Ibid.

The decade since 2012 saw the increasing prominence of Mozambican poaching networks and deeper entrenchment of Vietnamese trafficking networks operating in South Africa and Mozambique. Poaching rates peaked in South Africa in 2014 and across the African continent in 2015 (Figure 5). Some opponents of South Africa's trade moratorium argued that it catalysed the increase in poaching to meet the ongoing market demand.⁷⁶ Although poaching losses have decreased by more than 50% since these peaks,⁷⁷ poaching continues to be a key source of rhino horns.

According to the Wildlife Justice Commission's intelligence picture, the poaching landscape in Mozambique is a fluid network of poachers who know each other, occasionally coordinate with each other, and access many of the same facilitators including corrupt officials, weapons suppliers, and transport providers. Poaching is coordinated by a relatively small number of individuals, while the organised smuggling of products out of Africa is suspected to be facilitated by even fewer individuals, many of whom have been operating successfully and undetected for several years. The persistent involvement of many well-known Mozambican nationals who are able to evade law enforcement detection, as well

as the emerging presence of newer players, implies that the illegal trade remains attractive to criminals.

At this early stage of the supply chain, there are three main roles of individuals in the supply of poached rhino horn:

- **Poaching coordinators** organise teams to poach rhino horn on their behalf.
- **Facilitators/brokers** support rhino horn transactions by brokering introductions and meetings.
- **Traffickers** sell and/or smuggle larger quantities of products to the international market.

Poaching coordinators, known locally as “bosses” in Mozambique, typically mobilise multiple teams of three poachers to enter Kruger National Park. Many poaching coordinators are known to be based in Massingir, which is in close proximity to the eastern border of Kruger National Park, Mavodze just to the north which borders Limpopo National Park, or Magude. From data collected in South African court case records, 10 accused poachers indicated that their recruiter

was based in Mozambique, typically in Magude or Massingir. Recruiters were also identified as being based in locations in South Africa around Kruger National Park, such as Mkhuhlu and Matsulu.⁷⁸

Poaching coordinators are not directly involved in poaching activities, but instead manage the organisation, facilitation, and supervision of poachers on the ground. Each poaching team is equipped with a high calibre hunting rifle (often fitted with a silencer), a tool to remove the horn such as an axe, and supplies to sustain them for several days in the bush. Incursion points into the park vary and many poaching coordinators travel long distances from their towns and recruitment grounds to drop off poaching teams. Kruger National Park rangers have also identified poaching teams that have travelled over 100 km on foot from incursion points.

South African court case records detail the ‘drop-off’ modus operandi used by South African poaching teams.⁷⁹ In these incidents, the driver enters Kruger National Park alone, and obtains an individual permit for himself and exits on the same day, only to return later that day with a group of poachers he intends to drop off to engage in poaching. In doing so, he obtains a permit for himself and a group permit. If stopped, the driver can avoid suspicion and detection by offering the individual or group permit, as applicable. South African Police Service

(SAPS) advised that drop-offs are a significant challenge to anti-poaching and law enforcement efforts as it is difficult to detect an incursion and thereafter follow up and carry out an arrest.

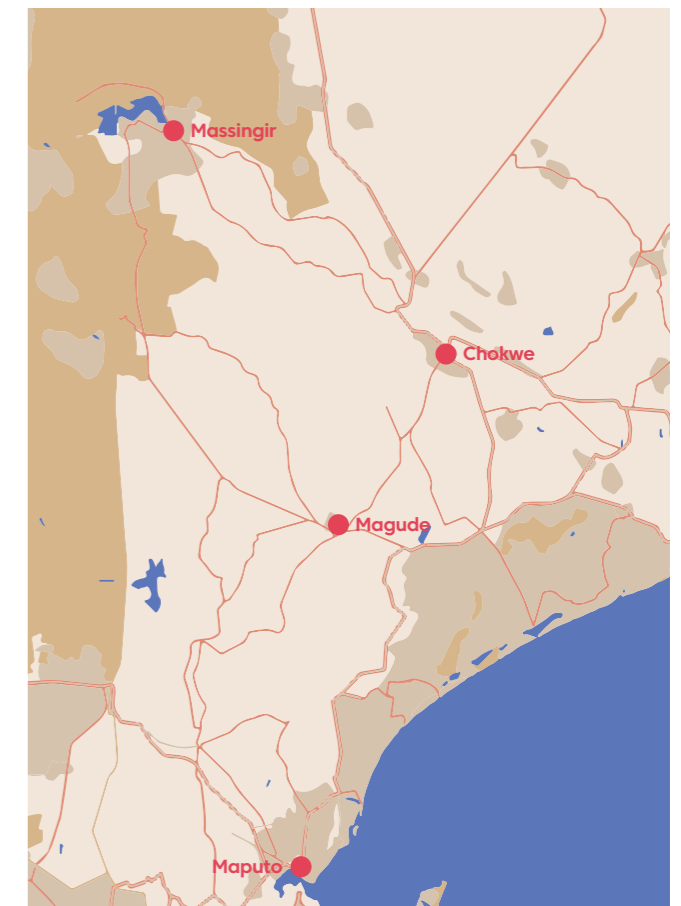


Figure 16: Map showing key entrepôts in Mozambique for illegal rhino horn trade in relation to Kruger National Park.

⁷⁶. <https://www.latimes.com/world/africa/la-fg-south-africa-rhino-20151127-story.html>

⁷⁷. Poaching rates in South Africa steadily declined from 2015 to 2020, but it wasn't until 2018 that the rate dropped below 1,000 rhinos killed per year. Less than 500 rhinos were killed in 2020 and again in 2021, although the rate increased by 14% in 2021 compared to 2020. In 2021 the poaching rate has returned to equivalent levels seen in 2011 in the early years of the crisis, which was viewed as “alarming” at that time. https://www.dffe.gov.za/mediarelease/rhinopoaching_2021

⁷⁸. Murcott, M. et al (2022). *Report on rhino and elephant trafficking routes and methods emerging from desktop study of law enforcement records*. Endangered Wildlife Trust.

⁷⁹. Crime Administration System numbers 18/09/2016 on the Skukuza Docket Database.

Rhino horn, hunting equipment and weapons are concealed in vehicles in various ways including in engine compartments, roof consoles, door panel cavities, under or behind rear seats, and so forth.

Intelligence collected by the Wildlife Justice Commission indicates that recruitment grounds and penetration points into Kruger National Park are varied as a tactic to evade detection, but also to avoid an over-concentration of poaching activities in a single area. Poaching coordinators appear to be aware of where other groups are operating, indicating a level of coordination between them. They also have suspected connections with corrupt rangers working with Kruger National Park and Limpopo National Park, who scout out where rhinos are roaming and forward this information to the poaching coordinators, who arrange to deploy their poaching teams in those locations.

Although the eastern boundary of Kruger National Park is closest to key poaching bases in Massingir, Mavodze, and Magude, intelligence received at the end of 2021 indicated a change in modus operandi as poaching teams from Mozambique were being transported to the western border of the park and entering from that side.

Facilitators/brokers: Once the rhino horn is collected from the poaching grounds, intelligence

80. Murcott, M. et al (2022). *Report on rhino and elephant trafficking routes and methods emerging from desktop study of law enforcement records*. Endangered Wildlife Trust.

indicates it is trafficked through one or more middlemen or “facilitators”, who are usually low-level traders operating in the vicinity of poaching areas. These actors are the connecting link between the poaching coordinators and the traffickers for the onward movement of products through the supply chain. Intelligence suggests the horns are usually transported in vehicles that are specially modified with secret compartments to conceal the contraband and weapons. One Mozambican facilitator claimed to have access to five cars with secret compartments that he used to carry rhino horns from South Africa to Mozambique.

Chokwe and Magude are becoming more relevant locations for facilitators, with several known to be based in these towns. For example, two facilitators who are subjects of a Wildlife Justice Commission investigation are partners in a transport company based in Chokwe, with a known history of contact with Massingir-based poaching coordinators and business associations with Maputo-based traffickers. Both men appear to be relatively wealthy, with content on their social media accounts indicating they each own multiple large houses and vehicles.

In South Africa, horns poached in Kruger National Park may be taken by car to Johannesburg or Pretoria to sell.⁸⁰ This aligns with findings in Chapter 2 that point to OR Tambo International Airport as a primary exit point for smuggling horns out of South Africa.

A potential trend emerging in 2021-2022 among brokers at this stage of the supply chain is the refusal to sell front and back horns separately. There have always been price differences between front and back horns, and front horns are more highly sought after in the trade compared to back horns due to their size.⁸¹ The change to only selling horns as a pair could be due to brokers being unwilling to risk being left in possession of back horns that are more difficult to sell, compounded by the COVID-19 pandemic and more challenging conditions to move products.

Around 2017, the open-air Feima market in Maputo was known as a location for rhino horn traders, although due to its high value it was usually kept off-site and shown to prospective buyers as photographs on mobile phones. Traders at the market could speak a few words of Chinese, including the words for “rhino horn” and “ivory”, and behaved similarly to a network, directing customers to the right stall holder to find the illicit commodity they wanted, and keeping a lookout for each other for any sign of law enforcement authorities. While other wildlife products such as ivory, big cat products, and timber carvings can still be easily procured, it appears that rhino horn traders no longer frequent the market, possibly due to increased law enforcement risk during the last two to three years.

81. Refer to Chapter 5 of this report for further details on price differences between front and back horns.

82. The Wildlife Justice Commission has assessed several traffickers operating in Mozambique as being Level 5 subjects. Refer to the Methodology section at 1.2 of this report for explanation of the subject level definitions.

Traffickers: Many traffickers in Mozambique are based in Maputo or have strong links to the city, and many are Chinese or Vietnamese nationals. Their role involves the acquisition, storage, and consolidation of rhino horns for packing and export out of the country to Asia, and high-level criminality can be observed among some traffickers operating at this stage of the supply chain.⁸² Intelligence suggests that some traffickers are directly connected to poaching coordinators and regularly visit towns where they are based to collect rhino horns.

For example, in 2018, the Wildlife Justice Commission received intelligence that a Chinese national who owned a drilling company in Mozambique was using a private helicopter to transport rhino horn from various locations to Maputo, such as Bilene or Macia, and at times from the bush when rhino poachers returned from Kruger National Park. Unconfirmed intelligence also indicated this suspect sometimes chartered a helicopter to collect rhino horn from South Africa and brought it to Mozambique for consolidation and export.

One of the main methods that traffickers use to smuggle rhino horns out of Mozambique is carrying them in passenger luggage on commercial flights out of Maputo International Airport. Some

traffickers use VIP tags on hand luggage to avoid baggage checks at the airport. One Mozambican trafficker reported exploiting a “free walk” card to circumvent security at Maputo airport when travelling to China and Vietnam with rhino horn shipments, which he claimed was given to him by FRELIMO party members.⁸³

The other key method is smuggling rhino horns by sea on container ships, with seaports at Beira, Nacala, and Maputo being linked to previous shipments. Undercover engagement with traffickers during Wildlife Justice Commission investigations suggests that many major shipments of rhino horn have been successfully transported by sea over the years. For example, a high-level trafficker in Vietnam who is currently serving an 11-year prison sentence for ivory trafficking, Nguyen Van Nam, discussed a shipment of 300 kg of rhino horn and 10 tonnes of ivory that “floated on the sea” for one month from Africa to Vietnam in 2017. Intelligence collected on a Vietnamese trafficker based in Mozambique indicated he had facilitated a large shipment of 200 kg of rhino horn to Vietnam via shipping container in early 2018. In July 2018, investigators engaged with another trafficker in Vietnam who was arranging buyers for a consignment of 400 kg of rhino horn, 7 tonnes of ivory, and 2 tonnes of shark fins that was arriving imminently by shipping container. This intelligence and the limited number of seizures of maritime shipments suggests

this transportation method could be an underrepresented threat for rhino horn smuggling.

A common modus operandi is concealing horns in timber shipments, and several Vietnamese traffickers have been identified as owning timber companies located in or near Beira or having family connections to such timber companies. For instance, intelligence in 2017 indicated that a Vietnamese trafficker stored rhino horns at his family’s timber warehouse in Beira, which were later smuggled out in 20-foot shipping containers filled with cut timber pieces. Another Vietnamese trafficker was also known to have control of a large amount of rhino horn stored in the Beira area in 2018 and had recently facilitated a shipment of 200 kg of rhino to Vietnam via shipping container. Intelligence indicated this same trafficker was in the process of establishing a timber business in Quelimane, a port town about 500 km north of Beira, due to the impact that the Mozambican government’s crackdown on illegal timber trafficking was having on businesses in the Beira region.

Many traffickers have links to legitimate businesses in rhino horn source countries which are exploited to support their criminal operations. This can occur by co-opting contacts, business infrastructure, transportation lines, goods, or services to commit trafficking crimes. The use of timber businesses in

Mozambique to store and smuggle products is one example, while others include a major Vietnamese trafficker in South Africa who chairs the Board of Directors of a joint-stock shipping company and a prominent trafficker in Maputo who runs a business specialising in the export of semi-precious stones to Asia and is suspected to smuggle rhino horn and ivory in the same containers.

A clear dynamic that is unique to the illegal rhino horn trade is the swiftness with which it moves through the supply chain. Unlike other high-value wildlife commodities such as ivory or pangolin scales that can be stockpiled until an opportunity to consolidate a shipment presents itself, rhino horn is not handled in the same way. It is commonly available for sale one day and is sold the next. This fast-moving supply chain could be attributed to the desirability of horns to be purchased in a “fresh” condition.

Poached horns are usually between two days old to three months old by the time they exit Mozambique, depending on the length of the poaching trip and the market season. It is possible that air transportation could be the preferred method to smuggle recently poached horns to maintain the freshness, as it is much faster than sea shipments which can take around one month to reach Asian destinations. Poached horns are often wet



Image 21: A criminal associate in Vietnam using a hair dryer to dry newly imported rhino horns, May 2017. **Source:** Wildlife Justice Commission.

with flesh and blood still attached to the base of the horn and are known to deteriorate quickly if not dried and packaged properly. In 2017, Wildlife Justice Commission operatives discussed the purchase of horns that arrived in Vietnam by sea with mouldy bases, with the broker admitting: “The base there is a little bit rotten, only outside, it’s ok, the middle and the tip definitely not rotten.” Operatives have also observed traders in Vietnam drying newly imported horns with a hair dryer to prevent them from decaying.

⁸³. FRELIMO (Liberation Front of Mozambique) is the dominant political party in Mozambique.

Supply from stockpiled sources: Aside from poaching, intelligence from Wildlife Justice Commission investigations indicates that a major source of rhino horns in illegal trade comes from privately owned stockpiles of harvested horns in South Africa. According to traffickers in Asia, it is not only South African nationals who can supply harvested horns, there are also Vietnamese and

Thai nationals who own game ranches in South Africa and are involved with this trade as well.

Processing: There is the possibility that some processing of rhino horns could occur at this stage of the supply chain, although it is likely to be limited to small quantities. In 2017, South African police uncovered evidence of Chinese-run rhino

horn processing facilities that were producing carved rhino horn products in South Africa prior to smuggling to consumers in Asia. They reported several small home workshops manufacturing rhino horn beads and bracelets for export, along with horn offcuts and powder. Bags of rhino horn offcuts, beads and cylinders have also been seized in Mozambique, although the goods may have originated from South Africa or elsewhere.⁸⁴

Other service providers: Beyond the primary actors directly handling the sourcing and supply of rhino horn products (poachers, coordinators, brokers, and traffickers), there is a substantial layer of secondary actors who provide essential support services such as transportation, facilitation, and money laundering. For example, undercover investigations have identified a Chinese money launderer based in Mozambique who sends and receives funds to and from Vietnam and China to distribute payments to network members based in Africa. In addition, there are officials who benefit from the trade by taking bribes to provide information, protection, or turn a blind eye, such as rangers, local police, or customs officers.⁸⁵

Supply from other locations: The sourcing and supply of rhino horn from locations other than South Africa and Mozambique generally involves much smaller quantities of contraband. According to intelligence collected by the Wildlife Justice Commission,

traffickers in DRC appear to source their horns primarily from rhinos poached in Kenya, Namibia, and Botswana, and some have used Zambia as a location to store and consolidate horns, particularly during the COVID-19 pandemic. This could have been due to Lusaka being one of the only international airports in the region that maintained regular flights to key destination countries in Asia. During 2020, one trafficker based in DRC claimed to have access to 100 pairs of horns stored in Lusaka, owned by a friend but accessible to him. From there, traffickers recommend sending shipments by air using courier services such as DHL or EMS. Some large shipments are also known to have been shipped by sea, departing from the port of Matadi, DRC and using cover materials such as timber, rubber, green malachite, or coffee. DRC traffickers appear to have less liquidity in their operations, more often requiring the full upfront payment for products.

Intelligence gap: The Wildlife Justice Commission is aware of Vietnamese traffickers who appear to be based in southern Africa but travel to Russia and use Russian mobile phone SIM cards to conduct their criminal business, although it is not yet understood how Russia is connected to the rhino horn supply chain.



Image 22: Stills from a video of a seizure of 50 rhino horns made at Kuala Lumpur International Airport in Malaysia in August 2018. Inked registration codes on the horns appear to indicate they may have originated from a legal stockpile. **Source:** TRAFFIC.

⁸⁴. Moneron, S., Okes, N. & Rademeyer, J. (2017), *Pendants, Powder and Pathways*, TRAFFIC, East/Southern Africa.

⁸⁵. Refer to Chapter 8 of this report for further discussion of corruption.

3.2. Transportation and trafficking of rhino horn

After being exported from Africa, whether by air or by sea, rhino horn shipments generally move through one or more transit points before reaching the intended destination. During this middle stage of the supply chain, the primary role of transporters is to facilitate the international trafficking of the products, ensuring that shipments are cleared through seaports and airports by utilising their connections in customs authorities, freight forwarding agencies, airlines, and shipping and logistics companies.

To avoid detection, transporters often export goods to a specific location under the cover of one bill of lading, from where the shipment will then be re-exported to the destination or to additional transit points under a “new” bill of lading. Complicit clearing agents may switch the bill of lading while shipments are unloaded and repacked, perhaps with new cover materials or in different shipping containers. Transporters may also utilise front companies with existing access to shipping routes and other useful business infrastructure to facilitate the passage of contraband.

Modus operandi 1: Trafficking via an independent operator

The Wildlife Justice Commission has collected significant intelligence on the inner workings of rhino horn trafficking operations using Malaysia as a transit location. It is believed that since around 2014 one major transporter has risen to control this market, who works as an independent operator with multiple criminal networks in Africa and Asia as his “clients”. He provides transportation services from Africa to Malaysia as a middleman only and does not participate in trade. He can clear shipments in Malaysia and provides an onwards transfer service to other locations in Asia if requested by the client, but he does not provide the clearance of shipments at other locations. As part of his service, he would take financial responsibility if the loss of products occurred in Malaysia, but if they were seized en route to Malaysia or to the destination, the responsibility was not on him.

This transporter appears to vary his modus operandi, sometimes using fictitious Malaysian consignee companies and Malaysian freight forwarders on air waybills and bills of lading. He also varies the transport routes in response to law enforcement controls if necessary. For example, in 2018 he indicated that Vietnam was the main country he transferred goods to, and at that point he had not transferred shipments via Lao PDR for over six months or Cambodia for some time due to “problems”. However, in June 2019, his preference was to send shipments overland to Vietnam via Thailand and Lao

PDR, due to tighter controls at Hanoi airport. For this route, the service included a USD 6,000/kg guarantee bond in case any incidents took place during transportation. The bond would be wired to the client once the products arrived safely in Malaysia, and it was expected that the client would pay the bond back plus the transportation fee upon the safe arrival of products in Hanoi. This transporter is known to accept payments in RMB which he requests to be paid into Chinese bank accounts held by Malaysian nationals.

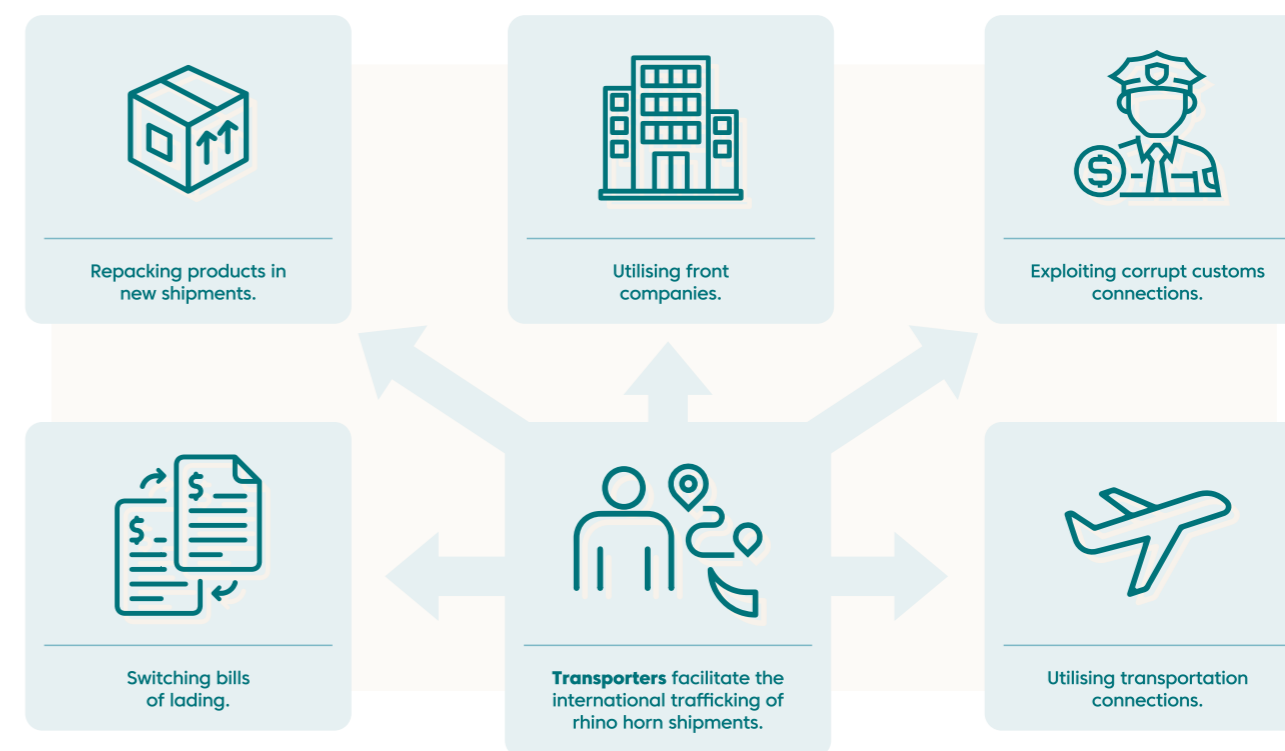


Figure 17: Common criminal enabling factors that facilitate rhino horn trafficking.



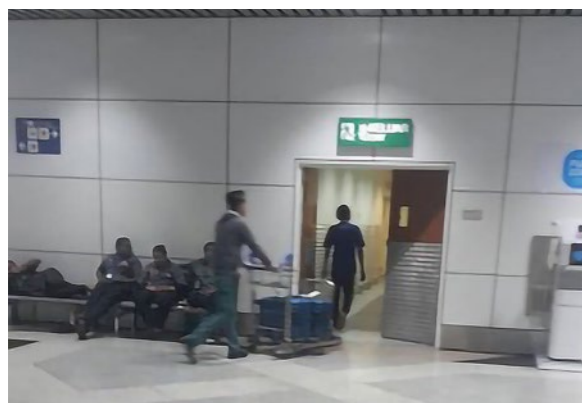


Image 23: An alleged shipment of rhino horns bypassing customs procedures at Malaysia KLIA. **Source:** Wildlife Justice Commission.

The transporter disclosed that his business relies on connections with lower and mid-level customs officers in relevant operational positions, and these established relationships are fundamental to the efficient service he offers to clients. To clear rhino horns smuggled in air passenger luggage, the transporter would request the client to send a photograph of the bag in which the goods were packed. The client or their “representative” would travel on board the flight to Malaysia with the luggage and was instructed to pass through the usual Customs and passport control processes and exit the airport, while the transporter would arrange the clearance of the luggage, collect it from the airport and bring it to a nearby hotel where it would be checked by either the client or the representative. If there were no problems, the transporter will “make a call” for the buyer to release the payment to the seller. The whole process was said to take “no longer than one hour, or 20 minutes if we are fast.”

Since 2016, Wildlife Justice Commission investigations have documented various traffickers operating in China, Lao PDR, and Vietnam who claimed Malaysia to be “safe” and “the easiest” transit point for smuggling rhino horns and other wildlife products from Africa to Asia, regardless of whether they are transported by air or by sea. According to one trafficker, “all (products) go through here (Malaysia)” before being unpacked and reloaded for delivery to other destinations in Asia.

In August 2018, Wildlife Justice Commission investigators witnessed a key meeting in Hanoi, Vietnam between the Malaysian trafficker and his Vietnamese criminal associates, who were discussing options to “buy back” a shipment of 50 rhino horns weighing 116 kg that had been seized by authorities at Kuala Lumpur International Airport (KLIA) two days prior. The horns were seized along with a stash of bones and carcasses of tigers or lions, leopards, and other carnivores, which were destined



Image 24: Ngyuen Van Nam (far left, who was convicted in 2020 and is now serving an 11-year prison term) was seen in Hanoi in August 2018 meeting with the Malaysian trafficker and four other persons of interest, to discuss their next steps immediately following a major rhino horn seizure in Malaysia. **Source:** Wildlife Justice Commission.

for Vietnam. At that time, it was the largest rhino horn seizure ever made in Malaysia. The seizure was not made public until one week later.⁸⁶ It is inferred that the major Vietnamese associate at the meeting was one of the financiers and the intended recipient of the shipment. “I have done more than 10 years, never had anything, this is first, not even my fault... This is not my transportation problem, only because they stink, then it happened,” the Malaysian trafficker declared during the meeting. Separate Wildlife Justice Commission investigations in South Africa confirmed that the shipment had been packed there but was detected and seized in Malaysia due to the strong odour and fluid leaking out of the package, as the owners wanted the products to be shipped to Vietnam as soon as possible, before the bones were properly treated with chemicals.

Modus operandi 2: Trafficking handled within the criminal network

In contrast, Chinese criminal networks are often end-to-end operations, controlling all aspects of the supply chain from product procurement in Africa, packing, shipping, international trafficking, smuggling into China, and final sales to buyers.

An example of this structure is demonstrated by the Chen organised crime group that was successfully convicted in China in 2020 and found to

be responsible for smuggling at least 20 tonnes of ivory and rhino horn from Nigeria to China between 2013 and 2019. The group’s structure exemplifies many characteristics that are commonly observed in large Chinese wildlife crime networks.⁸⁷ The Chen network was structured as a collection of hierarchically-arranged independent persons, each responsible for the accomplishment of a specific function such as financing, sourcing, logistics, money movement, and so forth. It was a family-led criminal group with authority centralised among a father and his two sons, and it appeared to be set up for long-term operation.

While members of the Chen family were known to travel back and forth between China and Africa to oversee the business, a senior Chinese partner based in Nigeria was responsible for sourcing wildlife products, and other Chinese associates based in Nigeria were responsible for packing shipments and organising the shipping logistics. Maritime shipping via container ships was the preferred transportation method. The network utilised its established timber business settings in Nigeria including contacts, business infrastructure, transportation lines, and access to corrupt actors to commit the trafficking crimes. The timber business also facilitated the concealment method for the illicit shipments, with products hidden inside custom-built wooden crates stashed behind stacked timber planks in the shipping container.

^{86.} <https://www.nst.com.my/news/nation/2018/08/403448/rm485-million-rhino-horns-animal-carcasses-bound-vietnam-seized-klia>

^{87.} Wildlife Justice Commission (2022), *Bringing Down the Dragon: An Analysis of China’s Largest Ivory Smuggling Case*.

The Chen network sent its shipments from Nigeria to Singapore, where the declaration of goods would be changed to timber produced in Malaysia with a forged certificate of origin. The shipments would then be sent to South Korea and then on to China. The Chen network relied heavily on the use of multiple transit points to obscure the originating port in Africa, as well as bribing officials at customs checkpoints and using complicit freight forwarding agencies to clear the shipments and switch the bill of lading for onwards transportation. In total, 19 members of the network were arrested and convicted by Chinese law enforcement, demonstrating the size of the network stretching from source to market.

Modus operandi 3: Recruiting couriers to hand-carry shipments

Intelligence from another Chinese rhino horn supplier based in South Africa suggests he often recruits newly released prisoners from China to go to South Africa and act as couriers, smuggling rhino horns in smaller quantities in hand-carried luggage back to China.

Testing new routes

A Vietnamese trafficker based in South Africa told Wildlife Justice Commission investigators that

⁸⁸. The “open road” metaphor is often used by traffickers to describe safe smuggling routes, so when a road is no longer open, it is considered to be high-risk for law enforcement detection.

⁸⁹. Environmental Investigation Agency (2018), *Exposing the Hydra: The Growing Role of Vietnamese Syndicates in Ivory Trafficking*.

when testing a new maritime shipping route, he would first transport legal commodities that could be used as a potential cover material, such as cow hides, to see how well the export goes. He would trial the route in this way a few times, developing a history of legitimate trade in the product, and then start to include “real products” in the shipments.

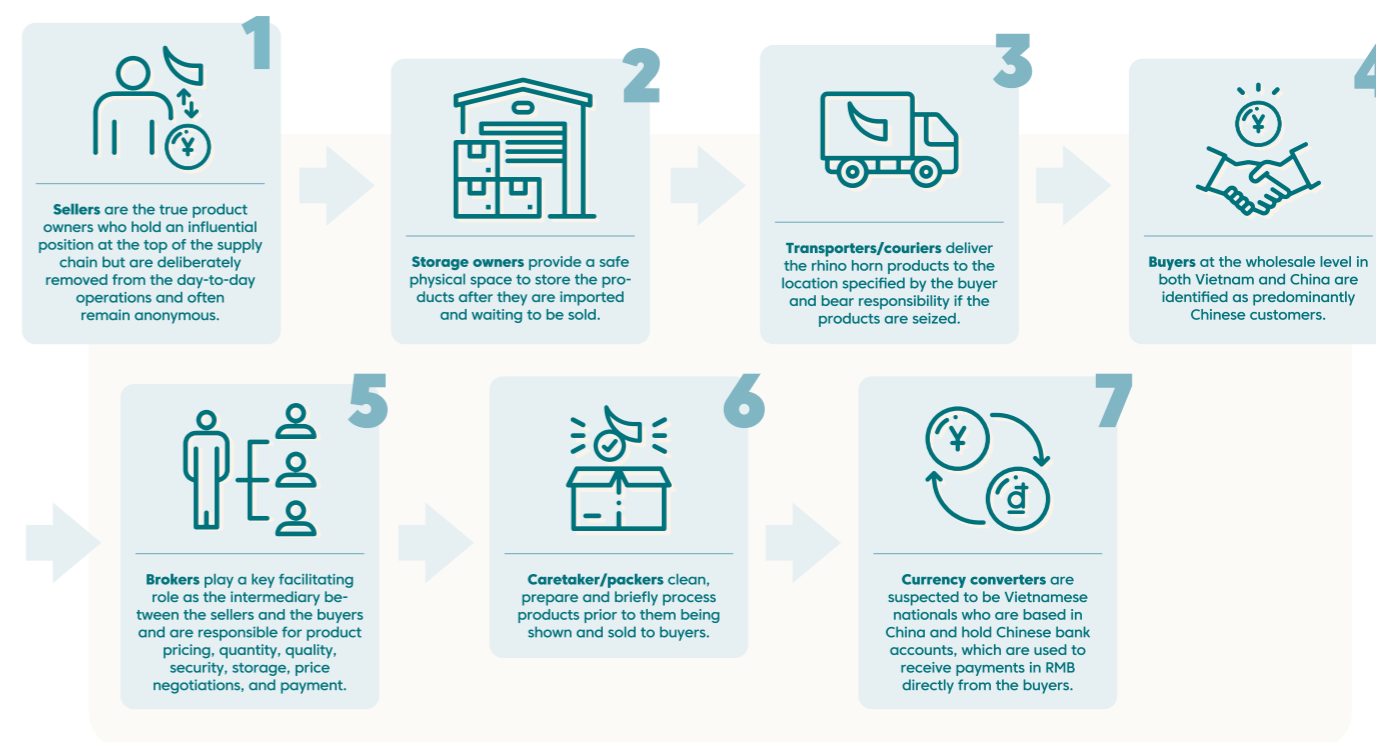
Frequency of trafficking

Intelligence indicates that rhino horn is trafficked from Africa to Asia in large volumes and with high frequency. The Malaysian transporter claimed to work with clients who are shipping rhino horn every month, by air and sea transportation. In 2018 he said he was transferring two or three shipments of at least 50 kg each per month, while the previous month (May 2018) he had moved 300 kg of horn. A Vietnamese trafficker claimed that prior to 2019 when the “road was open”,⁸⁸ an average of two batches of rhino horn were leaving South Africa every week bound for Asia, the majority of which was poached horn. He said shipments had slowed since then, and more traffickers were starting to build cooperation with private farms to supply horns. Around 2016-2017, another major Vietnamese network in Mozambique claimed to be exporting 100-150 kg of horn per month to Vietnam and offering fast deliveries within 48 hours of placing the order.⁸⁹

3.3. Sale of rhino horn in destination markets

The final stage of the supply chain is the destination countries where wholesale traders receive the rhino horn shipments and raw horns are sold to buyers for processing and further onwards sale. Evidence from investigations shows that prolific Vietnamese and Chinese criminal networks are driving rhino horn trafficking throughout the supply chain, and naturally dominate the trade in the destination markets. The seizure data corroborates this, indicating that rhino horn shipments are primarily destined for Vietnam and China.

However, Wildlife Justice Commission investigations have found that a substantial proportion of rhino horn entering Vietnam is sold to Chinese buyers and smuggled overland into China, suggesting that the significance of the domestic market in Vietnam may be overstated in the public sphere. To demonstrate, intelligence received in 2022 concerning a prolific Vietnamese criminal network involved in the wholesale supply of high-value wildlife commodities reports that a stash of 300 kg of rhino horn is currently stuck in Vietnam. The network has been struggling to move the horns into China and is frustrated with this situation due to the loss of revenue this represents.



Vietnam is a crucial gateway for rhino horn trade into China and a conduit between Africa and China, likely due to the lower law enforcement targeting and resourcing to tackle these crimes compared to China that has enabled the trade to flourish in particular hotspots. Small retail markets for rhino horn also exist in other locations including Lao PDR, Cambodia, Korea, Japan, and Taiwan.⁹⁰

At this stage of the supply chain, the structures in both Vietnamese and Chinese criminal networks have been found to comprise a similar range of distinct roles to facilitate the trade at the wholesale level.

Beyond the wholesale buyer are the roles involving processing raw rhino horns into carved products, sale to retail traders, sale to end consumers in physical and online markets, transport and delivery, and other associated services; however, these are considered a secondary layer of actors that typically occur outside the realm of the major criminal networks.

Wholesale market characteristics in Vietnam

“If you know who to talk to, you’ll find there’s a lot of rhino horn available in Vietnam.”

— VIETNAMESE TRAFFICKER, MAY 2021

Vietnam’s role in the supply chain has evolved over the past 10 years to be a hub for wildlife trade where a range of products are imported, collected, and then distributed to other places. Rhino horn shipments typically enter Vietnam at Hanoi (by air) or Haiphong (by sea) in the north, Ho Chi Minh City (by air or sea) in the south, or Danang (by sea) in the centre of the country. They are then transported domestically for sale or temporary storage by train, truck, or plane. At times when the main ports of entry have been deemed too risky, shipments are known to have entered Vietnam overland via Lao PDR.

Major seizures such as a shipment of 138 kg of rhino horn and 3.1 tonnes of lion bones at Danang

seaport in July 2021⁹¹ and a shipment of 126.5 kg of rhino horn at Hanoi airport in July 2019⁹² exemplify the large volumes of rhino horn entering Vietnam. Undercover engagements with brokers also suggest vast amounts of horn are available and move quickly in the trade. Buyers are requested to place orders before the products arrive from Africa as brokers tend not to keep rhino horn in stock, unlike other wildlife products such as ivory and pangolin scales.

Nhi Khe village near Hanoi was known as a key physical market for rhino horn trade from as early as 2012. Wildlife Justice Commission investigations found the market to be driven to supply an almost entirely Chinese clientele with worked rhino horn products. Prices were quoted in Chinese Renminbi (RMB), interpreters played a pivotal role in connecting Chinese buyers with Vietnamese traders and facilitating negotiations, and payments were made in RMB to Chinese bank accounts. In addition to physical trade at premises in Nhi Khe, traders were also widely using WeChat and, to a lesser extent, Facebook to advertise illegal wildlife products. While some customers appeared to be Chinese tourists shopping for small items, others appeared to be businessmen looking to purchase wholesale products for their retail business in China. It is believed that the

market at Nhi Khe developed off the back of existing legitimate business links with China, with many shops trading timber or rosewood products to timber shops in Guangxi, and guaranteed impunity provided by corrupt local authorities.⁹³

Delivery to China was usually only offered for specific routes, with an apparent preference for smuggling overland into Guangxi province via Pingxiang and Dongxing border towns. For a greater fee, onwards shipment to other locations in China could be arranged. Some traders would send smaller items by postal service. Larger quantities could be delivered faster (on demand), while smaller quantities took longer as sellers would pool consignments together and cooperate to deliver.

Intelligence indicates that some Vietnamese brokers provide additional services to entice Chinese customers and make the purchasing process as easy as possible. For example, some brokers offered to support Chinese guests with visa assistance to visit Vietnam and view products. They would recommend particular hotels to stay at in Hanoi, and if a purchase was made, the broker would pay the bill for accommodation and meals, drive them to the border to return to China, and arrange the transportation of goods separately.

90. Krishnasamy, K. & Zavagli, M. (2020), *Southeast Asia: At the heart of wildlife trade*, TRAFFIC, Southeast Asia Regional Office. Environmental Investigation Agency (2015). *Sin City: Illegal wildlife trade in Laos’ Golden Triangle Special Economic Zone*. London, UK. Vigne, L. (2021). *The Rhino Horn and Ivory Trade, 1980-2020*. Doctoral dissertation, Oxford Brookes University.

91. <https://tuoitrenews.vn/news/society/20210718/vietnamese-customs-seize-large-shipment-of-suspected-rhino-horns-wildlife-bones/62132.html>

92. <https://vietnamnet.vn/en/one-man-charged-in-biggest-ever-rhino-horn-smuggling-case-672084.html>

93. Wildlife Justice Commission (2017), *Black Business: Illegal rhino horn trade dynamics in Nhi Khe, Vietnam from a criminal perspective*.

Some Chinese brokers are also known to have moved to Vietnam to conduct their business. In 2016, one broker told a Wildlife Justice Commission investigator that he originally came from Fujian province in China but had been living in Vietnam for about a year to focus on building his rhino horn and ivory trafficking business. Analysis of the broker's WeChat account revealed he posted large quantities of both processed and raw rhino horn and ivory products for sale.

From 2016 onwards, law enforcement inspections in Nhi Khe increased in response to widespread public reports on the extent of illegal wildlife trade that was openly occurring in the village, including a Public Hearing convened by the Wildlife Justice Commission in November 2016 which presented evidence of the magnitude of criminality in Nhi Khe collected during investigations.⁹⁴ The Vietnam Environmental Police followed up with multiple arrests and the country's largest seizures of rhino horn, ivory, and pangolin scales made outside of a port in 2017 and 2018. These cases inevitably had a significant impact on the criminal fraternity in Vietnam, where it became apparent perhaps for the first time, that wildlife crime was being taken more seriously by the mandated law enforcement agencies. Subsequently, the trade became progressively covert and displaced to other locations in Vietnam. Business operations adapted and began to store products and facilitate meetings in other nearby locations such as Bac Ninh, Hai Duong, Vinh

94. <https://wildlifejustice.org/governments-urged-support-viet-nam-implementing-public-hearing-recommendations/>

Phuc, Dong Ky and others. More recently, during 2020 and 2021, several traffickers have referred to Cau Loi and Dien Chau in Nghe An province in central Vietnam as new hotspot trade locations.

| Smuggling from Vietnam to China

Information published in Chinese court judgements of cases involving the smuggling, purchase, sale, or transportation of raw or processed rhino horn products corroborates many of the intelligence findings and seizure data that show the direction of the trade to China. There have been at least 210 such cases convicted in China between 2017 and 2021, of which the Wildlife Justice Commission conducted in-depth analysis on the 32 largest cases to identify the most prevalent enabling factors and modus operandi.

Analysis of these cases shows that rhino horn products are mostly smuggled into mainland China overland from Vietnam, or by air via trans-continental flights from Africa, often transiting through Hong Kong SAR. In cases where horns were smuggled from Vietnam, Chinese nationals had travelled to Vietnam to inspect, purchase, and smuggle products back to China, or they would contact Vietnamese traders via WeChat to arrange the deal and Vietnamese couriers would smuggle the products to Chinese border towns such as Dongxing. Most of the cases where horns were smuggled on passenger flights from Africa

involved Chinese nationals travelling from South Africa to China carrying rhino horns in their luggage. In 11 of the 32 cases analysed, Hong Kong SAR was used as a transit point for smuggling products into mainland China – twice in 2017, six times in 2018, and three times in 2019.

One case involved rhino horn products sent by airmail parcels from Europe directly to China. After several parcels were seized, the defendants started sending products to an associate in Lao PDR, who would organise the smuggling into China via bus drivers concealing products in hidden compartments in the bus. Later, the criminal network realised it would be cheaper to order rhino horn products from Japan instead of Europe but continued to use Lao PDR as a transit point.

Once the products enter China, they appear to mostly move between cities and provinces using delivery services, or the Chinese traders themselves would transport the products to meet with potential buyers. The cases show that WeChat continues to be the preferred communication platform to arrange the deals.

Smuggling of large shipments from Vietnam to China became increasingly difficult from 2017 onwards, likely due to China's strengthened law enforcement

95. <https://www.bbc.com/news/world-asia-china-38470861>

96. Krishnasamy, K. & Zavagli, M. (2020), *Southeast Asia: At the heart of wildlife trade*, TRAFFIC, Southeast Asia Regional Office. Environmental Investigation Agency (2015). *Sin City: Illegal wildlife trade in Laos' Golden Triangle Special Economic Zone*. London, UK. Vigne, L. (2021). *The Rhino Horn and Ivory Trade, 1980-2020*. Doctoral dissertation, Oxford Brookes University.

focus on wildlife trafficking as it prepared for the introduction of a national ivory trade ban.⁹⁵ Prior to 2017, couriers would take full responsibility if products were seized during transportation from Vietnam to China. But by May 2017 the 100% courier liability model had changed, with a 50% payment required upfront and any losses would be shared equally between the courier and the buyer.

Intelligence indicates that rhino horn carving is primarily done in China because the quality of the craftsmanship is considered to be superior to Vietnamese carvers. Therefore, the flow of products between Vietnam and China is likely to be two-way, with raw rhino horn moving into China for carving, carved products coming back to Vietnam (and retail markets in other countries) for sale, and then returning to China after purchase by end consumers.

| Other rhino horn markets

Wildlife Justice Commission intelligence indicates that some Chinese traders sell rhino horn products to buyers located elsewhere in Asia, including South Korea, Japan, and Taiwan. Rhino horn has also been observed openly displayed at markets in Myanmar, Thailand, Lao PDR, and Cambodia, some of which cater specifically to a Chinese clientele.⁹⁶

Wildlife Justice Commission investigators observed rhino horn for sale in Lao PDR at markets in Luang Prabang, Vientiane, and the Golden Triangle Special Economic Zone (SEZ). In 2016 it was found to be available in various forms, including carved products (libation cups, pendants, and sculptures), cut pieces, shavings, and powder. All locations appeared to be targeting Chinese clientele, and buyers were advised to simply wear or hand-carry their items back across the border to China. Although the open trade has declined since then, an individual with a Chinese name using a Laotian mobile service was found to be selling rhino horn products on Facebook in November 2020, and a rhino horn shipment seized in October 2022 in Singapore was found to be destined for Lao PDR.⁹⁷ These instances could suggest the trade in Lao PDR may be continuing online or physically in a more covert manner.

The Wildlife Justice Commission has also collected intelligence on the smuggling of rhino horn overland from southern Vietnam to Cambodia. In May 2021, rhino horn was reported to be risky but profitable in Cambodia due to wealthy Cambodians seeking to buy whole horns. A Vietnamese trafficker engaged in this trade said that Cambodian and Chinese customers in Cambodia are prepared to pay much higher prices than Vietnamese buyers. He claimed to have developed a strategy to smuggle rhino horn through the border checkpoint in his car and would travel to meet customers so they could inspect products in person. In 2019,

the Wildlife Justice Commission encountered retail traders selling carved rhino horn products at the Tuol Tompoung Market (Russian Market) in Phnom Penh, including libation cups and pendants. One trader claimed that government officials from both China and Cambodia would bring customers to her, for which she would pay them commission. Products were reportedly carved in Vietnam or China and then sent to Cambodia for sale. Investigators were also offered a back rhino horn from a person of interest connected to an ivory carving factory in Phnom Penh in 2019.



Image 25: Nine rhino horn tips, 14 unprocessed pieces, 27 carved pieces, 10 bangles, approximately 10 bracelets. **Source:** Wildlife Justice Commission.

⁹⁷ <https://www.straitstimes.com/singapore/rhinoceros-horns-worth-12million-recovered-at-changi-airport-in-largest-seizure-to-date>

Case study: China's largest seizure reveals extent of transnational organised crime in rhino horn trafficking

In January 2019, Xiamen Customs Anti-Smuggling Bureau (ASB) received intelligence of a large shipment of rhino horns and elephant ivory that would be smuggled into China through sea channels. The intelligence indicated the shipment would arrive in Fujian province and was suspected to be connected to Wang Yongming, a businessman from Zhejiang province who had recently returned from Mozambique.

Xiamen ASB began inspecting all incoming fishing boats and vessels in Fujian province in search of the shipment and monitored Wang's accounts. In early February a large amount of funds was deposited into Wang's account, indicating the shipment had been received, but its size and location was not known. The investigation found that once the rhino horn entered China, it changed hands and moved quickly in the trade networks. Investigators missed the opportunity to seize this shipment, but continued monitoring Wang in anticipation that another shipment would be organised.

A few weeks later in early March 2019, investigators received intelligence that Wang had dispatched a deep-sea fishing vessel (1,600 tonnage, 70 metres long) from Zhejiang province, which was headed to Mozambique. The vessel was flagged to Belize and the crew members were mostly from Myanmar. The

vessel was later detected leaving port in Mozambique on 15 May, but shortly afterwards turned off its AIS navigation system and communications and became a "ghost ship" at sea.

It was now almost impossible for investigators to track the vessel. Using big data analysis, satellite images and sporadic information from other ships moving through the monitored sea area, investigators estimated the shipping route and speed, calculating that it may enter the South China Sea from the Malacca Strait in mid-June.

On 17 June 2019, the vessel's signal appeared in the waters around the border of Fujian and Guangdong province, and the arrest operation was quickly planned. Smuggling ships are often known to stop on the high seas just outside of China Customs law enforcement jurisdiction and tranship their contraband to small boats which then wait for the opportunity to smuggle it into mainland China. Investigators also feared the vessel could flee to the waters of the Taiwan Strait to avoid arrest.

The arrest operation was executed later that same night, involving 120 ASB officers, 288 maritime police officers and soldiers, eight vessels and 18 action teams distributed in the border waters of Fujian and Guangdong, as well as several locations on land at Fuzhou, Quanzhou, Wenzhou, and Dalian.

When the ASB officers boarded the vessel, the crew were reportedly "confident" that it was just a routine inspection and did not alert the smuggling

bosses to the incident. On searching the vessel, officers found it to be almost empty with no evidence of any smuggled goods. However, Xiamen Customs Operation Command was certain of the intelligence assessment and insisted the search continue. Officers eventually found 14 nylon bags hidden in a special compartment next to the engine, containing 250 kg of rhino horn. The seizure included a total of 110 whole horns and 35 pieces, of which 70 horns contained microchips, indicating they originated from legal stockpiles. This case set a record for the number of rhino horns seized by China Customs in recent years. At the same time, five suspects were arrested in the coordinated operation on land, including Wang Yongming in Wenzhou, and more than 30 pieces of ivory, one leopard skin, and ivory necklaces were seized.

This case is significant not only for its size, but also for its sophisticated modus operandi previously unseen for wildlife crime, but which would be more typically associated with drug trafficking. Whereas wildlife smuggling by sea typically involves concealing products in shipping containers for transportation on commercial container ships, this case deployed a fishing vessel for the sole purpose of trans-continental smuggling from Africa to China. The vessel travelled a direct route from Mozambique to China with no transit points and carried no other goods. With the total return distance of approx-

imately 20,000 nautical miles, the cost of a single smuggling trip would have amounted to tens of thousands of dollars in fuel alone.

The investigation found the criminal network to be well-organised and highly professional, with clearly defined roles for overseas procurement of products, receiving and loading products in Africa, maritime transportation, smuggling into China, and rapid distribution of products to buyers in-country. Each smuggling role was distinct and independent of the others, but closely linked in the network. Wang Yongming was identified as the ultimate owner and organiser of the shipment and also owned a shell trading company which was used to transfer funds for payments in Africa. All network members were said to be “smuggling experts” with previous criminal records. Local police in Mozambique were bribed to help transport the rhino horns for loading onto the fishing vessel, while one of the shareholders of the vessel was identified as the chairman of the Fujian Chamber of Commerce of Portuguese-Speaking Countries. These findings show the complex and organised structure of the criminal network, which would have taken many years to establish and likely smuggled many successful ivory and rhino horn shipments before it was detected and dismantled in June 2019.

Source : <https://www.chinanews.com.cn/sh/2021/07-19/9523130.shtml>



Image 26: The seizure included 250 kg of rhino horn from the fishing vessel, as well as ivory and a leopard skin from locations on land.
Source: https://www.sohu.com/a/467797582_404517



Image 28: The rhino horns were found in 14 nylon bags hidden in a special compartment next to the ship's engine.
Source: https://www.sohu.com/a/467797582_404517



Image 27: Image of whole horns in front and further back those with flat bases and registration markings, indicating they were harvested from dehorning.
Source: https://www.sohu.com/a/467797582_404517



Image 29: Of the 110 whole horns in the shipment, 70 were found to be implanted with microchips, identifying them as having originated from legal stockpiles as opposed to poaching.
Source: https://www.sohu.com/a/467797582_404517



4.

Distribution in the marketplace⁹⁸

Online trade, social media platforms, and instant messaging services are a key tool to connect criminal actors and facilitate the distribution of rhino horn throughout the supply chain to the marketplace. Use of these platforms has increased substantially during the past decade to become the most important channel through which rhino horn is distributed in the illegal trade, rendering physical markets a comparatively immaterial threat. This chapter highlights the main platforms used, their target audiences, and how usage has changed over time. It is primarily based on intelligence collected during Wildlife Justice Commission investigations in addition to open-source research.

⁹⁸ Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

- ✓ The illegal rhino horn trade is strongly enabled through online markets, the prevalence of which has increased over the past 10 years.
- ✓ The use of messaging apps, especially WeChat, to facilitate trade and transactions has been observed not just in China but also in Vietnam, Lao PDR, Cambodia, South Africa, Mozambique, Malaysia, and Nigeria.
- ✓ Although the use of WeChat has notably declined due to fear of law enforcement detection through keyword searches, many traders are circumventing this risk by sending voice messages instead of text messages.
- ✓ Traders avoiding WeChat have been switching over to other messaging apps, predominantly WhatsApp, but also Telegram and Signal, which are perceived to be safer.

- ✓ At a retail level, Facebook has also played an important role, which has shown to be particularly popular with Vietnamese traders as well as traders based in other countries to attract buyers in Vietnam.
- ✓ At the wholesale end of the market, deals are increasingly being kept to those who are part of closed, trusted networks only. Referrals are now common practice and traders will often not engage with new or unknown buyers. Individuals operating at this level are not suspected to use any online markets to attract buyers, but instead are able to successfully generate enough clientele through their networks to satisfy a lucrative criminal business.

Low prevalence of rhino horn trade on Chinese e-commerce platforms

In August 2020, the Wildlife Justice Commission assessed the levels of illegal wildlife trade occurring on Chinese e-commerce platforms including Alibaba, 1688, Taobao, Tmall, Pinduoduo, GUCN, Cang, JD, Google, and Baidu. The research was based on keyword searches for various types of products, including seven keyword variations that represent rhino horn. During the research period, 4,297 advertisements of wildlife, parts and derivatives were identified as being offered by 85 different sellers; however, only six of these advertisements were for rhino horn products, all of which were listed by three sellers on GUCN.⁹⁹ GUCN is an e-commerce marketplace focused on antique objects, mostly for business-to-consumer retail trade. Other research has similarly found a very low prevalence of rhino horn trade on e-commerce platforms.¹⁰⁰

These results suggest that e-commerce platforms do not pose a substantial threat as facilitators of

this crime. Proactive measures taken by many of the popular platforms to prevent illegal wildlife advertisements on their sites could partly explain this finding. For instance, the Coalition to End Wildlife Trafficking Online reported that in the four years from its launch in 2018 to 2021, more than 11 million posts for illegal wildlife were blocked or removed from its members' platforms.¹⁰¹ The Chinese government has stepped up its efforts in this regard as well, introducing a ban on any type of wildlife trade on all online and e-commerce platforms in January 2020, as the COVID-19 outbreak was beginning to spread.¹⁰² In the first month of the ban, e-commerce platforms aided in the removal, deletion or blocking of information relating to 140,000 wildlife products and closed around 17,000 accounts associated with the trade.¹⁰³ However, a significant limitation of this approach is that users whose accounts are blocked or posts have been removed can easily emerge in newly-created groups or set up a new profile and continue to trade.

99. Wildlife Justice Commission (2021), *Wildlife Trade on E-Commerce Sites in China, With a Focus on Mammoth Ivory: A Rapid Assessment*.

100. For example: Endangered Wildlife Trust (2022). *Report on rhino horn and elephant ivory being advertised for sale on e-commerce and social network platforms in South Africa*. This study found 26 items advertised on eBay that could possibly be rhino horn products. It was the only one of four e-commerce sites monitored that was found to host potential illegal rhino horn trade.

101. The Coalition to End Wildlife Trafficking Online brings together e-commerce, technology, and social media companies including Alibaba, Tencent, Baidu, Google, eBay, and others, with wildlife experts at the WWF, TRAFFIC, and IFAW. The 2021 progress update can be accessed at this link: <https://www.endwildlifetraffickingonline.org/2021-progress-update>

102. http://www.gov.cn/zhengce/zhengceku/2020-01/26/content_5472280.htm

103. <https://www.aljazeera.com/economy/2020/3/24/illegal-wildlife-trade-goes-online-as-china-shuts-down-markets>

Frequent use of WeChat targeting the Chinese market

It is more probable that traders of high-value illicit commodities such as rhino horn prefer to use other platforms that provide greater levels of privacy and security for conducting their business. Given the way they operate, messaging and social media apps are more likely to host activity of a criminal nature, particularly apps with functions such as WeChat 'Moments' that provide users with an area to showcase illegal commodities covertly. 'Moments' allows WeChat users to share photos and videos with a closed group of friends or contacts, but friends of those friends cannot see the content, or any likes or comments on shared posts, making it a more private communication circle than other social media platforms.

“You, you look at my WeChat Moment, then you will know what products I do. Rhino horn, tiger, ivory, and a lot.”

– CHINESE TRAFFICKER, 2017



Analysis of the court judgements from convicted rhino horn trafficking cases in China¹⁰⁴ between 2017 to 2021 shows that WeChat commonly features in the modus operandi of these cases and continues to be one of the preferred methods for Chinese criminals to communicate and arrange deals for this commodity. Chinese law enforcement authorities are also known to conduct undercover investigations via WeChat to identify and target those dealing in illegal wildlife products.

The Wildlife Justice Commission has also observed widespread use of WeChat among rhino horn traders during its investigations in Vietnam, Lao PDR, Cambodia, South Africa, Malaysia, Mozambique, and Nigeria. Traders at physical shops in Asia often provide their WeChat contact details for follow-up communication and to browse further products listed online. During an investigation in Nhi Khe village,

¹⁰⁴. Analysis of convicted rhino horn cases was conducted based on judgements published on China Judgements Online, a database of all Chinese court judgements, accessed at: <https://wenshu.court.gov.cn/>

Vietnam from June 2015 to June 2016, 51% of traders were found to use WeChat to advertise products, with at least 8,300 images of illegal wildlife detected for sale during this period.¹⁰⁵

In addition, WeChat has the mobile payment and digital wallet service WeChat Pay, which links to a user's bank account or credit card and can be used to pay bills, purchase goods and services, or transfer money to other users. The Wildlife Justice Commission has frequently observed customers in China and Vietnam using WeChat Pay for rhino horn products, such as a Chinese couple who came to shop in Phu Khe, Vietnam in 2019 while investigators were undertaking a rhino horn product sighting, buying several pieces of chopped rhino horn and paying immediately with WeChat Pay. While most traders are flexible on payment methods and offer several options, some traders have specifically requested payments made by WeChat Pay. Alipay is another method of digital payment that is commonly used.

Adaptation of WeChat

A clear impact of Chinese law enforcement monitoring criminality on WeChat can be seen in the way it is contributing to traders altering their means of communication. The Wildlife Justice Commission began to observe changes in the use of WeChat as early as 2017, when a trader in Lao

¹⁰⁵. Wildlife Justice Commission (2017), *Black Business: Illegal rhino horn trade dynamics in Nhi Khe, Vietnam from a criminal perspective*.

PDR responded to a WeChat text message enquiring about products with a voice message directing the investigator to only communicate with voice messages to discuss products, and to delete the conversation history and contact, then re-add him. The trader further stated that he refused to post pictures on his WeChat Moments. It is believed that the trader was employing this technique to avoid detection by WeChat's security censorship.

By 2020 this scenario had further evolved with several high-level brokers in Vietnam stating their deliberate avoidance of discussing wildlife "business" on WeChat, instead suggesting the use of WhatsApp, Telegram, or Signal, which are banned in mainland China. Some of the known high-level Vietnamese traffickers were also resorting to the safer option of voice messages when communicating with Chinese traders on WeChat, thereby minimising the risk of crime being detected via keyword searches.

Preference for Facebook to target the Vietnamese market

In Vietnam, Facebook appears to be the preferred online platform for brokers to advertise their products for the Vietnamese retail market. During the Wildlife Justice Commission's investigation of rhino horn trade in Nhi Khe village from 2015 to 2016, Facebook alone was found to be used by 20% of traders, while around 10% of traders used

both Facebook and WeChat.¹⁰⁶ Platform preference is believed to be an indication of the traders' target market, given that Facebook is not available in China, while it is the most popular social networking platform in Vietnam. Vietnamese traders on Facebook have been found to share images of various types of products for sale including whole horns with complete bases and carved rhino horn products such as libation cups, teapots, beads, sculptures, and jewellery.

Facebook is not only used by traders in Vietnam to connect with the domestic market but also by traders based in other countries looking to sell products to buyers in Vietnam. For example, intelligence received on a seizure of 15 pieces of rhino horn in September 2017 at Suvarnabhumi International Airport in Bangkok, Thailand¹⁰⁷ indicated that the main dealer of this shipment was a Vietnamese trader based in Angola who had sold the horns via Facebook to two buyers in Vietnam. Facebook is also widely used elsewhere in Southeast Asia and is known to be a preferred platform for online illegal wildlife trade in Cambodia, Lao PDR, Myanmar, and Thailand.¹⁰⁸

In early 2021, the Wildlife Justice Commission received intelligence of a new method of using Facebook to host private livestream

video auctions of wildlife products at set times, with the videos removed shortly after the auctions are finalised. The suspects involved in the auctions appear to be mostly based in Vietnam and Cambodia and connected by one or two degrees of separation. In the illegal auctions, images and videos of the wildlife items are shared publicly using tags for sharing with other users, often with over 20 tags per post. A multitude of profiles share each live auction at the same time, making it problematic to trace the origin and ownership of the videos. So far, this methodology appears to be mostly used for ivory and tiger products, and while rhino horn products have not yet been observed in a livestream auction, the level of privacy it offers to buyers could potentially make it an appealing option.

Use of other communication apps

WhatsApp is commonly used by traffickers, possibly favoured for its end-to-end encryption, broad global popularity, and the fact that it is less accessible to Chinese law enforcement authorities. Many traffickers opt to move communications to WhatsApp after initially making contact with buyers via a social networking platform such as Facebook. Some traffickers use multiple platforms depending on the preference of their clients, such

as a high-level Nigerian transporter who is known to use both WhatsApp and WeChat, depending on whether he is working with Chinese or Vietnamese criminal networks. Conversely, some traffickers have expressed a distrust of WhatsApp, such as a Vietnamese trafficker based in South Africa who claims all his connections use WeChat, and only "white people" use WhatsApp.

In addition, Telegram, a Russian instant messaging service, is preferred by some high-level wildlife traders in Africa as the "safer" means of communication. Zalo, a Vietnamese messaging app, has also occasionally been used to communicate with Vietnamese traffickers.

Trade occurs through close, trusted contacts

It is suspected that where illegal rhino horn transactions occur – online or in person – they are most likely to happen through close, trusted contacts and for this reason there is far less open advertisement of products through online channels, especially at the wholesale trade level. The Wildlife Justice Commission's investigations have found this to be the case across the supply chain, with brokers often insisting on knowing how customers were referred prior to discussing "business" and refusing to deal with new or unknown customers.

For example, in 2019 a Vietnamese trafficker based in South Africa demonstrated a high level of caution on the first interaction, stating that "*without knowing*

your reference, I can't do anything, I need to be very careful." Upon mentioning the major Vietnamese broker Nguyen Van Nam, the trafficker dropped his guard. "*Oh, you know Ah Nam? Then you must be an insider, now I can really open my heart and say everything.*" However, at the first meeting he still proceeded to test the investigator's knowledge by showing photographs of two similar-looking Asian men and asking the investigator to identify which was Nguyen Van Nam.

Nguyen Van Nam himself was known to have a closed circle of Chinese buyers who generated enough demand and turnover that it was not necessary to seek new customers. He used WeChat for communication with the buyers but very rarely to advertise products, while Facebook was only used for social purposes. His reluctance to trade on social media set him apart from most other traders. (Refer to Chapter 7 for a detailed case study on Nguyen Van Nam's criminal network).

¹⁰⁶. Wildlife Justice Commission (2017), *Black Business: Illegal rhino horn trade dynamics in Nhi Khe, Vietnam from a criminal perspective*.

¹⁰⁷. <https://www.bangkokpost.com/thailand/general/1330403/rhino-horns-seized-from-3-vietnamese-at-suvarnabhumi>

¹⁰⁸. <https://www.reuters.com/article/us-myanmar-wildlife-idUSKCN2520C3>; <https://news.mongabay.com/2022/04/a-risky-business-online-illegal-wildlife-trade-continues-to-soar-in-myanmar/>





5.

Value of rhino horn¹⁰⁹

During its investigations, the Wildlife Justice Commission collects wholesale price data (price per kilogram) of raw rhino horn and other wildlife products at different criminal levels along the supply chain and in different geographical areas. Analysis of these values provides an insight into the pricing structure throughout the supply chain and can enable the identification of trends and changes over time and inferences on the supply and demand dynamics influencing illegal trade. Price data also allows the estimation of potential revenues accruing to criminals and a better understanding of the financial flows behind the illegal wildlife trade.

¹⁰⁹ Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

- ✓ The potential gross illicit income generated from the wholesale trade of raw rhino horn over the past 10 years is estimated to be worth between USD 874 million – 1.13 billion.
- ✓ As one of the strongest driving forces of criminality, the value of raw rhino horn has fluctuated over the past 10 years along the supply chain. However, prices in Vietnam are consistently found to be less than one third (USD 10,694/kg – 22,257/kg) of the commonly cited USD 65,000/kg value, while in source countries such as South Africa or Mozambique prices can be as low as one tenth of that rate (USD 3,382/kg – 10,667/kg).
- ✓ Analysed trends suggest that the value of rhino horn declined along the supply chain up to 2020, but it is now increasing again. However, the rate of decline was less than for other high-value wildlife commodities such as ivory, and rhino horn still retains a comparatively high value, which may explain its continued demand in the marketplace.
- ✓ The fluctuation of price trends is mirrored in source and destination countries, with the symmetry especially apparent between South Africa and Vietnam.
- ✓ Several factors affect the price of rhino horn including whether horns are front or back, from harvested stock or poached rhinos, and the quality of the finished product once it is processed.
- ✓ Price is also influenced by several financial factors during the smuggling process such as labour expenses and ammunition at source, packing and transport fees when in transit, as well as clearance fees along the supply chain.
- ✓ The volume of financial flows varies considerably across the supply chain and influences the preferred payment method used at each stage, with the highest flows occurring at destination locations and smaller payments made at source locations.
- ✓ The payment methods most frequently used in illegal rhino horn trade are cash payments, domestic and international transfers through the formal banking system, “underground” banking systems, and mobile and internet-based payments.

This chapter presents an analysis of the trends in black market value for raw rhino horns from January 2016 to February 2022 in eight African and Asian countries, which correspond to various points of origin, transit, and destination in the illegal supply chain. (Refer to section 1.2 of this report for a description of the methodology used to collect and analyse the dataset).



Image 30: Six unprocessed rhino horn pieces.
Source: Wildlife Justice Commission.

In this chapter, the term “price” is used when referring to specific price data and offers for rhino horn products that were collected during dealings with traffickers and brokers. When those price data are aggregated for analysis, such as determining annual average values collected at different points of the supply chain, the term “value” is used.



Image 31: Two unprocessed rhino horn tips measuring approximately 13 cm in length. **Source:** Wildlife Justice Commission.

5.1. Key findings

Table 12 below shows average values for raw rhino horn collected by the Wildlife Justice Commission in South Africa, Mozambique, DRC, Malaysia, Thailand, Lao PDR, Vietnam, and China during the period from January 2016 to February 2022. Each value is calculated as the average of all price points collected during a given year.

These data are further illustrated in Figure 18. In the years 2018 and 2019 when the most data points were collected across the supply chain, the steady, cumulative price increase from South Africa to China can be observed (highlighted with red boxes). Price fluctuations are also replicated across the supply chain, which is particularly evident in the close symmetry of the trend lines for South Africa and Vietnam.

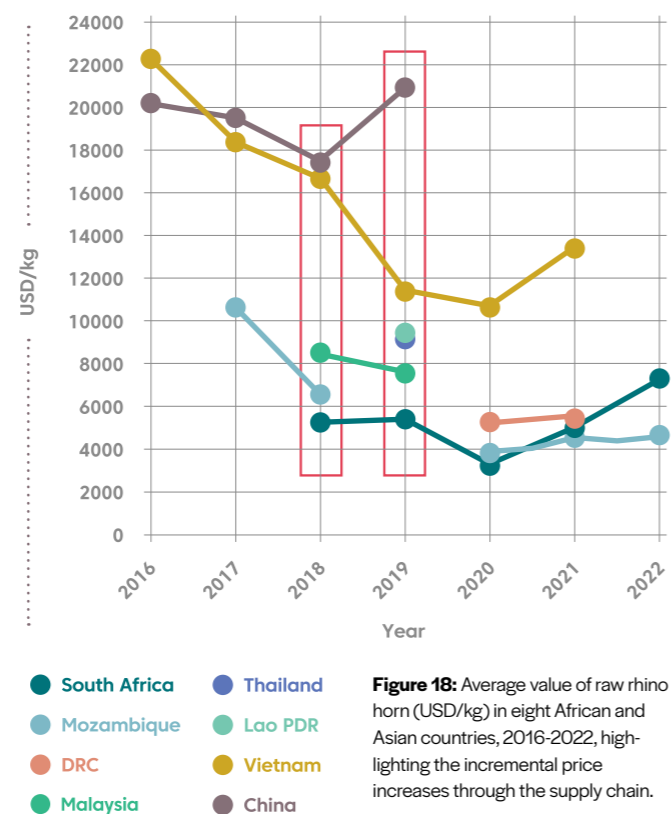


Figure 18: Average value of raw rhino horn (USD/kg) in eight African and Asian countries, 2016-2022, highlighting the incremental price increases through the supply chain.

Table 12: Average value of raw rhino horn (USD/kg) in eight African and Asian countries, 2016-2022.

Country	2016	2017	2018	2019	2020	2021	2022
South Africa			5,514	5,687	3,382	4,968	7,529
Mozambique		10,667	6,664		3,987	4,536	4,776
DRC					5,250	5,250	
Malaysia			8,562	7,682			
Thailand				9,398			
Lao PDR				9,647			
Vietnam	22,257	18,591	16,595	11,418	10,694	13,445	
China	20,132	19,723	17,545	20,881			

Wholesale rhino horn value is consistently less than one third of the commonly reported USD 65,000/kg value

Since 2012, the value of rhino horn in the Asian market has been commonly cited in the media and the public sphere to be around USD 65,000/kg, or “more valuable than gold”.¹¹⁰ However, Wildlife Justice Commission investigations have consistently found the value at wholesale trade level in all countries to be less than one third of that amount, while at source locations in South Africa and Mozambique it can be one tenth of that amount. Rhino horn value

generally showed a declining trend across the entire supply chain up to 2020, but it has begun increasing again since then. One possible explanation could be that a lower availability of rhino horn in the market during the COVID-19 pandemic in conjunction with ongoing demand could be pushing prices up.

Despite the actual value being substantially lower than is often publicly quoted, rhino horn is nonetheless still regarded in criminal circles as being very profitable. During undercover engagements, various traffickers have claimed that other wildlife products are no longer worth the effort or the risk,

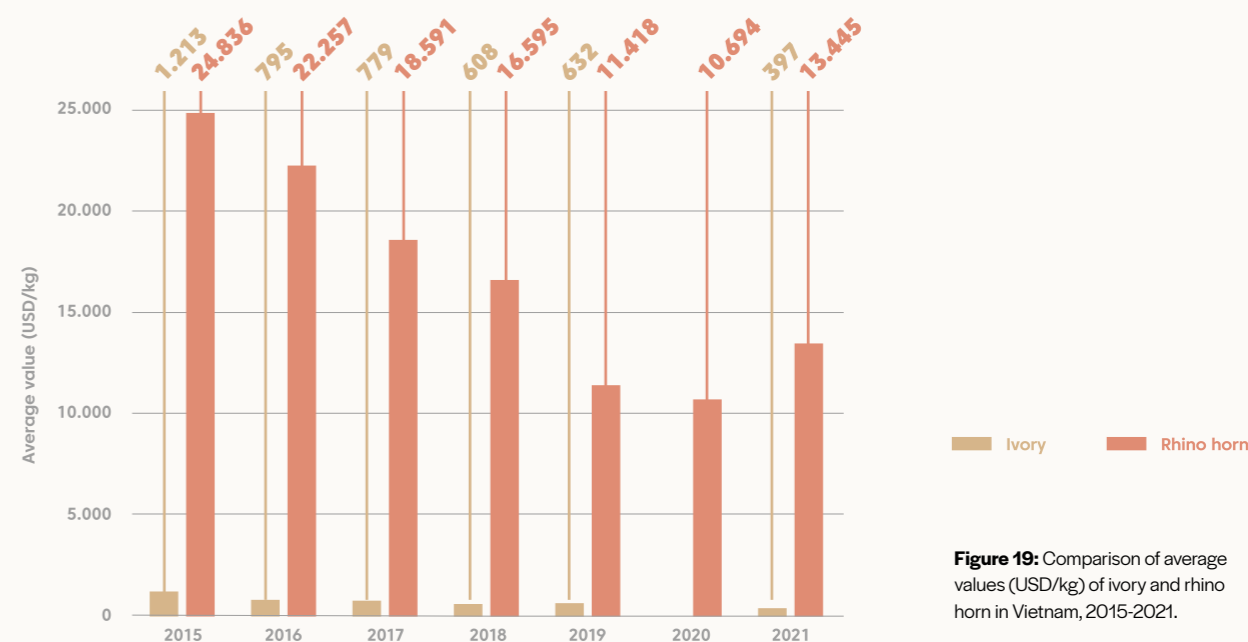


Figure 19: Comparison of average values (USD/kg) of ivory and rhino horn in Vietnam, 2015-2021.

¹¹⁰. For example: <https://www.bbc.com/news/magazine-32151983>

such as elephant ivory which has declined in value in recent years,¹¹¹ while rhino horn still retains a comparatively high value (Figure 19). It is presumed that the persistent demand for rhino horn in the illegal trade is a key factor in it maintaining a high value.

“Some traffickers have retired from the illegal activity due to lower profit rates. But black materials [rhino horn] are still profitable.”

— MALAYSIAN TRAFFICKER, JUNE 2018.

“Wildlife is not profitable anymore except for rhino horn, which is profitable but risky.”

— VIETNAMESE TRAFFICKER, MAY 2021.

111. Wildlife Justice Commission (2020), *Rapid Assessment of the Illegal Ivory Trade in 2020*.

112. Refer to Key Finding (IX) in Chapter 2 of this report.

II Values in African source locations dropped to their lowest levels in 2020 but are now increasing again

Although South Africa is the primary rhino horn source location, while Mozambique and DRC are typically the first transit locations in the supply chain, for this analysis, the three countries were grouped together as African locations at the early stage of the supply chain. Figure 18 shows a declining trend from 2016 until 2020, when values reached the lowest levels recorded by the Wildlife Justice Commission at USD 3,382/kg and USD 3,987/kg in South Africa and Mozambique respectively. The higher values in DRC suggest that it is further from the source, which is corroborated by investigation findings that horns are obtained in neighbouring countries and moved to DRC for consolidation prior to export from Africa.

In the last two years, investigators have found rhino horn value has started to increase again, with the most recent values averaging USD 7,529/kg in South Africa and USD 4,776/kg in Mozambique (Table 12). This is the highest value recorded yet in South Africa. The jump could potentially reflect the increased law enforcement risk, as the rate of detection of shipments has increased in the last two years¹¹² and traders tend to increase their profit margins when the risk becomes greater. It could also potentially indicate that demand is

now exceeding supply, although the price elasticity of demand for rhino horn is unknown. However, it is anticipated that a large price increase in South Africa would likely flow on through the supply chain as each subsequent trader adds on their own cumulative costs and profit margins, and therefore prices could also rise in transit and destination locations in the near future.

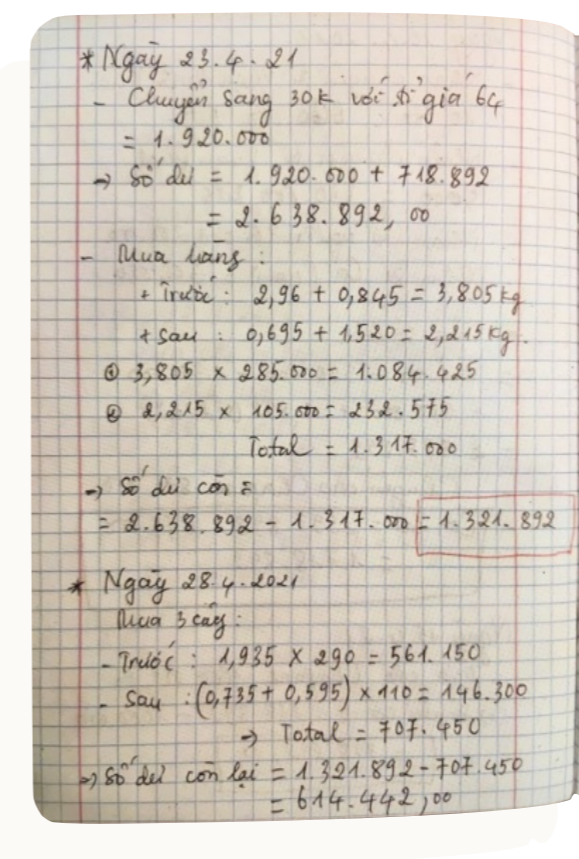


Image 32: Intelligence collected from a high-level Vietnamese trafficker showing his handwritten ledger recording prices paid for rhino horn in Mozambique in April 2021. Source: Wildlife Justice Commission.

III Price data suggests Malaysia is an initial transit point before horns are shipped elsewhere in Asia

Transit locations in Asia correspond to the middle stage of the supply chain and are usually used to receive the rhino horn from Africa before transferring it to the destination location. At this stage, shipments may be unpacked, consolidated, change containers and cover materials, and/or have new documentation issued to conceal the origin of the shipment and evade law enforcement detection. This analysis classified Malaysia, Thailand, and Lao PDR as transit locations.

Although the Wildlife Justice Commission has collected limited price data in transit locations, it is suspected that a declining trend up to 2020 would also have played out at this stage of the supply chain, similar to that observed in the African source locations and in Vietnam (Figure 18). Similar values for rhino horn were reported in Thailand and Lao PDR, which were approximately USD 2,000/kg higher than in Malaysia. This suggests that Malaysia could be the initial transit point in Asia before horns are shipped to Thailand and Lao PDR, or that the transportation and other costs associated with delivering directly to those two countries is higher than in Malaysia. This finding corroborates the intelligence collected from wildlife traffickers discussing Malaysia as their preferred transit point for moving rhino horn shipments into Asia.

IV Values in destination locations mirror the corresponding trends in source locations

Vietnam and China were grouped together as destination locations, representing the final stage of the supply chain where the rhino horns are usually stocked by wholesale traders and sold to retail buyers and consumers. Figure 18 indicates an overall declining trend until 2020 in Vietnam, when rhino horn value reached its lowest point with an average of USD 10,694/kg. This has been followed by an apparent increase in value since then. The pattern of this trend closely mirrors the corresponding trend of values in source locations, most particularly in South Africa. The symmetry between the Vietnam and South Africa trend lines indicates that price fluctuations are replicated across the supply chain. This finding is similar to a 2018 study involving elephant ivory prices, which found that changes in consumer prices of ivory pass through the supply chain and are faced by poachers and traders at source locations at almost the equivalent rate.¹¹³

Rhino horn values in China are typically the highest of anywhere else in the world, likely due to it being the main consumer market at the end of the supply chain for rhino horn products, as evidenced by investigations. Although there is insufficient data to identify whether the increasing trend since 2020 was also present in China, it is expected that prices

would likely have followed a similar trajectory owing to the cumulative effect of prices throughout the supply chain seen elsewhere in the data. The bigger fluctuations in the data for China may be due to the fact that it was mostly collected from reported values in Chinese court case judgements, with only a small number of data points collected from undercover investigations. This could account for the lower average value in 2016 compared to Vietnam and the increase in 2019 when prices elsewhere in the supply chain were declining.

V Average mark-up increases along the supply chain by 33-60% between origin and transit points, and 66-98% between transit and destination points

A comparison of the combined average values demonstrates that rhino horn becomes more expensive as it moves from origin to transit and destination locations. This mark-up is to be expected as shipments accumulate additional transportation costs, facilitation fees, and each handler's profit margins at every stage of the supply chain. In 2018 and 2019 when the most data points were collected across the supply chain, the steady, cumulative value increase from South Africa to China can be observed (Figure 18).

Further analysis of the average values for 2018 and 2019 at the different stages of the supply chain allows for the calculation of the average mark-up as

113. Quy-Toan Do et al. (2018), *The Price Elasticity of African Elephant Poaching*, World Bank Policy Research Working Paper 8335.

rhino horn moves from origin to transit and through to destination locations (Table 13). In 2018, average rhino horn values increased by 33% from origin to transit locations, then soared by 98% between transit to destination locations. In 2019 there was more consistency across the supply chain, with average values increasing by 60% from origin to transit locations, and by 66% from transit to destination locations. The horizontal analysis indicates that the mark-up in transit locations grew from 33% in 2018 to 60% in 2019, while conversely falling in destination locations from 98% in 2018 to 66% in 2019. This could indicate that the cost of smuggling through transit countries increased between 2018 and 2019.

Table 13: Average rhino horn values¹¹⁴ (USD/kg) and percentage increase between origin, transit, and destination locations in 2018 and 2019.

	2018	Increase	2019	Increase
Origin	6,434	-	5,687	-
Transit	8,562	33%	9,072	60%
Destination	16,911	98%	15,058	66%

114. Average values in Table 13 were calculated based on all original data points for each country in the category (rather than the average of the average values presented in Table 12). For example, the average origin value in 2018 was calculated as the average of 15 data points collected in South Africa and Mozambique that year.



5.2. Factors influencing rhino horn prices

Smuggling costs

As horns move along the supply chain towards the consumer, they accumulate additional transportation, clearance, delivery, and handling fees to cover the expenses and profits at each stage of the smuggling process. While some costs may only occur once, such as poaching-related costs, others occur at every stage of the supply chain, such as “clearance fees” at every seaport or airport the shipment passes through.

The Wildlife Justice Commission collected intelligence on the smuggling costs associated with the supply of rhino horns from Mozambique to Vietnam via Malaysia by air transportation in 2018, which provides an indication of how these costs influence the final price of rhino horn in destination locations (Figure 20). Although the intelligence is now four years old, the prominent trafficker who provided this information also stated that these costs are relatively stable, and he has not increased his handling fee in more than 10 years, so it is suspected that they are still reasonably applicable. It should be noted that the costs in this example are indicative of shipping products to Vietnam only, and do not include further costs to move products onwards into China.

Stage 1: Origin

According to the information collected, the price for rhino horns including shipping out of Mozambique was USD 7,000-8,000/kg in 2018. This price comprises all the expenses incurred from the poaching incident, to storage, consolidation, and trafficking out of Mozambique, including the fees and profits of all subjects involved in the process up to that stage, such as poachers, poaching organisers, low-level runners and brokers, and exporters. Examples of the types of costs included in this price are the labour expenses, guns and ammunition, food, transportation (within the country and international), packing and other materials to conceal the horns, warehousing/storage, and payments to corrupt officials at the airport.

Stage 2: Transit

When the rhino horns arrive at the transit point, in this case Malaysia, the price increases again due to expenses incurred for clearance at the airport through a payment to corrupt customs agents. There is also a fee to an intermediary broker or facilitator who has the right “connections” and offers their services to arrange the pick-up and delivery of the shipment to the destination location, chosen by the person who hires their services. In this instance in Malaysia, the clearance fee paid to customs agents at Kuala Lumpur International Airport is USD 1,000-1,500/kg, while the fee paid to the broker who facilitates this process is around USD 1,000/kg. Therefore, these costs combined

with the Stage 1 costs brings the rhino horn price at Stage 2 to USD 9,000-10,500/kg. If the horns were being sold directly to a buyer in Malaysia, the seller would additionally add their own profit margin and increase the final price.

Stage 3: Destination

To receive the rhino horns at the destination point, in this case Vietnam, fees for transportation and airport clearance need to be added to the Stage 2 costs. In 2018, these fees were quoted to be around USD 2,500/kg, increasing the price of rhino horn to approximately USD 11,500-13,000/kg. A seller would then add their own profit margins to this amount and sell the horn to customers in Vietnam. According to intelligence from traders in Vietnam, factors that can prompt price increases at this point include difficulties in acquiring products (i.e. when supply is low) and when the risk of arrest intensifies. Considering that the average rhino horn price in Vietnam in 2018 was USD 16,595/kg, the profit margin for wholesale traders of raw rhino horn at that time can be calculated as being USD 3,600-5,100/kg.



Figure 20: Example of smuggling costs to move rhino horn shipments from Mozambique to Vietnam via Malaysia in 2018.

II Front horns are more valuable than back horns

Rhino horn prices are usually influenced by whether the transaction consists of front horns or back horns, with front horns selling for higher prices than back horns due to their larger size. The smaller size of back horns limits the type and quantity of products that they can be processed into, rendering them less preferable and therefore cheaper than the front horn in illegal trade. This price factor lends further weight to the inference that the primary demand for rhino horn is for carved products and/or whole horns.

Intelligence collected by the Wildlife Justice Commission indicates that wildlife traders attribute different prices to front and back horns at all stages of the supply chain. At the beginning of the supply chain in African countries, front horns can be 25-50% more expensive than back horns, but this price difference reduces by the time horns are sold in transit and destination locations in Asia, with front horns being only 15-25% higher than back horns. It is suspected that because the transportation costs and facilitation/smuggling fees are the same regardless of whether a shipment comprises front or back horns, traders in transit and destination locations increase the price of back horns in comparison to front horns to increase their profit margins after they have been shipped to Asia.



Image 33: Whole front horns offered to the Wildlife Justice Commission in May 2020. **Source:** Wildlife Justice Commission.



Image 34: Back horns offered to the Wildlife Justice Commission in November 2020. **Source:** Wildlife Justice Commission.

III Price differences between poached and harvested horns

In South Africa, the majority of price data collected by the Wildlife Justice Commission were specifically for harvested horns from private rhino farms, rather than poached sources. In Mozambique and DRC, the price data collected were mostly for poached horns or horns of unknown origin. On different occasions, Wildlife Justice Commission operatives have been quoted both higher and lower prices for harvested horns compared to poached horns, making it difficult to draw any conclusions about how the provenance of horns influences the price. For instance, in 2019 in South Africa, one trader quoted a price of USD 8,000/kg for harvested horns and USD 7,000/kg for poached horns. Although these can both be considered inflated prices for that time, it shows that traders do differentiate between the horn types and attribute different values to them. Conversely though, in 2021 in South Africa, operatives were quoted prices as low as USD 3,000/kg for large quantities of mixed harvested horns (front and back horns), which is significantly lower than other price data collected for that year (approximately USD 2,000/kg lower).

Other intelligence collected during undercover engagements is also somewhat contradictory on this question, with one trafficker explaining that poachers want to “get rid of the horns as soon as possible” after returning from a poaching trip, so their price is more flexible, while the price of harvested horns is more stable and therefore sometimes higher. However, other traffickers have also stated that harvested horn prices are cheaper because they don’t have the whole base of the horn, while complete poached horns with the base are larger, heavier, and more expensive.

Different studies have indicated that some consumers were willing to pay more for wild or semi-wild horns and others would pay a premium for horns from legal, non-lethal sources.¹¹⁵



Image 35: Harvested rhino horns offered to the Wildlife Justice Commission by traders in South Africa in July 2021. **Source:** Wildlife Justice Commission.

¹¹⁵ Dang, V.H.N. & Nielsen, M.R. (2022). *Understanding determinants of the intention to buy rhino horn in Vietnam through the Theory of Planned Behaviour and the Theory of Interpersonal Behaviour*. *Ecological Economics*, 195, 107361.
MacMillan, D. et al. (2017). *Demand in Viet Nam for rhino horn used in traditional medicine*. International Trade Centre, Geneva, Switzerland.

IV Retail price factors

Most often after raw rhino horns arrive at the destination location, and in some instances prior to that in transit locations, they are processed into products such as bracelets, pendants, bangles, beads, libation cups, tea sets, carved statues, or other products, which are then sold in the retail market to customers. Several factors affect the final retail price of rhino horn products, including:

- **Quality and artistic value of the carving:** Hand-crafted products reach much higher prices than those produced by machine carving, while Chinese carving skills are also more highly valued than those of Vietnamese carvers.
- **Colour:** Morphologically, the centre and tip of the rhino horn can be very dark, sometimes even pure black. When looking at the cross-section of a cut horn, the blackness in the centre gradually fades into brown, red, yellow, or even white at the outer ring where the skin grows. Because of that, the blacker the horn, the more expensive the piece crafted from it will be, and the lighter the colour is, the cheaper it is.

- **Product type:** The size, weight, and type of the product will influence the price, with larger and more intricate products commanding higher prices. Apart from carved items, horn powder is the cheapest product and is usually derived from offcuts in the carving process. Asian rhino horn is preferred in the medicinal market, where it is referred to as “fiery” horn. It is more expensive and said to be more potent and effective than African “water” horn.

The Wildlife Justice Commission has not collected enough data to provide a meaningful analysis of trends or driving factors behind the retail market for processed rhino horn products. However, Figure 21 below provides examples of four of the most common types of processed rhino horn products available on the black market in Vietnam and China and their average values quoted to Wildlife Justice Commission undercover operatives between 2018 and 2020. These examples show that retail prices are usually quoted by the gram or by unit and can vary significantly according to the factors identified above. For this reason, it is important to highlight that extrapolating retail prices to obtain a price per kilogram for comparison across different markets or to the wholesale supply chain will produce misleading results.





Bracelets	Bangles
	
USD 39-58/gram	N/A
USD 747 – 6,309 each	USD 1,986 each
Pendants, tags, amulets	Libation bowls & cups
	
USD 25-36/gram	USD 45/gram
USD 637 – 6,239 each	N/A

Figure 21: Average price ranges (converted to USD) for processed rhino horn products¹¹⁶ in Vietnam and China, 2018-2020.

¹¹⁶ The images in Figure 26 are for illustrative purposes, as sometimes Wildlife Justice Commission operatives are sent pictures of products without reference to prices, and vice versa.

5.3. Payment methods

As demonstrated by the price data analysis, the illegal trade in rhino horn is a highly lucrative business generating vast profits and revenue for the subjects involved. To protect and hide their money, criminals use different payment methods to move funds through the supply chain and evade detection, some of which are more complex than others. The volume of financial flows varies considerably across the supply chain and influences the preferred payment method used at each stage, with the highest flows occurring at destination locations and smaller payments made at source locations. Based on intelligence collected by the Wildlife Justice Commission, the payment methods most frequently used in illegal rhino horn trade are cash payments, domestic and international transfers through the formal banking system, “underground” banking systems, and mobile and internet-based payments. Furthermore, it was also observed that subjects may use more than one payment method in a transaction, sometimes offering multiple options to customers and associates, alternating between methods offered, or combining payment methods. Understanding how money flows within the supply chain and which payment methods criminals are using is crucial for law enforcement agencies to detect illicit transactions and conduct financial investigations to identify and prosecute those who are driving the trade and profiting most from it.

I Cash payments

Cash transactions continue to be the preferred payment method for wildlife criminals, as it offers a high degree of anonymity, evading the formal financial system and making it almost impossible to trace. Cash payments are most commonly used in African source locations, which are predominantly cash-based economies where subjects do not always have access to the banking system. Cash payments are used to cover the operational costs of poachers, poaching organisers, and low-level facilitators, including equipment such as guns and ammunition, food, and transport.



Image 36: Significant volume of VND cash in the possession of Vietnamese trafficker Nguyen Van Nam in 2018.
Source: Wildlife Justice Commission.

Other subjects operating further along the supply chain have also been found to accept cash payments, even in destination locations. For instance, brokers in Vietnam usually require a 20-30% deposit to be paid prior to delivery, with the remaining balance paid upon receipt of the horns. While most brokers prefer these payments to be made by bank transfer due to the large amount of money involved, some will accept these payments in cash, either paid directly to the broker or to the courier upon delivery.

II Bank transfers

Transactions paid by wire transfers are more commonly used in the later stages of the supply chain, given the larger amounts of money involved. Wire transfers are practical as they are fast, secure, and enable the easy transfer of funds across countries and currencies. They are most commonly used by exporting and importing facilitators in origin, transit, and destination locations, as well as by customers at destination markets purchasing large quantities of product.

During undercover engagements in Vietnam, Wildlife Justice Commission operatives have frequently been offered the option to pay for rhino horns through wire transfer into different banks in China. Traffickers have explained that they use bank

accounts belonging to “currency converters”, who receive the payment in RMB, convert it to VND and transfer it back to Vietnamese bank accounts. Alternatively, the payments can be exchanged for VND in cash and trusted money mules carry it back to Vietnam. “Small roads near the border crossing area” between China and Vietnam are used to physically smuggle millions of RMB or VND in both directions across the border, and “everyday there are many people who ship stuff, so no problem”. The use of money mules is a frequent practice in organised crime generally as it allows the true beneficiary of the crime to remain hidden. Mules are often described as individuals who knowingly, or unknowingly, perform money courier services to launder the proceeds of crime, by depositing, withdrawing, and/or transferring funds on behalf of a criminal, or by allowing the criminal to freely use their bank account.¹¹⁷

Intelligence also indicates that some local exporters operating in African source locations are working for Vietnamese or Chinese traffickers, who possess bank accounts in their home country in Asia and prefer the funds to be transferred directly there.

¹¹⁷ <https://www.europol.europa.eu/operations-services-and-innovation/public-awareness-and-prevention-guides/money-muling>

III Alternative funds transfer systems

Alternative funds transfer systems such as hawala and Chinese flying money (feiqian), sometimes referred to as “underground banking”, are also common in the illegal rhino horn trade. These services are typically used to transfer funds from wholesale traders and customers in destination markets to export facilitators in source countries, who in turn disperse the funds locally to members of the criminal network to finance the operations.

Hawala and feiqian systems attract wildlife traffickers and criminals in general because they leave no electronic record of the transaction. These systems are based on mutual trust and bookkeeping, without the physical movement of cash across borders, and operate as follows: an individual contacts a broker in their country and transfers the amount of funds intended to be sent to a specific individual abroad; this broker will then contact another broker in the intended destination country and provide details of the transfer; the second broker will make the equivalent amount of funds available for the intended recipient to collect. The only trace of the transaction will be the brokers’ records, making it extremely difficult for law enforcement agencies to detect.¹¹⁸

In an investigation targeting a prominent ivory and rhino horn trafficker based in Mozambique, the Wildlife Justice Commission collected intelligence indicating that this criminal used underground banking services to receive funds from customers located in other countries as well as other higher-level members of his criminal network. In conversations with undercover operatives, he provided the details of a Chinese national based in Mozambique who was identified as a money launderer, who would arrange the transfer of funds from customers located in China to Mozambique. Under instructions from his “boss”, this trafficker would also frequently collect money from the Chinese national to finance the smuggling operations in Mozambique.

IV Mobile payments

Mobile and internet-based payment services have also been identified as a common method to conduct transactions at both the source and destination ends of the supply chain. This method allows criminal associates and end-consumers to deposit, withdraw, and transfer funds using a smartphone. Whilst some mobile money services are directly linked to a bank account or credit card, such as WeChat Pay or Alipay in China, others only require a mobile phone number to operate, such as M-Pesa in East Africa, which makes the latter very attractive

¹¹⁸. TRAFFIC (2020), *Case Digest: An Initial Analysis of the Financial Flows and Payment Mechanisms Behind Wildlife and Forest Crime*; and Oxpeckers (2019), *How Chinese Flying Money “Finances” Illegal Wildlife Trade*.

to criminals.¹¹⁹ In some cases the transaction sizes are limited, so they may be used to pay low-level poachers or couriers, or to purchase smaller quantities of raw or processed rhino horn products.

Although the Wildlife Justice Commission has not collected information on the use of mobile payment methods in African source countries, it is suspected that this could be one of the methods used to pay suppliers and poachers in Mozambique. M-Pesa is known to be widely used in Mozambique, especially in rural areas where there is limited access to traditional financial services. Whereas in destination markets, Wildlife Justice Commission investigations have found customers in China and Vietnam frequently use WeChat Pay to pay for rhino horn products both in physical

shops and in online sales for products advertised on the WeChat accounts of wildlife traders.

In an analysis of convicted wildlife crime cases published on China Judgements Online from 2015 to 2020, the Wildlife Justice Commission found the number of cases referring to the use of digital payment methods is increasing rapidly, and in 2020 was approximately equally split between WeChat Pay and Alipay. Alipay currently owns around 55% of the digital payment market in China compared to WeChat Pay which accounts for 40% of the market. Although most wildlife crime cases in China still involve cash and bank transactions, it is interesting to note the rapidly rising rate of digital payment methods (Table 14).

Table 14: Convicted wildlife crime cases involving digital payment methods, 2015-2020, based on data published on China Judgements Online.

	2015	2016	2017	2018	2019	2020
No. of convictions – Alipay	23	27	47	63	94	153
No. of convictions – WeChat Pay	0	2	19	27	55	146
Total no. of convictions related to digital payments	23	29	66	90	149	299
Rate of increase	-	26%	127%	36%	66%	100%
Total no. wildlife crime convictions	1,696	2,384	2,951	2,947	4,515	6,215
Proportion of all wildlife crime cases using digital payments	1.4%	1.2%	2.2%	3%	3.3%	4.8%

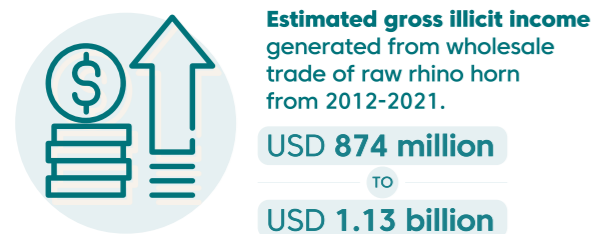
¹¹⁹. TRAFFIC (2020), *Case Digest: An Initial Analysis of the Financial Flows and Payment Mechanisms Behind Wildlife and Forest Crime*.



5.4. Illicit income generated from rhino horn trafficking

Comparing the rhino horn price data with rhino poaching numbers and seizure data allows for an estimation of the value of the illegal rhino horn trade at the wholesale trade level and the potential income generated by criminal networks.

This estimate followed the methodology described in the UNODC World Wildlife Crime Report 2020.¹²⁰ It is based on the estimated supply of rhino horns in illegal trade multiplied by the average wholesale price observed in key destination markets, to produce an approximation of the gross illicit revenue generated from the trade. The supply volume was calculated by estimating the amount of rhino horn produced through poaching incidents, adding it to the estimated amount of harvested horn diverted from legal stockpiles into the illegal trade, and subtracting the amount of rhino horn that is removed from the trade through law enforcement seizures. This estimate does not consider broader factors such as loss of taxes, environmental costs and damage, or potential loss of tourism



¹²⁰ UNODC (2020), *World Wildlife Crime Report*, pp.109-131.

¹²¹ CITES CoP19 Doc.75 (Annex 4), 'African and Asian Rhinoceroses – Status, Conservation and Trade', prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.9-10.

¹²² UNODC (2020), *World Wildlife Crime Report*, p.114.

income, which would also come into play in a full cost analysis of the illegal rhino horn trade.

The overall gross illicit income generated by the trade of raw rhino horns at the wholesale level during the 10 years from 2012-2021 is estimated to be between USD 874 million – 1.13 billion. This figure is believed to be a conservative estimate and does not account for any retail trade of processed products to consumers, which as illustrated in Figure 21, is substantial and could potentially generate considerably more than this amount.

The detailed calculations and various assumptions that underpin them are described below in Tables 15-18.

Explanatory notes and assumptions

→ The poaching figures are based on data reported to the CITES Secretariat¹²¹ (Figure 5).

→ Assumed that each rhino poached yields two horns.

→ Assumed average weight of 2.78 kg per horn, as described in the calculation notes in Chapter 2 of this report.

→ Based on UNODC methodology, it is assumed that 9% of poached horns are recovered in the field through anti-poaching and law enforcement operations.¹²² This quantity was subtracted from the estimated weight of horns to arrive at an estimation of the volume of poached horn that is available to enter illegal trade.

Table 15: Estimating the amount of African rhino horn produced through poaching incidents, 2012-2021.

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Reported poached rhinos	751	1,123	1,327	1,352	1,167	1,134	930	773	503	501
No. horns produced	1,502	2,246	2,654	2,704	2,334	2,268	1,860	1,546	1,006	1,002
Estimated weight of horns (kg)	4,176	6,244	7,378	7,517	6,489	6,305	5,171	4,298	2,797	2,786
Assumed recovery of horns in field (9%)	376	562	664	677	584	567	465	387	252	251
Poached horn entering trade (kg)	3,800	5,682	6,714	6,840	5,905	5,738	4,706	3,911	2,545	2,535
Total per period (kg)	9,482		13,554		11,643		8,617		5,080	

Table 16: Estimating the proportion of harvested horn diverted from legal stockpiles into illegal trade based on the proportion of harvested horns observed in seizures, 2012-2021.

Period	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021
Total volume of African horns seized (kg)	942	1,130	1,754	2,424	1,272
Confirmed harvested horns seized (kg)	0	0	359	563	53
Suspected harvested horns seized (kg)	88	141	237	641	439
Harvested horn ratio in seizures (%)	9%	12%	20-33%	23-49%	4-38%

Explanatory notes and assumptions

→ The volume of seized African rhino horns is based on the overall seizure data in Table 2 of this report, minus the Asian horn seizure data in Table 10.

→ The confirmed seizures of harvested horns are based on the data in Table 7 of this report.

→ The suspected seizures of harvested horns are based on the data in Figure 12 of this report.

→ It is assumed that the proportion of harvested horns in the illegal trade would be equivalent to the proportion of harvested horns that are observed in seizures. The ratio of harvested horn in seizures was calculated based on the volume of confirmed and suspected seizures of harvested horns as a percentage of the total volume of all seized horns.

Table 17: Estimating the total supply of rhino horns entering illegal trade, 2012-2021.

Period	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021
Ratio of poached and harvested horns in supply (%P, %H)	91%P 9%H	88%P 12%H	67 - 80%P 20 - 33%H	51 - 77%P 23 - 49%H	62 - 96%P 4 - 38%H
Poached horn supply (kg)	9,482	13,554	11,643	8,617	5,080
Harvested horn supply (kg)	937	1,848	2,911-5,735	2,574-8,279	212-3,114
Total supply (kg)	10,419	15,402	14,554-17,378	11,191-16,896	5,292-8,194

Explanatory notes and assumptions

→ Supply is assumed to consist of horns produced through poached rhinos and harvested horns diverted into illegal trade from stockpiles. As the harvested horn ratio was calculated in Table 16, the ratio of poached horn in supply is assumed to be the balance of this to form 100% of the supply.

→ The poached horn supply per period was calculated in Table 15. Based on this quantity and the ratio of poached horn in supply, the total supply can be calculated, along with the harvested horn component.



Table 18: Estimating the volume and value of rhino horns reaching Asian destination locations, 2012-2021.

Period	2012-2013	2014-2015	2016-2017	2018-2019	2020-2021	Total
Total supply (kg)	10,419	15,402	14,554-17,378	11,191-16,896	5,292-8,194	
Total volume of seized horns (kg)	942	1,130	1,754	2,424	1,272	
Volume reaching destination (kg)	9,477	14,272	12,800-15,624	8,767-14,472	4,020-6,922	
Vietnam average value (USD/kg)	18,591 - 22,257	18,591-22,257	20,424	14,006	12,069	
Minimum value (USD)	176,186,907	265,330,752	261,427,200	122,790,602	48,517,380	874,252,841
Maximum value (USD)	210,929,589	317,651,904	319,104,576	202,694,832	83,541,618	1,133,922,519

Explanatory notes and assumptions

→ By subtracting the total volume of seized horns from the total supply of horns, we are left with the volume of horns in trade that are assumed to reach their end destination.

→ Vietnam was selected as the basis for the value calculation, as it is one of the major destination countries for rhino horn and has the most price data points available to make the calculation. For the three periods of 2016-2017, 2018-2019, and 2020-2021, the value per period

was calculated as the average of the two annual values in Table 12. In the absence of price data for the years 2012-2015, a range based on the values for years 2016 and 2017 was used. As there was a declining trend in values between 2016 and 2020, it is possible that prices in 2012-2015 were higher than the range used in this calculation, and the calculated values therefore represent conservative estimates.

→ The minimum and maximum values were calculated by multiplying the volume of horns reaching their end destination by the average value in Vietnam.



6.

Use and consumption of rhino horn¹²³

The rhino horn trade in Asian consumer countries appears to centre on two diverse markets: one which uses horn as a luxury product and symbol of status, and the other for its purported medicinal properties. The market is dynamic, with some consumers reporting to purchase horn for both reasons¹²⁴ and others shifting their motivations for buying horn from status to medical purposes.¹²⁵ Yet, the size and scope of each market does not appear to be fully understood, the consequences of which may have significant implications from a policy and crime prevention perspective.

¹²³. Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

¹²⁴. Kennaugh, A. (2015). *Rhino Rage: what is driving illegal consumer demand for rhino horn*. New York, Natural Resources Defense Council.

¹²⁵. GlobeScan (2018). *USAID Research Study: Consumer Demand for Elephant, Rhino and Pangolin Parts and Products in Vietnam*.

KEY FINDINGS

- ✓ Investigations indicate there is a strong demand for rhino horn in China, especially for its potential as an investment item. This demand accounts for a substantial proportion of horn that is entering Vietnam before being smuggled overland to clients in China. More research is needed to inform behaviour change efforts to reduce the demand for rhino horns.
- ✓ Criminal investigations in Vietnam find that the rhino horn market is driven by Vietnamese nationals supplying Chinese buyers, particularly for worked products such as jewellery. Although Vietnam is known to be a primary destination for rhino horn, it is also clearly a highly significant transit area for products ultimately bound for China.

- ✓ Investigations found that only a small amount of rhino horn is in demand for medicinal purposes, usually the offcuts and leftover pieces following the carving process. These findings contradict the current narrative that the market for rhino horn is driven by Vietnamese demand for use in health tonics and as hangover cures.
- ✓ Over the past two years, several references have been made to the use of rhino horn to aid swift recovery following contracting the COVID-19 virus. However, given the status of the pandemic, the risk that this will materialise into a new trend or demand is assessed to be low. What this does reflect though is the versatility of criminals to manipulate and exploit opportunities such as COVID-19 for their own financial gain.

Rhino horn is commonly cited to be sought-after as an ingredient in traditional Chinese medicine (TCM) for its fever-reducing and cleansing qualities, and newer forms of demand in Vietnam where it has been believed to contain cancer-curing properties¹²⁶ and as a hangover tonic.¹²⁷ However, other studies have found that a distinct and much larger portion of rhino horn demand relates to decorative artefacts for its investment and collectable value.¹²⁸ Although little research exists on this type of demand, investigations by the Wildlife Justice Commission point to substantial demand for horn to be processed into jewellery, while the stockpiling of rhino horn is likely to be occurring for investment purposes specifically within China.

It is paramount that the range of factors driving crime are constantly evaluated and analysed to ensure the intelligence picture is up-to-date and informs the decision-making process at a policy and policing level, to identify the most effective way to intervene.

To exemplify, over the past few years demand reduction campaigns have tended to focus on the use of rhino horn for medicinal purposes within

Vietnam,¹²⁹ which may not have considered the popular use of rhino horn in worked form as items of jewellery and libation cups in China. The nature of the relationship this product has as an investment piece may also have been underestimated and overlooked from a behavioural change perspective.

Historic use of rhino horn for carving purposes

“What a shame that I don’t have a pair of wings like a phoenix so I can fly to my beloved one, but at least our shared hearts are deeply connected like those mysterious rhino horns.”

— LI SHANGYIN (813-858)

¹²⁶. <https://www.theguardian.com/environment/2011/nov/25/cure-cancer-rhino-horn-vietnam>

¹²⁷. Rademeyer, J. (2012). *Killing for profit: Exposing the illegal rhino horn trade*. Zebra Press: Cape Town.

¹²⁸. Gao, Y., Stoner, K. J., Lee, A. T., & Clark, S. G. (2016). Rhino horn trade in China: An analysis of the art and antiques market. *Biological Conservation*, 201, pp. 343-347.

UNODC (2020). *World Wildlife Crime Report 2020*. https://www.unodc.org/documents/data-and-analysis/wildlife/2020/World_Wildlife_Report_2020_9July.pdf

¹²⁹. Gao et al. (2016).

As early as the T'ang dynasty (618-907 AD), the medicinal use of rhinoceros horn has been recorded in China. It was believed that when a poisonous liquid was poured into a rhino horn cup, the cup would change colour or white foam would appear to alert the presence of poison.¹³⁰



Image 37: Antique carvings on rhino horn libation cup from Gettysburg College Special Collections. **Source:** https://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1026&context=wonders_exhibit

¹³⁰ Jenyns, R. S., & Watson, W. (1982). *Chinese Art III*. Rizzoli: New York, p. 137.

Crosta A, Sutherland K, Talerico C. (2017). *Grinding rhino: An undercover investigation on rhino horn trafficking in China and Vietnam*. Elephant Action League, Los Angeles, USA. www.rhinoresourcecenter.com/pdf_files/150/1500406763.pdf

Rademeyer (2012).

¹³¹ Jenyns & Watson (1982), p. 140.

Chapman J. (1999). *The art of rhinoceros horn carving in China*. Christie's Books Ltd., London, UK.

¹³² <https://www.savetherhino.org/our-work/reducing-illegal-trade/rhino-horn-could-be-laundered-in-uk-antique-trade/>

¹³³ USFWS. (n.d.) *Facts about Rhino Horns*. U.S. Fish and Wildlife Services. <https://medisf.traasgpc.com/mfis/34e20b34163e13dd.pdf>

The Ming dynasty (1368-1644 AD) was the most popular period in terms of demand for rhino horn carvings. Intercontinental trade routes with Africa had been established, giving access to black and white rhino horns.¹³¹

By the time of the Qin (221-207 BC) and Han (206 BC-220 AD) dynasties, rhinos had already become rare, and by the Qing dynasty (1644-1912), the entire rhino population in China had been poached to extinction.

Trade in rhino horn (including carvings) has been illegal in China since 1993, although antique rhino horn carvings (pre-CITES specimens prior to 1947) are permitted to be sold and auctioned for artistic purposes.¹³² The trade and transportation of antiques is controlled through domestic regulations.¹³³ A prominent example of this trade is the Bonhams auction in Hong Kong SAR in 2018, where libation cups, snuff bottles, pouring vessels, a hairpin and a knife made of rhino horn were auctioned.

The current black market in rhino horn carvings

The historic expert carving of rhino horn is believed to no longer exist, but new carving practices have emerged in recent years.¹³⁴ Several contemporary uses of carved rhino horn include the demand for carved artefacts (both antiques and new) as an investment or collector's item, for laundering poached horns and as fake antique rhino horn artefacts.

Furthermore, Wildlife Justice Commission's investigations continue to find that the majority of horns in circulation are being used to carve luxury products, such as bangles and beads. Whole horns are in demand in China, and intelligence reports in May 2021 indicate that a new demand exists for whole horns (not pieces) among wealthy people in Cambodia, although more information is needed to ascertain the significance of this threat. It appears that only a small amount of rhino horn is in demand for medicinal purposes, usually the offcuts and left-over pieces following the carving process which are ground to make rhino horn powder.¹³⁵ As one Vietnamese trader explained in 2022, the Chinese rhino horn market is far larger than the Vietnamese market, with Chinese buyers preferring to use rhino horn

for display items such as jewellery and tea sets, and if it is used in traditional medicine, it is in a "small dose mixed with other ingredients". He claimed that Vietnamese consumers tend to use rhino horn to "show off and don't understand its usages well". These findings contradict the current narrative that the market for rhino horn is driven by Vietnamese demand for use in health tonics and as hangover cures.

Between 2015 and 2016, the Wildlife Justice Commission conducted an extensive, 18-month long investigation in Vietnam (Operation Phoenix),¹³⁶ which found the major use of rhino horn was for carved products such as art, jewellery, and décor. During the entire investigation, an estimated 1,061 kg of rhino horns in both raw and processed form were observed in trade. A substantial proportion of this was offered for sale as worked horn items, with the market appearing to be driven by Vietnamese nationals supplying Chinese clientele with rhino horn products.¹³⁷

To illustrate the size of this trade, an extrapolation from the quantity of horn parts and products observed during the investigation suggested the volume of these commodities represented a minimum of 401 and a maximum of 579 rhinos (Table 19), and therefore potentially up to 43% of all

¹³⁴ Vigne, L. (2020). *The rhino horn and ivory trade: 1980-2020*. Doctoral dissertation, Oxford Brookes University.

¹³⁵ Also documented by: Vigne, L. (2020). *The rhino horn and ivory trade: 1980-2020*. Doctoral dissertation, Oxford Brookes University.

¹³⁶ Wildlife Justice Commission (2017), *Operation Phoenix Briefing*.

¹³⁷ These characteristics are further described in section 3.3 of this report.

African rhinos poached in 2015.¹³⁸ As such, this one market and the way it operated can be understood to be representative of a large portion of the global illegal rhino horn trade.

Table 19: The range of rhino horn products offered for sale during Operation Phoenix.

Commodity Type	Number of rhinos		Estimated Value	
	Min.	Max.	VND	USD
356 horns/tips	178	356	952,400,000,000	42,700,000
Processed products	223	223		
	401	579		

The majority of traders were found to be dealing in rhino horn jewellery (beads, pendants, bracelets, bangles), libation bowls, tea sets, and offcuts or blocks/shapes ready for carving.¹³⁹ Table 20 provides an overview of the type and number of products directly observed for sale and highlights the prevalence of artefacts and jewellery products in trade. Beads made from rhino horn were the most frequently occurring item offered for sale.

In contrast, and unexpectedly, any appetite for rhino horn for medicinal purposes was not observed. To demonstrate, of over 8,000 images of illegal wildlife products offered for sale during

¹³⁸. According to African rhino poaching statistics reported to the CITES Secretariat: CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceroses – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission’s African and Asian Rhino Specialist Groups and TRAFFIC.

¹³⁹. Wildlife Justice Commission, (2017), *Black Business: Illegal Rhino Horn Trade Dynamics in Nhi Khe, Viet Nam from a Criminal Perspective*.



Image 38: One unprocessed rhino horn on a scale, weighing 282.9 g. Source: Wildlife Justice Commission.

the investigation to undercover operatives, less than five featured offcuts of rhino horn. In terms of volume, 125 kg of offcuts (including blocks/shapes ready for carving) were documented for sale, accounting for 11% of the total rhino horn products observed (Table 20). It was assessed that because the trade in offcuts is opportunistic and does not constitute a significant share of the market in terms of volume or financial value, that it represents a much lower criminal threat than the trade in carved products.

Table 20: The range of rhino horn products offered for sale during Operation Phoenix.

	Whole horn/tips	Bangles	Bracelets	Pendants	Beads	Libation bowl/cups	Offcuts (kg)
Total	356	781	530	1,778	10,123	1,099	124.6

Consideration may need to be given to the potential over-representation of a Chinese market due to the use of covert Wildlife Justice Commission investigators of Chinese ethnicity, which could have had the effect of minimising the Vietnamese element of the market. Yet, given the volume of products documented during the investigation, estimated to be worth USD 42.7 million based on prices of products offered at that time (Table 19), it is likely to account for a substantial proportion of the rhino horn market, the vast majority of which was aimed at Chinese nationals. Furthermore, Wildlife Justice Commission investigations have consistently found Vietnamese wholesale traders are less willing to deal with covert investigators of Vietnamese ethnicity as they are not viewed as serious buyers of rhino horn.

Although Vietnam is known to be a primary destination for rhino horn, it is also clearly a highly significant transit area for products ultimately bound for China. Research that has relied on a review of trafficking patterns and expatriate involvement in

¹⁴⁰. <https://www.bbc.com/news/world-asia-china-42532017>

¹⁴¹. Wildlife Justice Commission (2020). *Operation Jeopardy: The growing relevance of Cambodia in the global ivory trade*.

¹⁴². <https://www.theguardian.com/world/2011/aug/14/china-boom-fuels-africa-poaching>

Africa may have overstated the significance of the domestic Vietnamese market.

The rhino horn carving process

The modus operandi of ivory carving in Asian consumer countries is well-documented. Ivory carving was particularly popular in the 1980s. However, between 1991 and 1993 demand fell, and all ivory carving shops were forced to close in China following the domestic ivory trade ban in 2017.¹⁴⁰ However, very little is known about the carving and manufacturing process of rhino horn in China. The automation and mass production of ivory carvings is well-researched. For example, in Operation Jeopardy, the Wildlife Justice Commission discovered sophisticated ivory carving machines in a factory in Cambodia.¹⁴¹ In many studies, ivory and rhino horn carving factories are mentioned together, suggesting both products may be processed in the same factories.¹⁴² Some studies report that mechanical rhino horn processing in factories is preferred by traders to keep prices low

and reach a bigger clientele,¹⁴³ as was observed during Operation Phoenix.



Image 39: Bracelet made from rhino horn observed during Operation Phoenix. **Source:** Wildlife Justice Commission.

During Wildlife Justice Commission investigations, many Vietnamese and Chinese traders involved in the supply of illegal wildlife products have provided insights about the way the carving process of rhino horn works between Vietnam and China.

○ **It is believed** that some proportion of products are carved in China and then brought into Vietnam to sell. During one conversation with a trader based in Pingxiang, Guangxi province who was involved in the trafficking of ivory and rhino horn carvings, it was reported that he no longer has Vietnamese ivory pendants and will only import the uncarved pendants from Vietnam. He stated that this is because the carving skill in Vietnam is so bad, rendering the products difficult to sell. The carved pendants he sells are all custom made in China, where he stated, “people’s standards are quite high”.

○ **Another Vietnamese trader** claimed he worked as a primary-level supplier and made little profit from this level of trade, i.e. his customers would on-sell his products to a third trader, who then sells to the end-consumers, and thereby they can earn much higher profits. He said that products are imported from Vietnam to Dongyang, Zhejiang province for further carving. Goods also go the other way around, which are directly purchased in Zhejiang or Fujian provinces and then sent down to Pingxiang after being carved.

○ **One Chinese trader** based in Malaysia offered undercover operatives raw rhino horns for sale, as well as three libation cups/bowls, all of which had been processed and carved in Putian, Fujian province and stocked in China. The trader also complained that the carvers were keeping the offcuts of the rhino horn from the carving, on top of their carving fee.

○ **In December 2016**, a Wildlife Justice Commission investigator was offered one whole rhino horn, as well as six rhino horn bangles and eight rhino horn bracelets weighing 603 g in total. The Chinese trader reported to the investigator that he was located in Xianyou, Fujian province, and that all the rhino horn products he has access to were stocked in Fujian.

Similar dynamics have been observed in relation to the ivory carving process, where raw ivory is smuggled into Southeast Asia from Africa, broken down into smaller consignments and then processed into worked goods at various locations. Better quality carving (for ivory and rhino horn) tends to occur in China where finished items are then moved into retail sites across the region where it is safer to operate, such as Cambodia, Lao PDR, and Vietnam. Given the scale of trade in carved rhino horn products documented during Operation Phoenix, greater effort needs to be placed on fully assessing the size of this market and the risk that it presents.



Image 40: One rhino horn libation cup weighing 83.1 g on a scale. **Source:** Wildlife Justice Commission.

Some Vietnamese traders have referred to the “Three Regions Brothers Club”, a Vietnamese business network where jewellers, carvers, wildlife traders, and gem traders would meet on a regular basis to exchange business ideas, experiences, and facilitate trade deals among each other. Networking events would be held a few times per year, attended by at least 50 traders. The club has reportedly disbanded.



Image 41: One libation cup. **Source:** Wildlife Justice Commission.

¹⁴³. Ammann (2011); Hübschle (2016); Crosta et al. (2017); Vigne (2020); Vigne & Martin (2018).

Intelligence Gap: Manufacturing rhino horn products outside of Asia

A 2017 TRAFFIC report assessing trends in the rhino horn trade between 2010 and 2017 revealed that criminal syndicates of Chinese origin, operating in South Africa, were manufacturing finished rhino horn artefacts such as beads, bracelets, bangles, bowls, cups, rough disks and rhino horn powder in source countries, prior to smuggling them to Southeast Asia.¹ The concerns raised were in reference to the possibility that the detection of such goods is harder, as they do not look like rhino horn. TRAFFIC reported that this trend might amplify the challenge presented to law enforcement along the rhino horn supply chain to intercept rhino horn products. Several small home workshops were discovered during police investigations in South Africa where rhino horn was cut, carved, and packaged for export. Also fakes, primarily made from cow horn, were found to be processed in South Africa.²

One such example was a raid on a house near Johannesburg in June 2017, where police discovered a manufacturing workshop.^{3,4} An unspecified quantity of large, polished beads, slices and other carvings were seized, along with processing tools

such as a bandsaw and an angle grinder. Two bags containing rhino horn powder and offcuts were also found, along with a cooler box containing frozen lion bones and illegal ammunition. Two Chinese and one Thai national were arrested.

The extent to which this type of activity is occurring is not fully understood. Occasionally, manufactured horn products have appeared in shipments, though they've rarely contained beads or bracelets derived from rhino horn. Many of these cases were in 2017 which would suggest they are a low risk compared to other types of smuggling methods being applied to rhino horn, but this should be continually monitored as a potential threat.



Image 42: Rhino horn beads seized in South Africa. **Source:** <http://germistoncitynews.co.za/154695/rhino-horn-lion-bones-found-at-house-in-wychwood/>

1. TRAFFIC, (2017). *Pendants, powder, and pathways: A rapid assessment of smuggling routes and techniques used in the illicit trade in African rhino horn.*

2. Ibid.

3. <https://eia-international.org/wp-content/uploads/Rhino-horn-map-data-public-2.pdf>

4. <http://germistoncitynews.co.za/154695/rhino-horn-lion-bones-found-at-house-in-wychwood/>

Investment and collectable value

Despite international media and conservationists often attributing the poaching of rhinos to demand for rhino horn in TCM and other health or recreational uses in Vietnam, horn appears to be mainly sought-after for its rarity as a collector's item and prestige of ownership, both in China and Vietnam. In particular, the art and antiques market for rhino horn carvings appears to be an underestimated driver of rhino horn consumption in China. Media content analysis of Chinese newspapers revealed that rhino horn consumption was most frequently reported for investment and collectable value (75%) and artistic value (40%), with a smaller portion for medical value (29%).¹⁴⁴ In Chinese media, rhino horn art is portrayed as an excellent investment opportunity, the value of which is tied more to its rarity than its artistic nature.¹⁴⁵

The demand for rhino horn for its investment and collectable value is distinctly different from the market in TCM and other health or medicinal uses. In addition to the underground supply chain, a different group of stakeholders is involved to supply this demand, including antique dealers, art collectors, investors, speculators, auction houses, investment companies, and museums. This should be seen as an additional, separate threat to rhino conservation efforts,¹⁴⁶ while the lack of research and

¹⁴⁴. Gao et al. (2016), p.343.

¹⁴⁵. Ibid.

¹⁴⁶. Ibid.

information available concerning this situation is a key intelligence gap.

The Wildlife Justice Commission has observed a preference for fresh horn in the trade, often the fresher the better. Rhino horn does degrade over time, unlike other high-value wildlife commodities such as ivory. Degradation would affect the use of raw horn as an investment product and could reduce the long-term value of rhino horn stockpiles. However, once it is carved and polished, rhino horn preserves well and is less susceptible to moulding and deterioration. The Wildlife Justice Commission has also directly observed 'care takers' in Vietnam drying newly imported poached horns with a hair dryer to reduce such moulding and loss of material. During investigations, wild rhino horns appear to be more desirable in the trade than farmed horn, due to this perceived freshness. However, this does raise questions about how the freshness of a horn affects its value when used for investment purposes.

Laundering poached horns as antiques

As the trade in antique (pre-CITES) rhino horn artefacts is both legal and lucrative, and because these objects are much sought-after amongst art collectors and connoisseurs in both Asian and

Western markets, a trend was witnessed whereby poached raw rhino horns are processed and sold as fake antiques.¹⁴⁷ Hence, recently poached horns were laundered through antique markets. An example is the case of Zhifei Li, the owner of an antique business in China, who had smuggled carved rhino horn artefacts from the United States via Hong Kong SAR to China.¹⁴⁸ Li admitted to selling 30 raw rhino horns to factories in China, where the horns were processed into fake antiques. This process has been coined ‘zuo jiu’ (meaning ‘to make old’). Further, Li admitted to selling rhino horn and ivory artefacts to buyers in Europe and the United States through auction websites and phone bidding. Upon his arrest, Li claimed his rhino horns were over 50 years old and that no CITES permits were required for pre-Convention horns – both claims were false.¹⁴⁹

Similar concerns have been raised regarding the antique market in the UK. A study found that 1,247 rhino horn antiques were sold in this manner between 2017 and 2019, which reflected a 101% increase in ‘antique’ horn carvings.¹⁵⁰ Furthermore, many offers for antique carvings were either missing

or had inadequate age estimates of the artefacts, making it impossible to prove that the items were pre-Convention. In total, 89% of the purportedly ‘antique’ carvings lacked proof of origin or age.¹⁵¹ However, detailed information on the weight in grams or kilograms was provided, indicating that the artefacts were not aimed at genuine antique collectors. Several strikingly similar, modern-looking artefacts were offered in 2019, which instigated a police investigation. Many of the rhino horn antiques were sold for suspiciously low prices, which might indicate that laundering horns through the antiques trade has presented a cheap alternative for acquiring rhino horn in consumer countries. Five British auction houses



Image 43: Rhino horn antique artifacts. **Source:** https://news.cgtn.com/news/3d3d514e7941444f30457a6333566d54/share_p.html

^{147.} Hübschle, A. (2016). *A game of horns: transnational flows of rhino horn*. Doctoral dissertation, University of Cologne. <https://www.savetherhino.org/our-work/reducing-illegal-trade/rhino-horn-could-be-laundered-in-uk-antique-trade/>; <https://animalsurvival.org/trade-and-legislation/criminals-may-be-using-antiques-as-a-way-to-launder-rhino-horn/>

^{148.} Hübschle (2016), pp.362-363. <https://www.justice.gov/usao-nj/pr/ringleader-international-rhino-smuggling-conspiracy-pleads-guilty-new-jersey-wildlife>

^{149.} Ibid.

^{150.} Brace, S., & Dean, C. (2019). *Sounding the horn: An update. Three years of rhino horn antiques sold at auction in the UK, 2017 to 2019*. Save The Rhino.

^{151.} Ibid.

advertised in Mandarin, clearly catering for Chinese buyers. This in itself is not alarming, considering the antiques market in China, but combined with the other factors, it is a concerning sign.¹⁵²

Traditional medicinal use of rhino horn in China

Bencao Gangmu or Compendium of Materia Medica, written by Li Shizheng in 1578 Ming Dynasty China, alluded to “rhino horn... bitter, sour, salty, cold, not poisonous... mainly used to cure spitting blood... grind rhino horn in water, turn it into thick fluid and swallow, immediate effect. Detoxification, reduce the body heat.”

Prior to China’s ban on domestic trade and medicinal use of rhino horn and the removal of rhino horn from the Chinese Pharmacopoeia in 1993, it was considered to be an effective and important ingredient in traditional Chinese medicines. Even after 1993, rhino horn is still regarded by many in China, as well as other Sinosphere countries, for its medicinal use. TCM practitioners most commonly prescribe rhino horn for dispelling heat, detoxification, cooling the blood and treating *wenbing* or warm-heat infectious diseases.¹⁵³ Rhino horn for

medicinal purpose is consumed by dissolving powder or thin shavings in tea, hot water, or alcohol.

Today, consumers appear to use rhino horn more liberally and not necessarily with a prescription for what TCM practitioners consider necessary, thereby potentially inflating demand.¹⁵⁴ A quantitative online survey by USAID Wildlife Asia in 2018 (coinciding with the lunar new year gifting season) of 1,800 self-reported wildlife consumers in China found indications of some shift towards viewing rhino horn as medicine (for well-being, good health, curing illness, etc.) over the status-related motivations such as affirmation of wealth and success.¹⁵⁵



Image 44: A piece of rhino horn on a ceramic grinding plate in Vietnam. **Source:** <https://www.theatlantic.com/science/archive/2017/06/rich-men-rhino-horns/529455/>

^{152.} Ibid.

^{153.} Cheung, H., Mazerolle, L., Possingham, H. P., & Biggs, D. (2018). *Medicinal use and legalized trade of rhinoceros horn from the perspective of traditional Chinese medicine practitioners in Hong Kong*. Tropical Conservation Science, 11, 1940082918787428. Cheung, H. (2021). *Rhinoceros Horn and Traditional Chinese Medicine: Demand in China*. Doctoral dissertation, University of Queensland.

^{154.} Cheung, et al. (2018), Cheung (2021).

^{155.} CITES CoP18 Doc 83.1.

In 2018, China's State Council issued an official circular to reopen its domestic trade and permit some medicinal rhino horn use under specific conditions.¹⁵⁶ However, implementation has been postponed following international criticism and the former ban is maintained, though it appears that the intention remains to reopen trade at some point in the future.¹⁵⁷

Historically there has been a preference for the Asian species of rhino and its purported benefits for traditional medicine. Specifically, in Taiwan, pharmacists surveyed in the 1990s stated that Asian or 'fiery' rhino horn was more potent and effective than its African 'water' counterpart. Due to the limited number of Asian rhinos across their range in comparison to African rhinos, Asian rhino horns are rarer in trade and subsequently more valuable.

Use of rhino horn as a hangover cure in Vietnam

Rhino horn use in Vietnam has been associated with a means to show power, wealth, and social status,¹⁵⁸ and treating hangovers has been cited as the most popular use of rhino horns among high-income Vietnamese in urban areas.¹⁵⁹ This has been described as showing utilitarian values among users and thus explaining modern motivations to consume rhino horn in Vietnam.¹⁶⁰ A 2015 survey of over 600 wealthy Vietnamese men in Hanoi and Ho Chi Minh City found that of those who admitted to using rhino horn, 47% reported to use it as a cure for hangovers.¹⁶¹ A 2012 report by TRAFFIC also described rhino horn consumers in Vietnam who "routinely mix rhino horn powder with water or alcohol as a general health and hangover-curing tonic,"¹⁶² an extravagant version of a detox routine.

¹⁵⁶. http://english.www.gov.cn/policies/latest_releases/2018/10/29/content_281476367121088.htm

¹⁵⁷. Cheung, H., Mazerolle, L., Possingham, H. P., & Biggs, D. (2021). *China's Legalization of Domestic Rhino Horn Trade: Traditional Medicine Practitioner Perspectives and the Likelihood of Prescription*. *Frontiers in Ecology and Evolution*, 21 April 2021.

¹⁵⁸. <https://theculturetrip.com/asia/vietnam/articles/how-vietnams-rich-are-drinking-rhino-horn-to-cure-hangovers/>

¹⁵⁹. Vu, H.N.D. and Nielsen, M.R. (2020), *Evidence or delusion: a critique of contemporary rhino horn demand reduction strategies*. *Human Dimensions of Wildlife*: Vol 26, No 4, pp.390-400;
Vu, H.N.D. and Nielsen, M.R. (2018), *Understanding utilitarian and hedonic values determining the demand for rhino horn in Vietnam*. *Human Dimensions of Wildlife*: Vol 23, No 5, pp.417-432.

¹⁶⁰. Vu, H.N.D. and Nielsen, M.R. (2018), *Understanding utilitarian and hedonic values determining the demand for rhino horn in Vietnam*. *Human Dimensions of Wildlife*: Vol 23, No 5, pp.417-432.

¹⁶¹. Dao Truong, V. et al. (2015), *The marketplace management of illegal elixirs: Illicit consumption of rhino horn*. *Consumption Markets & Culture*, Vol 19, No 4, pp.353-369.

Patton, F. and Ammann, K. (2015), *From health to wealth - understanding the trade in rhino horn in the age of affluence*. *Pachyderm Journal*, No. 57, pp.122-124.

¹⁶². Milliken, T. and Shaw, J. (2012), *The South Africa - Vietnam Rhino Horn Trade Nexus*. TRAFFIC, Johannesburg, South Africa.

Use of rhino horn as an aphrodisiac in Vietnam

The 2012 TRAFFIC report also described consumers who believed that rhino horn could cure impotence and enhance sexual performance. Vietnam appears to be the only country in the world where rhino horn has gained a reputation as an aphrodisiac.¹⁶³ According to another study, a Vietnamese website claimed that "rhino horn is more effective than Viagra, allowing men to have sex for 2 to 4 hours".¹⁶⁴ Current Vietnamese websites describe that "recently, it was thought that rhino horn has a strong aphrodisiac effect, curing impotence."¹⁶⁵

The TRAFFIC report states that Vietnamese buyers who believe in rhino horn's aphrodisiac powers may have picked up on a media obsession with the

idea.¹⁶⁶ Misrepresentations of rhino horn being consumed in Southeast Asian countries as an aphrodisiac are commonly present in Western media,¹⁶⁷ and while there have been instances of rhino horn consumed as an aphrodisiac by the elite in Vietnam, it is generally not consumed for this purpose.¹⁶⁸

Use of rhino horn 'glue' in Vietnam

New research from TRAFFIC in 2022 has found online advertisements for rhino horn 'glue' in Vietnam as a new product being marketed to consumers. The 'glue' is reported to be made from a combination of rhino horn, rhino skin, pangolin, sea-horse, gecko, and other components and sold as a treatment for male sexual enhancement, as a tonic for the liver, kidneys, and eyes, as a detoxicant, to strengthen joints, and potential cancer cure, among other purported uses. At this stage, little is known about what type of consumers are using the 'glue' or how widespread it is.¹⁶⁹

¹⁶³. Ibid.

¹⁶⁴. Smith, D. (2012), *Rhino Horn: Vietnam's new status symbol heralds conservation nightmare*. *The Guardian*.

¹⁶⁵. <https://thuocchuabenh.vn/vi-thuoc-dong-y/te-giac.html>

¹⁶⁶. Milliken, T. and Shaw, J. (2012), *The South Africa - Vietnam Rhino Horn Trade Nexus*. TRAFFIC, Johannesburg, South Africa.
Smith, D. (2012), *Rhino Horn: Vietnam's new status symbol heralds conservation nightmare*. *The Guardian*.

¹⁶⁷. <https://www.scientificamerican.com/article/the-hard-truth-about-the-rhino-horn-aphrodisiac-market/>
<https://www.herald.co.zw/of-rhino-horns-aphrodisiac-and-fingernails/>

¹⁶⁸. <https://www.scientificamerican.com/article/the-hard-truth-about-the-rhino-horn-aphrodisiac-market/>

¹⁶⁹. CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros - Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.25.

| The impact of COVID-19

There were fears that wildlife products used in TCM, such as rhino horn, could increase in demand in consumer countries as COVID-19 remedies,¹⁷⁰ causing the media to coin the situation a ‘COVID conservation crisis’.¹⁷¹ Although many of these impacts rely on speculation rather than evidence, it is suspected that the long-term impact of the COVID-19 pandemic on rhino poaching could be detrimental to conservation and counter-poaching efforts.

The traditional use of rhino horn to reduce body heat and treat *wenbing* or warm-heat infectious diseases¹⁷² would include diseases such as COVID-19.¹⁷³ This may provide some substance as to why medicines containing rhino horn may be consumed in response to COVID-19.

More specifically, during the Wildlife Justice Commission’s investigations over the past two years several references have been made to the use of rhino horn to aid swift recovery following contracting the COVID-19 virus. However, given the advanced status

of the pandemic, the risk that this will now materialise into a new trend or demand is assessed to be low. What this does reflect though is the versatility of criminals to manipulate opportunities such as COVID-19 to exploit for their own financial gain.



Image 45: Various rhino horn products including nine horn tips, 14 unprocessed pieces, 27 carved pieces, 10 bangles, approximately 10 bracelets, and 22 libation cups (at the back). **Source:** Wildlife Justice Commission.

¹⁷⁰. <https://www.nationalgeographic.com/animals/article/chinese-government-promotes-bear-bile-as-coronavirus-covid19-treatment>

¹⁷¹. <https://theecologist.org/2021/aug/17/covid-conservation-crisis>

¹⁷². Cheung, et al. (2018), Cheung (2021).

¹⁷³. Liu, C. H., & Wang, Y. (2020). *Discussion on the application of febrile disease theory to the diagnosis and treatment of COVID-19*. Shanghai Zhong Yi Yao Za Zhi, 54(3), pp.5-8.

7.

Impact of law enforcement efforts¹⁷⁴

This chapter identifies examples of positive law enforcement developments to combat rhino horn trafficking during the past 10 years and areas where some crucial gaps remain. Whilst it is recognised that many countries have stepped up their efforts to detect, investigate, prosecute, and adjudicate these crimes, this chapter focuses on the six most prominent countries and territories in the rhino horn supply chain which proportionately have a much larger role to play in responding to the global problem and disrupting criminal networks: South Africa, Mozambique, Malaysia, Hong Kong SAR, Vietnam, and China.

¹⁷⁴. Sanitised intelligence and findings from seven years’ worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

South Africa



Good practice

Establishing the Environmental Enforcement Fusion Centre as a national facility providing analytical capacity and integrating intelligence-led enforcement to boost tactical and strategic anti-poaching efforts.

South Africa has introduced a suite of measures over the last 10 years that have elevated rhino poaching as a national priority issue and oriented the approach towards tackling it as a form of transnational organised crime. In 2014, the government adopted the Integrated Strategic Management of Rhinoceros plan, a multidisciplinary strategy that brings the work of the Department of Forestry, Fisheries, and the Environment (DFFE) together with the South African Police Service (SAPS), the Directorate for Priority Crime Investigation (the Hawks),

the Department of Justice, and other sectors of the security cluster.¹⁷⁵ Since 2017, South Africa has also implemented the National Integrated Strategy to Combat Wildlife Trafficking, in which rhinoceros is one of the priority species.¹⁷⁶ As the law enforcement response has been progressively scaled up, various operational, technological, and legal interventions have been implemented and are resulting in hundreds of arrests each year (Figure 22), inclusion of charges for additional offences in some cases (such as racketeering, fraud, and money laundering), and the imposition of heavy prison penalties in convicted cases.¹⁷⁷

These results are not without their criticisms, as it has been highlighted that a comparatively low number of arrests are prosecuted, and the majority of rhino-related cases that do end up in court involve lower-level poachers who are sentenced harshly for their crimes,¹⁷⁸ such as three poachers who were sentenced to a combined 105 years imprisonment in September 2021 for killing three rhinos.¹⁷⁹ Meanwhile cases involving higher-level suspects such as alleged poaching kingpin Dumisani Gwala (first arrested in 2014), game farmer Dawie Groenewald (first arrested in 2010 and again in 2021), and

175. <https://www.dffe.gov.za/progressonimplementationofintegratedstrategicmanagementofrhinoceros>

176. https://sherloc.unodc.org/cld/en/treaties/strategies/south_africa/zaf0001s.html

177. For example, in May 2022 two South African poachers were convicted and sentenced to 22 years in prison each (although some sentences will run concurrently), for poaching crimes committed in 2018: <https://lowvelder.co.za/782850/skukuza-regional-court-shows-three-poachers-no-mercy/>

178. <https://oxpeckers.org/2021/02/sas-rhino-convictions/>

179. <https://earth.org/3-poachers-received-combined-105-years-sentencing-for-rhino-poaching-in-south-africa/>



Figure 22: Reported numbers of rhinos poached in South Africa compared the number of poachers and traffickers arrested and convicted, 2017-2021.¹⁸⁰

former police officer Joseph “Big Joe” Nyalunga (first arrested in 2011), have all faced substantial delays in the court system and remain ongoing.¹⁸¹ Deterrent penalties are a crucial part of the criminal justice response, but if they are misdirected at easily replaceable, lower-level actors while higher-level criminals enjoy impunity they will have no impact on stopping crime. This is evident in the continuing high levels of rhino poaching in South Africa

despite the myriad law enforcement interventions over the years.

However, a recent initiative that should be seen as best practice in this field is the establishment of the Environmental Enforcement Fusion Centre (EEFC). The EEFC is a unique facility that aims to increase analytical capacity and boost anti-poaching efforts at the tactical and strategic levels by integrating

180. Data compiled from the annual rhino poaching reports published by the South African Department of Forestry, Fisheries, and the Environment.

181. <https://oxpeckers.org/2021/02/sas-rhino-convictions/>



intelligence-led enforcement. It consists of an analytical unit with seven criminal intelligence analysts and an investigations unit, and plans are underway to include a cybercrime unit in the future. The EEFC works at the national level and provides analytical products for SAPS, provincial conservation agencies, and the DFFE's Green Scorpions (environmental compliance officers), and also works closely with other intelligence agencies and analysts working in protected areas at the provincial level. The structure and mandate of the EEFC is effectively joining the dots in what has otherwise been a fragmented approach to law enforcement in South Africa, where the majority of resources had focused on the poaching threat in protected areas while authorities were slow to focus on the organised crime elements emanating from outside the parks.

Other positive indications that South Africa is increasingly looking beyond site-level anti-poaching solutions can be seen in the controlled delivery operation the Hawks conducted with Vietnam in July 2021 of a shipment of 138 kg of rhino horns and 3.1 tonnes of suspected lion bones,¹⁸² and

joint cross-border investigations with China that have resulted in arrests in both countries.¹⁸³

There appears to be a perception among some stakeholders in South Africa that permitting issues around the domestic trade and transportation of harvested horns represent minor administrative violations that should be enforced as such.¹⁸⁴ The South African government's regulatory system requires provincial conservation departments to issue permits for the transportation and domestic trade of legal, registered harvested horns,¹⁸⁵ and there has been pressure from some quarters for more lenient treatment of domestic seizures of rhino horns moving without such permits or outside of the permit scope.¹⁸⁶ However, considering that estimates of 18-33% of rhino horn seized globally is originating from legal horn stockpiles,¹⁸⁷ those types of domestic offences in South Africa could be preliminary offences committed prior to more significant international smuggling offences, and present valuable entry points for further investigation into potential links to transnational organised crime and illegal trade.

¹⁸². <https://tuoitrenews.vn/news/society/20210718/vietnamese-customs-seize-large-shipment-of-suspected-rhino-horns-wildlife-bones/62132.html>

¹⁸³. https://www.dffe.gov.za/mediarelease/rhinopoaching_2021

¹⁸⁴. For example, this is suggested by the High Court challenge to release seized rhino horns from police custody that were the subject of a criminal offence for illegal possession and transportation of horns without a permit: <https://sundayworld.co.za/business/rhino-breeder-loses-millions/>

¹⁸⁵. <https://www.dffe.gov.za/mediarelease/deaclarifiesrhinohorntrade>

¹⁸⁶. <https://sundayworld.co.za/business/rhino-breeder-loses-millions/>

¹⁸⁷. Refer to Key finding (v) of Chapter 2 for full details of this estimation.

Mozambique



Good practice

Appointment of special prosecutors in each province who are mandated to deal with environmental crimes, assisted by technical experts in the responsible investigating agencies.

The introduction of the Law for the Protection, Conservation and Sustainable Use of Biological Diversity in 2014 was a vital development that criminalised rhino poaching in Mozambique with heavy penalties of 12 to 16 years imprisonment and a corresponding fine.¹⁸⁸ Prior to this law, poaching was considered a misdemeanour offence and there were no strict penalties for rhino poaching or possession of rhino horn.

Implementation issues followed the new law, such as evidence not meeting prosecutorial standards and poor presentation of cases at court, which resulted in the failed prosecution of several cases and subsequent release of offenders. In response to these issues, special prosecutors were appointed in each province who are mandated to deal with environmental crimes, while the National Administration of Conservation Areas (ANAC) and the National Criminal Investigation Service (SERNIC) provide technical assistance to prosecutors where needed in crimes against biodiversity.¹⁸⁹ The appointment of specialised prosecutors is a good practice as it enables prosecutors who are trained and experienced in the complexity and technicalities of environmental law to handle these cases with assistance from technical experts in the investigating agencies, ensuring more effective prosecution results.

Data from recent years demonstrates the impact that this approach is having in Mozambique, with more poaching cases progressing through the courts and sentenced with fines and imprisonment. According to ANAC records, 541 suspects

¹⁸⁸. Law Nr. 16/2014 for the Protection, Conservation and Sustainable Use of Biological Diversity, issued on 20 June 2014. English version accessible at this link: https://sherloc.unodc.org/cld/uploads/res/document/law-no--5-2017_-alteration-and-republication-of-law-no--16-2014_html/Conservation_Law_English_version.pdf

¹⁸⁹. This arrangement is enabled by Article 63B of Law Nr. 5/2017, issued in May 2017 as an amendment to the 2014 Law for the Protection, Conservation and Sustainable Use of Biological Diversity.

were arrested for wildlife poaching in 2019 and 63% of the accused were successfully prosecuted and convicted.¹⁹⁰ In 2020, 444 suspects were arrested for poaching offences, and at least 16 cases received significant prison terms ranging from four to 19 years,¹⁹¹ while at least five cases were convicted in 2021 for prohibited hunting and wildlife trafficking offences and were issued prison sentences ranging from 14 to 30 years.¹⁹²

In August 2019, Mozambique had its first successful conviction of a foreign national for rhino horn trafficking, when a Chinese citizen who was operating as a courier was arrested in possession of 4.2 kg of rhino horn at Maputo International Airport and sentenced to 15 years in prison and a fine.¹⁹³ SERNIC's apprehension of a major Mozambican trafficker in June 2021 who was identified as being responsible for shipping over 200 kg of rhino horn and at least 14 tonnes of ivory to Southeast Asia between 2016 and 2018, and the sentencing of a high-level rhino poaching coordinator Admiro Chauque to 30 years imprisonment in January 2022,¹⁹⁴ also indicates an increasing willingness

of the police and criminal justice system to tackle high-level criminality in the country.

In another important result in July 2022, one of Mozambique's biggest rhino poaching coordinators, Simon Ernesto Valoi, also known as 'Navara', was arrested in Maputo along with his alleged second-in-command, Paulo Zukula. The two men were caught in the possession of eight rhino horns that they were expecting to sell to a potential buyer.¹⁹⁵

Over the years, Valoi had risen to become one of the most notorious poaching coordinators operating in southern Africa. He is also known to have a history in the stolen vehicle industry and outstanding arrest warrants against him in South Africa for murder charges. The Wildlife Justice Commission provided intelligence and operational support to SERNIC to secure his arrest, which marks a crucial development in tackling rhino horn trafficking in Mozambique.¹⁹⁶

¹⁹⁰. <https://oxpeckers.org/2021/03/mozambique-tackling-rhino-crimes/>

¹⁹¹. Ibid.

¹⁹². ANAC report summarising relevant cases 2020-2021, provided to the Wildlife Justice Commission.

¹⁹³. <https://www.afd.fr/en/actualites/rhino-horn-trafficking-mozambique-first-major-conviction>

¹⁹⁴. <https://www.ioi.co.za/news/africa/mozambique-court-sentences-poaching-boss-to-30-years-206f7eb5-a19d-5a02-944e-5eb0d01fe9d3>

¹⁹⁵. <https://news.mongabay.com/2022/08/mozambique-busts-notorious-rhino-poacher/>

¹⁹⁶. <https://wildlifejustice.org/arrest-of-major-rhino-poaching-trafficker-in-mozambique/>

Malaysia



Good practice

Establishing a multi-agency task force to address wildlife crime, involving national and state-based law enforcement agencies and environmental authorities.

A new task force called the Operasi Bersepadu Khazanah (OBK) was established in September 2019 to address trespassing, illegal logging, poaching and wildlife trafficking. The task force was originally the result of collaboration between PERHILITAN and the Royal Malaysia Police and launched as a special initiative to protect tigers.

During its first year of inception, a total of 87 offenders were arrested, wildlife products worth MYR 2.7 million (approximately USD 670,000) were seized¹⁹⁷ and over 450 wire traps were deactivated.¹⁹⁸ By the end of its second year, the OBK was reported to have arrested a total of 350 offenders, seized more than MYR 36 million worth

¹⁹⁷. <https://www.unep.org/ar/node/28927>

¹⁹⁸. <https://www.utusan.com.my/nasional/2021/02/operasi-bersepadu-khazanah-terima-anugerah/>

¹⁹⁹. <https://www.thestar.com.my/metro/metro-news/2021/12/07/350-wildlife-criminals-nabbed-under-joint-op>

²⁰⁰. <https://www.thestar.com.my/news/nation/2021/09/15/rm30mil-worth-of-rhino-horns-seized-at-klia>

²⁰¹. <https://www.unep.org/ar/node/28927>

of wildlife products, destroyed 1,450 wildlife traps, and seized 28 firearms.¹⁹⁹ This included a seizure of 50 rhino horns in September 2021 near Kuala Lumpur International Airport, estimated to be worth MYR 30 million.²⁰⁰

The task force has since grown to include the Royal Malaysian Customs Department, Peninsular Malaysia Forestry Department, State Forestry Department, Perak State Parks Corporation, Johor State Parks Corporation, and several NGOs. With the operation's success, the taskforce has also expanded geographical operations into the states of Sabah and Sarawak to further protect wildlife from environmental crime.

In 2021, the OBK received an environmental award presented during the 5th Asia Environmental Enforcement Awards Council organised by the United Nations Environment Programme (UNEP) as it was recognised for its "outstanding success".²⁰¹

As a transit country in the rhino horn supply chain, Malaysia has made many significant rhino horn seizures over the years. While the multi-agency OBK task force represents an important development in the country's efforts to address wildlife trafficking, the challenge lies in going beyond

the seizures to identify the owners or facilitators of those shipments and bring them to justice. Recognising this issue in December 2021, a Malaysian Senator urged further investigation into the September 2021 seizure in a parliamentary address.²⁰² Malaysia has strong wildlife protection laws and skilled law enforcement agencies that are capable of addressing serious organised crime, but so far there has been little indication that these agencies are prepared to target the high-level criminals driving the trafficking through the country's borders and to tackle the corruption that has enabled this trade to flourish.



Image 46: Customs officers seized 5.9 kg of rhino horn and arrested a traveller from South Africa at Hong Kong International Airport, June 2018. **Source:** Information Services Department, Hong Kong SAR.

²⁰² <https://www.malaymail.com/news/malaysia/2021/12/13/senator-tells-govt-to-identify-masterminds-of-rhino-horns-smuggling-in-mala/2028142>

Hong Kong SAR



Good practice

Policy reform to recognise wildlife trafficking as a form of serious organised crime, enabling the use of wider investigation powers, confiscation of proceeds of crime, and heavier sentences for convictions in such cases.

Despite playing a prominent transit role for rhino horn shipments moving from Africa to Asia, Hong Kong SAR has seen few rhino horn cases prosecuted through the courts and for many years, only lenient penalties were issued.

Analysis by ADM Capital Foundation of 23 rhino horn seizures involving a total of 134 kg of mostly raw horns made between 2013 and 2017, found that only eight cases proceeded to prosecution, one of which was acquitted. Examples of convicted cases included a South African national who was sentenced to four weeks in prison for smuggling three pieces of rhino horn weighing 2.69 kg, and a Hong Kong citizen who received a postal package containing

6.5 kg of rhino horn and was sentenced to three months imprisonment.²⁰³

In response to these issues and to provide a stronger deterrent against wildlife smuggling, the Protection of Endangered Species of Animals and Plants Ordinance was amended in 2018, increasing the maximum penalty five times higher to a fine of HKD 10 million and imprisonment of 10 years.²⁰⁴

Subsequent rhino horn cases brought to court since the amended law came into effect do indicate that higher penalties are being issued for prosecuted cases, but cases almost exclusively involve low-level couriers or mules, and investigations have not progressed beyond the seizure to identify connections to broader criminal networks.

For example, a mainland Chinese businessman was sentenced to four months in prison for illegally transporting 6 kg of rhino horn through Hong Kong SAR in July 2018,²⁰⁵ while another mainland Chinese man was sentenced to eight months in prison for smuggling 3.1 kg of rhino horn pieces from

Mozambique in October 2018.²⁰⁶ In a small seizure of 1.32 kg of rhino horn linked to two individuals, one person received a 12-month prison sentence and the second person received an eight month sentence.²⁰⁷ Although these cases are a positive step forward with higher penalties, they also illustrate some potential consistency issues in sentencing levels relative to the quantities of contraband involved.

Furthermore, prosecution was not pursued in Hong Kong's largest rhino horn seizure of 82.5 kg in April 2019, which was smuggled by air cargo.²⁰⁸ This is a longstanding issue that Hong Kong's largest wildlife seizures have not been prosecuted²⁰⁹ and was also the case with the seizure of 7.2 tonnes of elephant ivory in July 2017.²¹⁰ The ivory shipment was concealed in a shipping container of frozen fish originating from Malaysia, and at the time, it was the world's largest ivory seizure ever recorded. The Wildlife Justice Commission conducted further analysis into this shipment, identifying the organisers and at least five other large-scale wildlife shipments they had imported, using the same shipping agent at least three times.

²⁰³ ADMCF (2018), *Trading in Extinction: The Dark Side of Hong Kong's Wildlife Trade*. Hong Kong.

²⁰⁴ https://www.elegislation.gov.hk/hk/cap586?xpid=ID_1438403490136_003

²⁰⁵ <https://www.scmp.com/news/hong-kong/hong-kong-law-and-crime/article/2155231/man-who-illegally-brought-6kg-rhino-horn-and>

²⁰⁶ <https://www.scmp.com/news/hong-kong/law-and-crime/article/2170028/hong-kong-court-jails-mainland-chinese-rhino-horn?module=inline&pgtype=article>

²⁰⁷ ADMCF (2021), *Still Trading in Extinction: The Dark Side of Hong Kong's Wildlife Trade*. Hong Kong.

²⁰⁸ <https://www.reuters.com/article/us-hongkong-wildlife-trafficking-idUSKCN1R1085>

²⁰⁹ ADMCF (2021), *Still Trading in Extinction: The Dark Side of Hong Kong's Wildlife Trade*. Hong Kong.

²¹⁰ <https://www.theguardian.com/environment/2017/jul/06/hong-kong-authorities-seize-record-ivory-haul>

Efforts to impel Hong Kong authorities to conduct follow-up investigations into the criminal network behind these shipments were unsuccessful, with one element of the problem being a lack of legislative capability as wildlife trafficking was not yet considered a serious organised crime under Hong Kong law.

However, this important policy reform occurred in August 2021 with the amendment of the Organised and Serious Crimes Ordinance to classify wildlife trafficking as a form of serious organised crime.²¹¹ This law contains wide investigation powers for police, broader powers for courts to confiscate the proceeds of organised crime, and heavier sentences for those convicted of organised crimes.²¹² This amendment was long advocated for within Hong Kong to facilitate the criminal investigation of those behind wildlife crimes, and it is now incumbent on Hong Kong's law enforcement authorities to use it to target high-level kingpins rather than couriers or smuggling mules.

²¹¹. <https://www.france24.com/en/live-news/20210818-hong-kong-adds-wildlife-trafficking-to-organised-crime-law>

²¹². https://www.elegislation.gov.hk/hk/cap455?xid=ID_1438403216374_002

²¹³. Prime Minister Decision No. 11/2013/QĐ-TTg, which came into effect on 15 March 2013.

Vietnam



Good practice

Taking steps to target the investigation, arrest, and prosecution of high-level wildlife criminals.



Several important developments have taken place in Vietnam during the past 10 years as the government grappled with the challenge of responding to rhino horn trafficking under a glaring international spotlight. In 2012 at the start of the poaching crisis, the lack of clarity in Vietnam's legal framework for handling cases involving the smuggling or trade of African rhino horns was a major stumbling block when it came to law enforcement implementation. A Prime Ministerial Decision in 2013 specifically banning the import, export, purchase and sale of white and black rhinos and African elephants²¹³ provided some clarity for seizures, but it wasn't until January 2018 when the revised Penal Code came into effect that significant change began to

take place.²¹⁴ The new wildlife offence (Article 244) considerably increased the penalties available and provided a clear basis to apply them to rhino horn cases based on the weight of products seized.

Since then, the prosecution and sentencing of rhino horn trafficking cases has substantially improved, such as a smuggler who was sentenced to 12.5 years imprisonment and a VND 100 million fine in 2020,²¹⁵ and the longest prison term yet of 14 years which was issued in 2021.²¹⁶ The defendant in the latter case appealed to reduce the sentence, but it was upheld by the Hanoi People's High Court in April 2022.²¹⁷ Furthermore, the Supreme People's Court has established a public database of court judgements which is a positive development in improving transparency and access to information on court decisions.²¹⁸

Law enforcement in Vietnam was slow to counter the rhino horn trafficking problem, but there are indications that efforts are resulting in some changes on the ground. In Nhi Khe village, the hot-spot near Hanoi that was at the centre of the trade in Vietnam, increased police inspections and arrests have suppressed the "open" trade of rhino

horn and ivory. From 2016, traders reported that business had become much more difficult due to the police attention. In May 2017, one trader claimed fewer rhino horns were coming in and the risks were increasing, which was pushing prices up. Others indicated rhino horn was still traded behind closed doors, but only with old, trusted customers.

In October 2017, a Vietnamese trafficker complained that smuggling rhino horn from Vietnam to China had become more difficult. *"Not only the wind blows between China and Vietnam, the wind also blows between Vietnam and Thailand and Cambodia,"* referring to the tightened law enforcement. By late 2019, many Vietnamese traffickers were reporting that transport to China was not possible due to strict law enforcement, especially for raw products or large quantities. Around this time, a major Malaysian transporter was also sending rhino horn shipments to Vietnam overland through Thailand and Lao PDR due to strengthened controls at Noi Bai International Airport in Hanoi.

While Vietnamese authorities have made regular rhino horn seizures over the past decade, the ongoing area of concern is the lack of targeted

²¹⁴. Criminal Code No. 100/2015/QH13, amended by Law No. 12/2017/QH14, which came into effect on 1 January 2018. The maximum penalty for wildlife offences under Article 244 is 15 years imprisonment and up to VND 2 billion fine (approximately USD 86,000).

²¹⁵. Education for Nature – Vietnam (2020), *Prosecution Review of Wildlife Criminals in Vietnam 2020*.

²¹⁶. <https://www.france24.com/en/live-news/20211208-vietnam-gives-longest-ever-jail-term-for-trading-rhino-horn-ngo>

²¹⁷. According to the Vietnamese Supreme People's Court website of published court judgements and decisions: <https://congboanan.toaan.gov.vn/>

²¹⁸. The database was established in accordance with the Vietnam government's Resolution No. 03/2017/NQ-HĐTP issued on 16 March 2017.

interventions to tackle the higher-level criminals driving the trade. Although there are some important examples where this has occurred, they are currently too few compared to the number of Vietnamese criminal networks operating in this field.

The first high-profile criminal to be convicted was Nguyen Mau Chien, who was sentenced to 13 months in prison in March 2018 for smuggling 36 kg of rhino horn, which was backdated to his arrest date in April 2017 as he had been held in custody since that time.²¹⁹ Prosecutors appealed the leniency of his sentence, and in March 2019 the appellate court ruled for a further three months of imprisonment. The verdict was appealed again to the Supreme Court of Vietnam, which overturned the conviction and ordered the District Court to retry the case with the purpose of issuing a stronger punishment. The retrial added seven months in prison, bringing the total penalty to 23 months imprisonment.²²⁰ Although the adjudication process was cumbersome and the final penalty still low compared to the many years of wildlife trafficking from Africa to Asia that Nguyen Mau Chien was known to have perpetrated, it demonstrated that the system did have the capacity to bring high-level criminals to justice. Intelligence from Wildlife Justice Commission investigations suggests that

²¹⁹. <https://en.vietnamplus.vn/wildlife-trafficker-gets-13-months-in-prison/128200.vnp>

²²⁰. <https://env4wildlife.org/rhinos/>

²²¹. <https://e.vnexpress.net/news/news/204-kg-ivory-haul-lands-three-traders-in-jail-4132021.html>

²²². <https://www.talkvietnam.com/2022/06/man-arrested-for-trading-rhino-horns-ivory-through-shell-companies/>

²²³. https://www.dffe.gov.za/mediarelease/rhinopoaching_2021

since his release from prison, Nguyen Mau Chien continues to operate but with much more caution.

The second high-profile conviction was that of Nguyen Van Nam in July 2020, who was served with an 11-year prison sentence for the illegal trade of 204 kg of ivory.²²¹ He was one of Vietnam's top wildlife criminals and the lead broker for a criminal network responsible for trafficking a minimum of 477 kg of rhino horn and 17.6 tonnes of ivory from Africa to China via Vietnam between 2016 and 2019. His imprisonment has impacted the way other criminals are perceiving the risk-reward ratio of wildlife trafficking in Vietnam (see the Case Study at the end of this chapter for full details).

Vietnamese Police also arrested a suspect in June 2022 who is alleged to be the leader of the criminal network that orchestrated the shipment of 138 kg of rhino horns and three tonnes of lion bones from South Africa that was seized at Tien Sa port in Danang, Vietnam in July 2021. The suspect is alleged to have used fake identification cards to set up shell companies that were used to conceal the importation of shipments of illegal wildlife products.²²² This case has been the focus of a joint operation and controlled delivery between Vietnam and South Africa.²²³

China



Good practice

Implementing a strategy to target investigations on entire criminal networks, including national citizens who are committing wildlife crimes in foreign jurisdictions, and engage in international cooperation to bring them to justice.

Over the past few years, faced with an ever-growing international pressure to tackle the illegal trade in threatened and endangered species, the Chinese government has implemented stricter legislative measures²²⁴ coupled with an amplified law enforcement response, which is resulting in a growing number of convicted cases and people charged with wildlife crimes. Analysis of China Judgements Online shows that the number of wildlife crime con-

²²⁴. For example, the national ivory trade ban introduced on 31 December 2017 and amendments to the Wildlife Protection Law such as a major update to the list of endangered and protected species covered by the law. Information on the ivory trade ban was accessed at this link: http://www.gov.cn/zhengce/content/2016-12/30/content_5155017.htm. Information on the updated list of protected wildlife species can be accessed at this link: http://www.gov.cn/xinwen/2021-02/09/content_5586227.htm

²²⁵. <https://wenshu.court.gov.cn/>

²²⁶. <https://www.reuters.com/article/us-china-environment-wildlife/china-wildlife-crime-prosecutions-up-sharply-after-covid-19-outbreak-idUSKBN27P35B>

²²⁷. This was a major change in Chinese criminal law in 2021, when the offence for illegal killing, transportation, sale, or purchase of protected wildlife species was broadened to "harming precious and endangered wildlife." https://www.spp.gov.cn/spp/xwfbh/wsfbt/202102/t20210227_510055.shtml

victions continues to increase each year. For example, at the time of writing, there were 6,215 verdicts delivered in 2020 compared to 4,515 in 2019, representing a 38% increase in cases, although this dropped to 2,396 cases in 2021 due to the COVID-19 pandemic.²²⁵ In the first nine months of 2020, more than 15,000 people were prosecuted for wildlife-related crimes, representing an increase of 66% compared to 2019. Of these cases, around 3,000 (20%) were prosecuted for illegally purchasing, transporting, and selling endangered wild animal products, and 273 people for smuggling endangered wildlife.²²⁶

Accompanying the success of investigation, prosecution, and conviction in China is the heavy sentencing which seeks to address the higher-tier of organised wildlife crime, rather than targeting lower-level players such as poachers or couriers who are easily replaceable. According to China's Criminal Law, "harming precious and endangered wildlife" offences²²⁷ have several categories of penalties depending on the severity of the crime. In addition, life sentences can be issued if a judge

considers the situation to be serious enough,²²⁸ and although they are rare, three individuals were sentenced to life in prison for their roles leading a criminal network that smuggled more than 20 tonnes of ivory and rhino horn from Nigeria to China between 2013 and 2018.²²⁹

Specifically in relation to rhino horn trafficking, the Wildlife Justice Commission identified 210 cases²³⁰

concerning the crimes of smuggling, purchasing, selling, or transporting raw or processed rhino horn products between 2017 and 2021 published on China Judgements Online, which resulted in the conviction and sentencing of 374 individuals (Table 21). The number of rhino horn cases handled by the courts more than doubled from 2018 to 2020, but significantly decreased in 2021; while the average weight of rhino horn products involved doubled from 2.2 kg in 2017 to 4.1 kg in 2019, decreasing to 1.7 kg in 2020, then increasing again to 4.4 kg per case.

Table 21: Rhino horn-related cases convicted and sentenced in China, 2017-2021.

Year	No. of cases	No. of people sentenced	Weight of rhino horn products
2017	32	62	50.7 kg (plus nine cases of unspecified weight)
2018	29	48	65.1 kg (plus five cases of unspecified weight)
2019	55	106	177.4 kg (plus 12 cases of unspecified weight)
2020	79	131	94.9 kg (plus 24 cases of unspecified weight)
2021	15	27	44.5 kg (plus five cases of unspecified weight)
Total	210	374	432.6 kg (plus 55 cases of unspecified weight)

²²⁸. <https://flk.npc.gov.cn/detail2.html?ZmY4MDgxODE3OTZhNmY2YTAxNzk4MjJhMTk2NDBjOTI%3D>

²²⁹. Wildlife Justice Commission (2022), *Bringing Down the Dragon: An Analysis of China's Largest Ivory Smuggling Case*. The last two suspects in this case who had not yet faced court at the time of writing the report were later convicted on 29 March 2022, with Chen Jiancheng (father) sentenced to life imprisonment, confiscation of a vehicle and fined RMB 5 million, and Hu Juqiang sentenced to five years imprisonment and confiscation of RMB 100,000.

²³⁰. Noting that this figure represents the number of cases found during the Wildlife Justice Commission's research on the China Judgements Online database and is not necessarily a complete list of all rhino horn cases prosecuted and convicted in China during this period.

The number of offenders has remained relatively constant throughout the period, with an average of two people sentenced per case. Sentences vary according to the role of the offender and the seriousness of the crime, with local couriers who were caught transporting products from one province to another in China receiving lower sentences compared to a corrupt customs officer who facilitates the smuggling of rhino horn products into the country or those who are the "masterminds" behind the smuggling network. Analysis of the cases found that across the five years, approximately half of the

offenders were sentenced to up to five years imprisonment, also reflecting the fact that the majority of cases concerned the illegal transportation and/or retail sale of small quantities of rhino horn products within China (Figure 23). Only 40 of the 210 cases (19%) involved raw rhino horns. Approximately 26% of offenders were sentenced to 5-10 years imprisonment and 19% were sentenced to 10-15 years imprisonment. Three cases involved offenders sentenced to more than 15 years imprisonment, with 18.5 years being the highest penalty observed for the cases in this period.

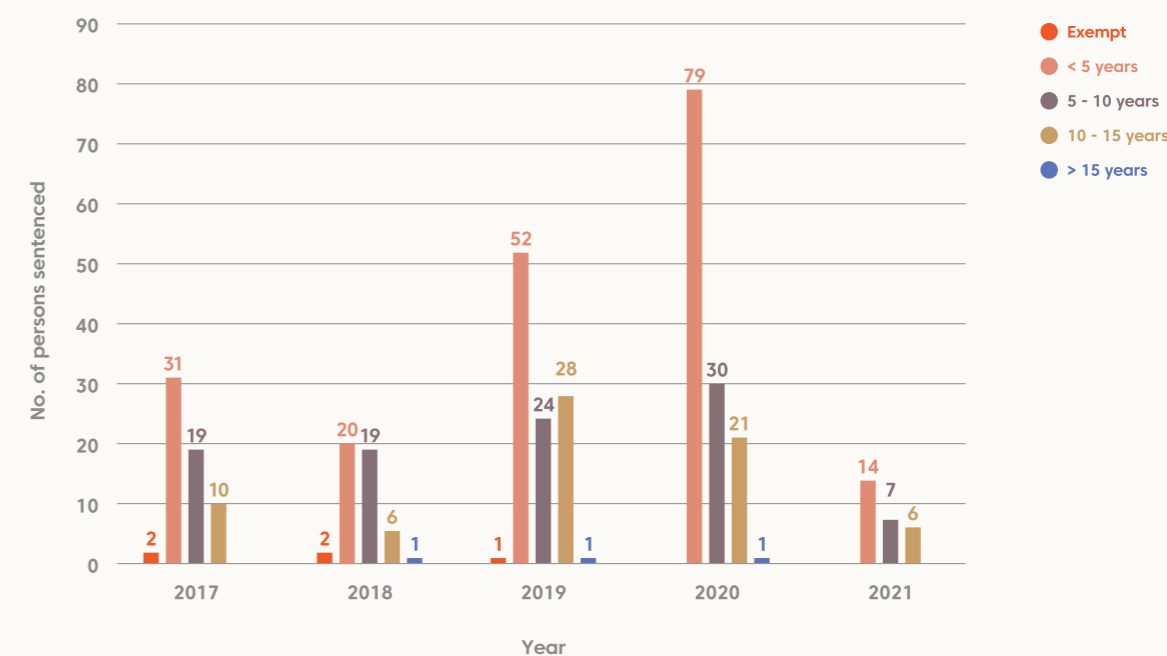


Figure 23: Length of prison sentences imposed in rhino horn-related cases in China, 2017-2021.

In 2018, the Chinese government began implementing a new strategy whereby Chinese nationals were being deported from Africa to China to face prosecution for wildlife crimes committed in African countries. Within China itself, entire trafficking groups were being arrested for wildlife offences. Chinese law enforcement is also now looking at foreign nationals committing serious offences in China, as demonstrated by the conviction of a Malaysian national who was a key actor in the Chen organised crime group convicted for smuggling more than 20 tonnes of elephant ivory and rhino horn into China.²³¹

“Recently, the wind is blowing strong.” In April 2019 a Chinese trader told Wildlife Justice Commission investigators that rhino horn dealers were being arrested in China and sentenced to more than 10 years in prison, and they would provide information on other dealers in return for a reduced sentence. Several Vietnamese traffickers in 2019 said they no longer travelled to China for business due to the fear of being arrested.

The impact of these enhanced law enforcement efforts over the past four years is that in a short period of time, the global trafficking landscape has

changed. It is likely that a large proportion of adaptations in traders’ behaviour such as the changing use of WeChat and movement to other communication platforms can be attributed to the response of the Chinese government. Crime displacement is occurring, and opportunities are now presenting for other crime groups to take over. The Wildlife Justice Commission’s investigations indicate that Vietnamese traffickers in particular are filling the void left by the removal of Chinese networks in South Africa, Mozambique, Angola, Namibia, DRC, and Nigeria.

However, an important factor that cannot be ignored is that China is, and will likely continue to be, a major destination for illegal rhino horn trade globally. The seizure data analysis and investigation findings presented in this report illustrate some systemic issues that continue to facilitate rhino horn trafficking from Africa to Asia. To address these persistent problems, all countries affected along the supply chain need to step up their efforts to ensure that crime is tackled in an effective and enduring manner.

Case study:
The rise and fall of one of Vietnam’s largest wildlife traffickers

“I have so much stuff, I’m just afraid you don’t have enough money.”

— NGUYEN VAN NAM, JANUARY 2017

Nguyen Van Nam was one of Vietnam’s top wildlife criminals and lead broker for a criminal network responsible for trafficking a minimum of 477 kg of rhino horn and 17.6 tonnes of ivory from Africa to China via Vietnam between 2016 and 2019.²³² He was arrested in Hanoi in September 2019 in connection with the illegal trade of 204 kg of ivory, and in July 2020 was convicted and sentenced to 11 years in prison.²³³ Ah Nam (his criminal alias in the trade) was a key subject in Wildlife Justice Commission investigations for three years, resulting in the collection of a wealth of intelligence and evidence of the inner workings of his criminal network.

Ah Nam and his key associate, Duong Van Phong (criminal alias Ah Phong, who was also arrested and imprisoned alongside Ah Nam), could both converse freely in Chinese, which was an asset for

their business as it allowed them to engage directly with their predominantly Chinese clientele without the need for interpreters and gave them an advantage over other Vietnamese brokers. *“All Chinese, so many,”* Ah Nam said, referring to his customers. During meetings with Ah Nam, he was constantly receiving and sending voice messages in Chinese and discussing the availability and prices of wildlife products with potential buyers. His associate Ah Phong said on multiple occasions that if buyers did not pay the deposit in a timely manner, *“I will have other Chinese buyers talking to me immediately.”*



Image 47: In August 2017, Ah Nam offered 76 rhino horns to the Wildlife Justice Commission in one single transaction, highlighting the huge volume of product he was able to move.

Source: Wildlife Justice Commission.

²³¹. Wildlife Justice Commission (2022), *Bringing Down the Dragon: An Analysis of China’s Largest Ivory Smuggling Case*.

²³². This represents only the quantities of rhino horn and ivory directly observed and verified by Wildlife Justice Commission operatives, while the actual volumes of product trafficked are likely to be much higher than this.

²³³. <https://e.vnexpress.net/news/news/204-kg-ivory-haul-lands-three-traders-in-jail-4132021.html>

Ah Nam was based in Hanoi, and typically stored his products in the backrooms of residences, shops, or factory-like premises in several nearby locations including Nhi Khe village, Bac Ninh, Hai Duong, and Vinh Phuc. He did not travel to Africa to source products, but worked with multiple partners in South Africa, Malawi, Mozambique, Nigeria,

and Zambia. His preferred method to receive rhino horn was either via air cargo shipped to Malaysia and then on to Vietnam, which he said was the safest way, or via couriers who hand-carried products in their luggage, whom he would meet at Noi Bai International Airport in Hanoi. Some larger rhino horn shipments were also known to have been smuggled by sea on container ships.

Products were delivered overland by truck to China, with legitimate local businesses trading agricultural products, vegetables, and fruit from Vietnam to China suspected to be used as a cover for the deliveries. The two main routes used were from Hanoi to Lang Son, then over the border to Pingxiang and other locations in China, and from Hanoi to Mong Cai, then on to Dongxing and elsewhere.

Ah Nam generally required a 20-30% deposit to be paid in RMB to one of five Chinese bank accounts belonging to “currency converters” prior to delivery. The remaining balance was to be paid upon receiving the products, either in cash to the transporter or by bank transfer to one of the nominated accounts. The currency converters would exchange the currency to VND and transfer it back to Vietnamese accounts or the cash would be physically smuggled back across the border.

Ah Nam and Ah Phong had a closed circle of Chinese buyers who generated enough demand and turnover that it was not necessary to seek new customers. WeChat was used for communication but very rarely to advertise products, while Facebook was only used for social purposes. Their reluctance to trade on social media set them apart from most other traders.

As a major Malaysian transporter describer in 2018 of Ah Nam’s increasing dominance of the trade in Vietnam, “*There is only him in Hanoi now, no number two now.*”

“Now the problem is that I’m a big risk in Vietnam... I’m afraid of being caught.”

— AH NAM TOLD OPERATIVES, JUNE 2019.

During the course of investigations, law enforcement authorities in three countries played important roles in disrupting Ah Nam’s network. In total, at least 49 individuals associated with his extended network were arrested, 47 of whom were imprisoned with sentences as high as 15 years. Authorities also seized at least 192.9 kg of rhino horns, 3,892 kg of ivory, and 28.5 kg of pangolin scales in Vietnam, Malaysia, and China connected to Ah Nam’s operations. Furthermore, there are multiple rhino horn seizures made in South Africa which have a high likelihood of being linked to Ah Nam, but the connection is unconfirmed.

The successful arrest and conviction of Ah Nam was a significant achievement for Vietnam’s law enforcement authorities, and the heavy penalty he was dealt sent an important deterrent message to other wildlife criminals operating in Vietnam, with many traffickers concerned that the “*wildlife business is now very dangerous.*” A Vietnamese-Chinese interpreter who was personally connected to Ah Nam’s wife and sister had allegedly warned him before he was arrested that he should hold off on trading any large batches of product for the rest of the year due to law enforcement pressure in China. She later remarked, “*Who dares to go whole pieces [of black materials] now?*”





8.

Role of corruption in illegal trade²³⁴

Corruption threatens, weakens, and undermines the regulatory and enforcement systems put in place to protect rhinos, and all other efforts to combat rhino poaching and illegal rhino horn trade will fail unless corruption is tackled. Criminal networks can apply sophisticated approaches to entrap officials or use threats or violence to coerce them into supporting their operations, making it very difficult to resist the pressure and financial temptation. This can only be countered by identifying and treating corruption risks effectively, to strengthen the whole system and make it more difficult for criminal networks to exploit.

²³⁴ Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

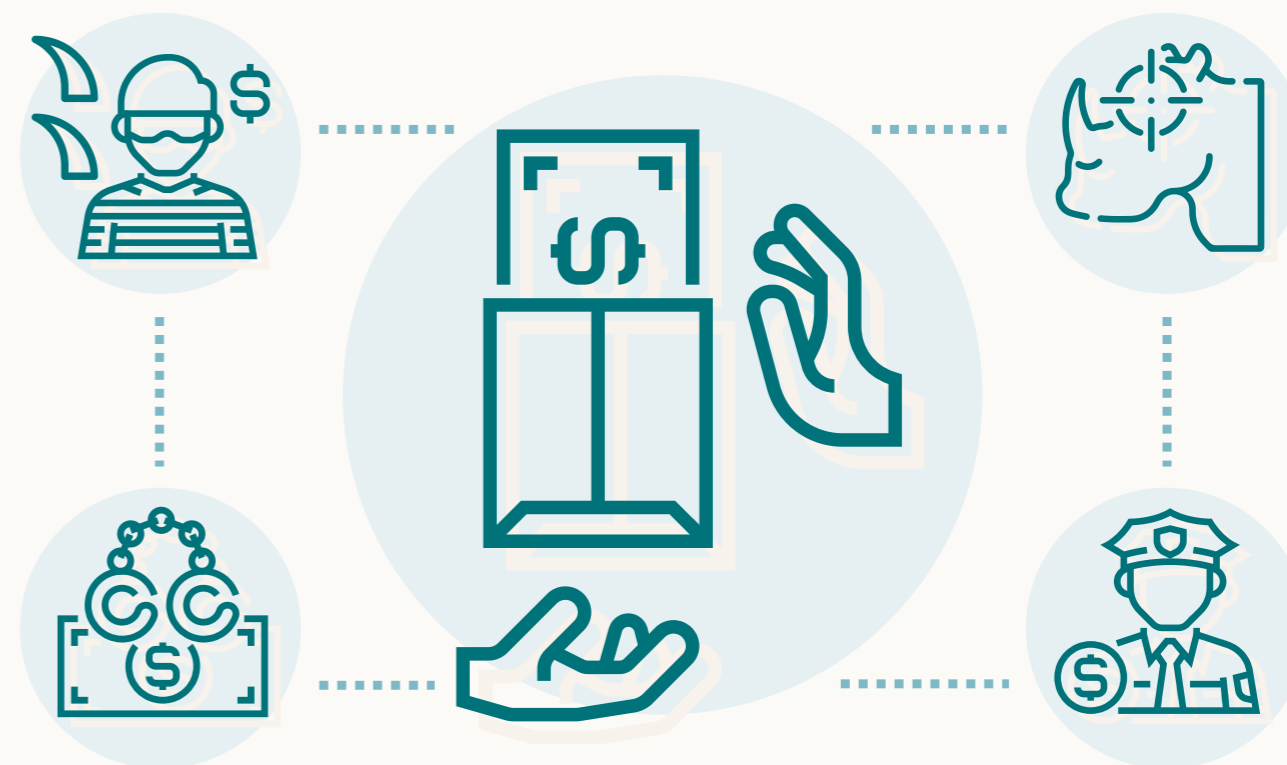
- ✓ Corruption plays a key role in facilitating criminal operations to acquire and smuggle rhino horn through the supply chain and creating favourable operating conditions for criminal networks.
- ✓ All other efforts to combat rhino poaching and illegal rhino horn trade will fail unless corruption is tackled.
- ✓ While some countries such as South Africa and China are taking important steps to address corrupt behaviour and treat corruption risks, there is a need to recognise and

pre-empt corruption as a systemic threat enabling wildlife crime. The absence of cases in other key locations suggests a lack of focus and effort elsewhere on this important issue.

- ✓ Illustrative examples of corruption enabling rhino crimes include park rangers providing tip-offs to poachers, hunting permit irregularities, involvement of government officials in rhino horn trade, bribery for law enforcement “protection”, bribery to facilitate customs clearance, secure bail or release from custody, evade criminal justice, or release seized contraband, and the theft of official property or stockpiled horns.

Corruption facilitates criminal operations to acquire and move rhino horns throughout the supply chain. It can occur in any location and involve public or private sector actors. It also undermines the criminal justice system and creates a significant advantage in favour of criminal networks over law enforcement agencies who are investigating these crimes, as corrupted officials protect traffickers and hinder

investigative efforts. Whether that support extends to warnings about law enforcement activities, payments for protecting or not prosecuting traffickers, selling back seized goods, or facilitating the movement of contraband across borders, all these activities have a corrosive effect on society and create an uneven playing field for law enforcement.



In the private sector, legitimate service providers may become willing participants in crime, actively choosing to work with criminal networks, or they could be unwilling actors, coerced into crime or unwitting facilitators of it.²³⁵ Legitimate businesses and front companies can be used to launder illegally obtained rhino horn, or to obtain permits and acquire horn through proper processes and then trade it illegally in contravention of laws and regulations.

In law enforcement, corruption can also create silos where intelligence is not shared due to a fear or perception (justified or otherwise) of corruption amongst other enforcement units. Rather than supplying intelligence and if operations run afoul then identifying the source of the leak, intelligence is not shared at all. In some countries, this has crippled any coordinated response and allowed key criminal actors to operate with relative impunity.

In the course of its investigations, the Wildlife Justice Commission has found that some criminal



²³⁵ Ayling, J. (2012), *'What Sustains Wildlife Crime? Rhino Horn Trading and the Resilience of Criminal Networks'*, Working Paper 2/2012 Transnational Environmental Crime Project.

networks only engage in illicit trade after corrupting relevant authorities and gaining sufficient assurance of limited or no interdiction. It has also discovered that traffickers include the cost of bribes and corruption in the price of their products.

This chapter presents a series of examples to illustrate the role of corruption across the illicit rhino horn supply chain based on published cases and open-source information as well as intelligence and findings from Wildlife Justice Commission investigations. It also identifies areas of potential corruption risk and highlights areas where efforts are being made to tackle corruption issues.

8.1. Corruption risks across the supply chain

Identifying where corruption risks exist in the rhino horn supply chain can help authorities to develop targeted strategies and actions to prevent or reduce the opportunity for corrupt behaviour. Corruption provides a source of resilience for criminal networks due to its enabling and facilitating role,²³⁶ but if the likelihood of corrupt practices can be minimised, then opportunities to engage in wildlife crime should also diminish.²³⁷

Figure 24 broadly depicts the flow of rhino horn in licit and illicit supply chains from source country to destination country and the main types of activities that take place at each stage. It is primarily at the point of consolidating horns and preparing shipments for export that licit sources of horn can be diverted into the illegal supply chain, through the exploitation of certain vulnerabilities such as bribery of shipping companies or customs officials. Corruption risks at subsequent stages then support the ongoing movement of the illicit shipment through the supply chain. For wholly illicit horns that originate from poaching offences, there are corruption risks right from the very beginning of the process that can support those activities to take place, such as bribery and coercion of game scouts and rangers in protected areas to

provide information on the location of rhinos, or to turn a blind eye or play an active role in poaching. Furthermore, some corruption risks exist at every stage of the supply chain, such as bribery of police, prosecutors, or judges to stymie investigations and trials in the event of arrest.

As the proverb says, sunlight is the best disinfectant, and it is important to recognise where positive efforts are being made to address corrupt behaviour and treat corruption risks. In South Africa, targeted investigations have resulted in growing numbers of arrests and convictions of police and park rangers in relation to rhino poaching and rhino horn trafficking. A recent example is a former police officer who was arrested after being found in possession of a hunting rifle with live rounds of ammunition, several hunting knives, and two freshly cut rhino horns, having just left the Hluhluwe-iMfolozi Park. He was convicted in February 2022 and sentenced to 10 years imprisonment.²³⁸

South Africa regularly reports such arrests, including in the DFFE's annual rhino management progress reports (for instance, 21 officials were reported arrested in relation to rhino poaching offences in 2017),²³⁹ and in the media, with at

²³⁶ Ayling, J. (2012), *'What Sustains Wildlife Crime? Rhino Horn Trading and the Resilience of Criminal Networks'*, Working Paper 2/2012 Transnational Environmental Crime Project.

²³⁷ UNODC (2020), *Scaling Back Corruption: A Guide on Addressing Corruption for Wildlife Management Authorities*, p.7.

²³⁸ <https://www.iol.co.za/dailynews/news/kwazulu-natal/former-police-official-sentenced-to-10-years-imprisonment-for-the-possession-of-two-freshly-cut-rhino-horns-and-an-unlicensed-firearm-e6087760-2b82-4faf-a51b-62c838161dbb>

²³⁹ https://www.dffe.gov.za/mediarelease/molewa_highlightsprogressonimplementationofintegratedstrategicmanagementofrhinoceros

least eight cases involving the arrest of 13 officials reported in the three years between 2019 and 2021.²⁴⁰ Recent arrests of rangers on charges related to fraud, money laundering, and corruption also show the growing acknowledgement of the need to address corruption.²⁴¹

China has also arrested customs officers for facilitating the smuggling of rhino horn shipments into the country, and other government officials for accepting rhino horn products as bribery payments or for their involvement in purchasing rhino horn products. Analysis of Chinese court case judgements found at least 10 such cases between 2019 and 2021.

Meanwhile, open-source research identifies only a few sporadic arrests and convictions of corrupt actors in other countries along the illegal rhino horn supply chain, which suggests a lack of focus on corruption during investigations rather than a reduced incidence of corruption. For example, only one case was identified in Vietnam, when a customs officer who was caught stealing rhino horn and ivory from seized stockpiles in a customs warehouse and replacing them with fake products in 2017 was convicted on embezzlement charges and sentenced to 16 years imprisonment.²⁴² One case was identified in Mozambique involving the theft of rhino horns from seized stockpiles in 2015 and the arrest of four security staff who were entrusted with looking after the storeroom. No relevant corruption cases were identified involving Malaysian or Hong Kong officials.



Image 48: Rodney Landela, pictured in 2014 on an anti-poaching patrol in Kruger National Park, was arrested in 2016 for allegedly killing a rhino and taking its horn. **Source:** James Oatway, Getty Images.

²⁴⁰. According to open-source research conducted by the Wildlife Justice Commission.

²⁴¹. <https://www.sanparks.org/about/news/?id=58547>

²⁴². <https://danviet.vn/cuu-can-bo-hai-quan-linh-an-nang-vi-tham-o-nga-voi-sung-te-giac-7777907742.htm>

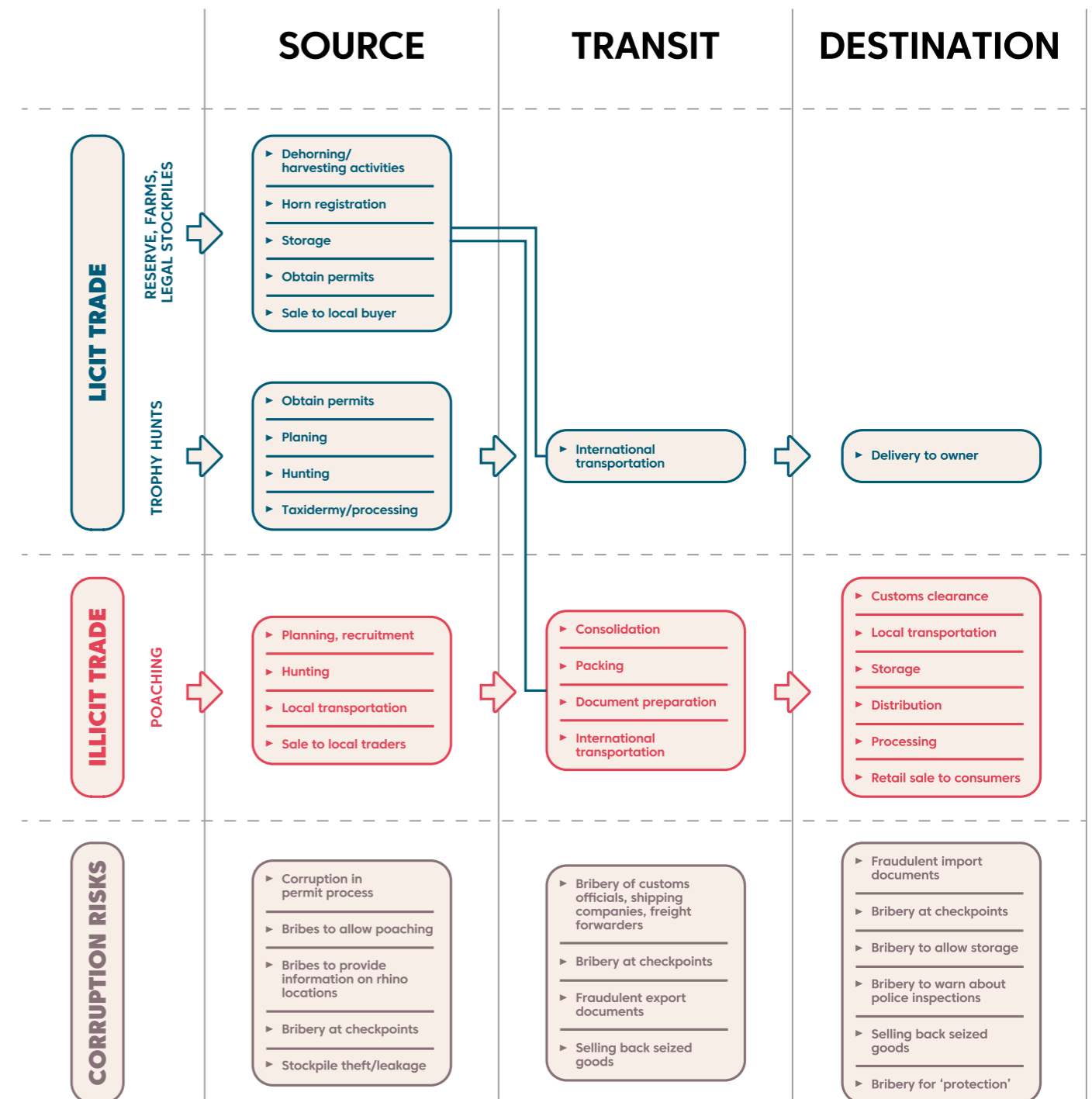


Figure 24: General representation of licit and illicit rhino horn supply chain flows, key activities, and potential corruption risks.

8.2. Illustrative examples of corruption

Corrupt acts include bribery (actively giving and passively receiving) in the public or private sector, embezzlement, abuse of office/position, and trading in influence. Related acts also include illicit enrichment, concealment, and money laundering of the proceeds resulting from corruption.²⁴³ Following are a selection of detected cases and intelligence to exemplify how these acts can occur in the illegal rhino horn supply chain and highlight vulnerable points that have been exploited by organised crime groups.

Bribery: Park rangers providing tip-offs to poachers

SANParks have acknowledged the severe threat that internal corruption and collusion presents to rhino populations,²⁴⁴ and various arrests have been made of park rangers found to be working with poaching networks and providing inside information on anti-poaching patrols and the location of rhinos. A recent example is two Kruger National Park field rangers who were arrested in April 2022 in relation to providing tactical information to rhino poaching syndicates in exchange for large sums of money, and were charged with fraud, money laundering

and corruption.²⁴⁵ One of the rangers has already been dismissed from their job while the other ranger's case is pending the outcome of the court process.²⁴⁶ Furthermore, analysis of a sample of SAPS records for 123 cases of rhino and elephant crimes found that law enforcement and conservation officials were implicated in at least 15% of the cases, either as the accused or as alleged to have aided the accused in committing the offences.²⁴⁷

The Wildlife Justice Commission has collected intelligence on a major poaching coordinator in Mozambique who utilises corrupt connections with rangers in Limpopo National Park to provide counter-surveillance for rhino poaching incursions, and his social media account includes an image of him handing cash to a suspected park employee. Intelligence on the leader of another rhino poaching network in Mozambique indicates that he is working with corrupt rangers in Kruger National Park who forward him information on where rhinos are roaming, and he then arranges his poaching teams to deploy to those locations.

Bribery: Hunting permit irregularities

In March 2013, the South African Environmental Affairs Minister was reported to have acknowledged corruption issues in the issuance of hunting permits in North West and Limpopo provinces, such as officials accepting bribes to cover-up pseudo-hunts and to ignore abuses in the hunting industry, and selling hunting permits “under the counter”.²⁴⁸ While the pseudo-hunting schemes prior to 2012 mainly involved Vietnamese and Thai hunters, between 2012-2014 the modus operandi evolved to recruit Czech and Polish hunters, as criminal networks adapted to the new requirements of tightened hunting regulations.²⁴⁹ During a three-year investigation, Czech authorities found as many as 180 people may have been implicated as financiers, smugglers, recruiters, and pseudo-hunters. In Poland, a 2019 inspection of 50 hunters found that none of them still owned their rhino horn trophy, suggesting that the hunters were used as proxies to legally export the horns to Poland for onwards trafficking to consumer

countries.²⁵⁰ Similar irregularities in the volume of hunting applications from China, Slovakia, Russia and Ukraine were also observed during this period. In response, South Africa further tightened the hunting regulations in June 2014.²⁵¹



Image 49: Notorious Thai rhino horn trafficker Chumlong Lemtongthai used false South African hunting permits to launder rhino horns. **Source:** Oxpeckers, <https://oxpeckers.org/2018/09/chumlong-release/>

²⁴³. UNODC (2020), *Scaling Back Corruption: A Guide on Addressing Corruption for Wildlife Management Authorities*, p.vii.

²⁴⁴. SANParks (2020), *South African National Parks Annual Report 2019/20*, p.69.

²⁴⁵. <https://www.iol.co.za/news/kruger-national-park-rangers-remanded-in-custody-after-being-arrested-for-allegedly-working-with-poachers-16039a06-1294-47dd-91fa-a2b906b29b97>

²⁴⁶. https://www.dffe.gov.za/mediarelease/creecy_259rhinopoached

²⁴⁷. Murcott, M. et al (2022). *Report on rhino and elephant trafficking routes and methods emerging from desktop study of law enforcement records*. Endangered Wildlife Trust.

²⁴⁸. Rademeyer, J. (2016), *Tipping Point: Transnational Organised Crime and the 'War' on Poaching*, Global Initiative Against Transnational Organised Crime, p.30.

²⁴⁹. Ibid.

²⁵⁰. Nozina, M. (2020), *The Czech Rhino Connection: A Case Study of Vietnamese Wildlife Trafficking Networks' Operations Across Central Europe*, European Journal on Criminal Policy and Research, v.27, pp.265-283.

²⁵¹. Rademeyer, J. (2016), *Tipping Point: Transnational Organised Crime and the 'War' on Poaching*, Global Initiative Against Transnational Organised Crime, pp.42-47.

Abuse of office: Involvement of government officials in rhino horn trade

A long-serving nature conservation official and a former policeman were arrested in the North West province, South Africa in October 2021 on various charges linked to the illegal rhino horn trade. The conservation officer was said to have inappropriate relationships with several game farm owners in his district²⁵² and records show that he previously attended a number of pseudo-hunts by Vietnamese, Laotian, and Thai hunters. The two men were arrested in the process of illegally transporting 17 rhino horns from a game farm in the Northern Cape to the North West province.²⁵³

In December 2016, Wildlife Justice Commission investigators were referred to a suspect located in Cameroon who was trading in rhino horn and tiger skins. During the engagement, the suspect said he only worked by referrals, would only send photos of available products “at the right time”, and that he worked with a specific shipping agency that handled the clearing process and direct delivery of his products. He indicated he was currently in possession of 14 raw rhino horns and six tiger skins. Later in the conversation he explained that he was particularly cautious because he was a high-level

government official in Cameroon operating a “back door” wildlife trafficking business. Four days later he sent an image of two rhino horns with a note with the investigator’s name and date on it, confirming his possession of at least two rhino horns. However, the intelligence on his government position remains unconfirmed.

In 2018, a Mozambican trafficker indicated he had high-level political connections, telling an investigator he has a “free walk” card that was given to him by FRELIMO party members to circumvent security checks at Maputo airport when carrying rhino horn shipments to China and Vietnam. He also said that on one trip during 2012-2013 he was arrested in China for illegal possession of rhino horn, and an undisclosed senior FRELIMO member had to negotiate his release with the Chinese authorities.

The incident did not prevent him from being able to continue to travel to China.

Also in Mozambique, intelligence suggests that a Vietnamese restaurant in Maputo could be involved in the illegal trade of rhino horn. Wildlife Justice Commission investigators have observed visits by Vietnamese government officers who are based in Maputo and known Vietnamese rhino horn traffickers, and it is suspected that Vietnamese embassy

officials have purchased rhino horn products from the restaurant owner or staff. A known Vietnamese rhino horn trafficker based in Maputo who regularly travels to Chokwe to buy horns has also been observed meeting with unknown individuals driving a vehicle with diplomatic registration plates.

Other instances of North Korean and Vietnamese diplomatic connections to illegal rhino horn trade in South Africa and Mozambique have been documented by the Global Initiative Against Transnational Organised Crime.²⁵⁴

Bribery for law enforcement protection

In 2015, Wildlife Justice Commission investigators were told by a trader that Nhi Khe village in Vietnam was “a special place”, and all traders paid a monthly fee to local law enforcement officers in exchange for protection. This allowed traders to openly display and sell their illegal rhino horn and ivory products, while someone would leak operational information to give advance warning of inspections. In one instance during a meeting with a trader at a timber store, investigators directly observed a transaction occur when the police arrived, and the trader immediately started to negotiate the bribe payment.

Another trafficker at the Vietnam-China border also said she paid bribes to Vietnamese customs officers and border police every month to operate her smuggling business, but not the Chinese police because “they won’t accept the money.” She used a boat to smuggle goods across the river or to help people illegally cross from one side to the other and would watch the timing to avoid the Chinese police.

Intelligence indicates that this type of corruption allows higher-level traffickers with better connections to exert a greater level of control in the criminal operating environment, while smaller traders who cannot afford to pay as much in protection fees are more exposed to arrest. In 2016 when media attention, NGO reports and international pressure forced an increased police presence at Nhi Khe village, one prolific trafficker declared that “arrests are good, less competition,” and added that “too many people do this now.” Intelligence in 2021 suggests a similar scenario has also played out in Cambodia, where lower-level traders have been muscled out by high-level traders with better connections with police and government.

²⁵². <https://www.iol.co.za/pretoria-news/news/game-farmer-businessman-caught-with-rhino-horns-get-bail-f82fb080-f018-4949-92d0-649f7efdbae6>

The Wildlife Justice Commission is also in receipt of intelligence that this North West conservation official had supplied rhino horns from a government-owned reserve stockpile to Dawie Groenewald in 2021, who was subsequently arrested for illegal transportation of the horns.

²⁵³. <https://oxpeckers.org/2021/10/north-west-case/>

²⁵⁴. Rademeyer, J. (2016), *Beyond Borders: Crime, Conservation and Criminal Networks in the Illicit Rhino Horn Trade*, Global Initiative Against Transnational Organised Crime, pp.22-24.

Bribery to facilitate customs clearance

A Malaysia-based trafficker has provided the Wildlife Justice Commission with extensive intelligence on his strategies and tactics to clear shipments through Malaysian airports. When referring to the type of officers he targets to work with him, he stated: *“We only get in touch with the middle and lower parts. We only say hi to the upper parts. The things are all done by the middle and lower the parts. The upper parts they don’t care. However the upper part changes, doesn’t matter to the middle and lower part...so no problem.”* He also said the ideal target is the “office head” and there is no need to go higher than that, *“as long as you take care of him, it would be fine.”* The trafficker has openly discussed the cost of this support, saying the customs clearance fee is USD 1,000-1,500/kg and he factors this in along with his own personal fee when charging clients for transportation services. Another important tactic he employs is changing the shipping documentation while the shipment is en route to Asia (such as changing the company name) to help ensure the safe arrival of shipments. He claimed in one instance when he was unable to get it changed in time, a container was seized while transiting through Hong Kong SAR.

A public prosecutor in Thailand was arrested in 2017 for his role in attempting to smuggle a shipment of 21 rhino horns weighing 49 kg into the

²⁵⁵. <https://www.bangkokpost.com/thailand/general/1579242/prosecutor-among-trio-jailed-for-1-4m-rhino-horn-haul>

country. The prosecutor was identified on CCTV footage appearing to escort two Thai women through customs at Suvarnabhumi Airport and tried to persuade and bribe customs officers to let their bags pass unchecked. The rhino horns were detected during the bag x-ray, and all three suspects were arrested. They were each sentenced to four years in prison in November 2018.²⁵⁵

Bribery to secure bail or release from custody

A dramatic case in Zimbabwe involved a group of seven Chinese nationals who were arrested in December 2018 for the illegal possession of 20 kg of rhino horns, which police believed were poached in a neighbouring country and smuggled into Zimbabwe. The suspects were repeatedly denied bail as prosecutors argued there was a high likelihood they would flee the country before the trial concluded. The suspects appealed to the Bulawayo High Court and in April 2019 were granted bail with strict conditions. Some observers believe the bail was orchestrated through connections to the judge. Bail conditions were followed until September 2019, when the suspects escaped with the assistance of a Zimbabwean police officer who had recently returned from deployment to a post on the border with Mozambique. The group allegedly paid him a bribe and provided a stolen car (which was later identified as having been stolen in South Africa 10 days earlier and illegally registered in Zimbabwe)

to travel to the border and cross into Mozambique, where they are believed to have escaped onto a Chinese fishing boat waiting at Maputo to sail back to China. The police officer was arrested as he crossed back into Zimbabwe but was eventually acquitted of all charges in February 2020.²⁵⁶

In 2021, intelligence from a Vietnamese trafficker who smuggles rhino horn over the border into Cambodia suggested he is not concerned about being detected and arrested in Cambodia, as he claims he can bribe his way out of any situation.



Image 50: Thai customs officers display seized rhino horns at a press conference at Suvarnabhumi airport, March 2017. **Source:** <https://www.bangkokpost.com/thailand/general/1579242/prosecutor-among-trio-jailed-for-1-4m-rhino-horn-haul>

²⁵⁶. <https://oxpeckers.org/2021/01/perfect-rhino-crime/>

²⁵⁷. <https://clubofmozambique.com/news/watch-vietnamese-arrested-at-maputo-airport-says-taxi-driver-tricked-him/>

²⁵⁸. <https://clubofmozambique.com/news/vietnamese-arrested-with-10-rhino-horns-at-maputo-airport-watch/>

²⁵⁹. <https://www.afd.fr/en/actualites/rhino-horn-trafficking-mozambique-first-major-conviction>

For many years in Mozambique, foreign traffickers are said to have operated with confidence that any arrest could be resolved by paying a fine or a bribe to the authorities. The cases of many Chinese and Vietnamese suspects who were arrested in flagrante delicto with rhino horns appear to have no known outcomes, such as a Vietnamese national who was arrested at Maputo International Airport in March 2018 in possession of 7.5 kg of rhino horn in his luggage,²⁵⁷ or two separate arrests at Maputo airport in October 2018 of a Vietnamese national carrying 10 rhino horns and a Chinese national carrying nine rhino horns.²⁵⁸ Despite conducting numerous arrests throughout the poaching crisis, the first successful prosecution and conviction of a foreigner for rhino-related crimes in Mozambique only occurred in August 2019.²⁵⁹ The ability of suspects to secure their release from custody over many years allowed Chinese and Vietnamese criminal networks to become deeply entrenched in Mozambique.

Bribery to evade criminal justice

High-level Zimbabwean poacher Dumisani Moyo is believed to be connected to rhino and elephant poaching in Zimbabwe, Botswana, Namibia, and Zambia, and has been arrested at least five times between 2008 and 2017 for offences for which he has never been held accountable. In each instance

he was released without charge, granted bail then absconded, or granted bail due to “procedural issues”. Moyo has also been linked to a poaching gang allegedly facilitated by a Zimbabwean Central Intelligence Organisation officer and is said to have high-level connections that keep giving him “get out of jail free” cards.²⁶⁰

A Vietnamese trafficker provided intelligence on the arrest of an associate for possession of 0.6 kg of rhino horn. He claimed the associate only served five years of a 10-year prison sentence because he was able to “bribe the system”, and that even with long sentences offenders could be released early because “the public only cares at the time of the trial”.

In March 2019, it was confirmed that the President of the KwaZulu-Natal Regional Court in South Africa had been suspended and was the subject of an internal inquiry, after allegations that he was a key player in a group of corrupt magistrates, prosecutors, and police officers who were paid by a criminal network to act leniently in the cases of rhino poachers and other criminals.²⁶¹

²⁶⁰. <https://oxpeckers.org/2021/01/perfect-rhino-crime/>

²⁶¹. <https://www.iol.co.za/sunday-tribune/news/kzn-regional-court-president-suspended-amid-bribery-allegations-19770027>

²⁶². <https://www.nst.com.my/news/nation/2018/08/403448/rm485-million-rhino-horns-animal-carcasses-bound-vietnam-seized-klia>

Bribery to release seized contraband

A Malaysia-based trafficker claimed to be able to retrieve wildlife shipments that are seized in Malaysia by making payments to his customs connections, but he could not save those seized at other points along the trafficking route. Wildlife Justice Commission operatives observed him meeting with a group of prominent Vietnamese traffickers in Vietnam in 2018, discussing options to salvage a shipment of 50 rhino horns weighing 116 kg that had been seized by authorities at Kuala Lumpur International Airport two days prior. It is believed that the shipment had been destined for Hanoi and belonged to the Vietnamese group present at the meeting. At that time, it was the largest rhino horn seizure ever made in Malaysia. The seizure was not made public until one week later.²⁶²

In 2016, another Malaysian trafficker claimed that when Malaysian Customs made a wildlife seizure, they would declare and display part of the seizure for media publicity but quietly sell the rest via close contacts such as himself. During conversation with a Wildlife Justice Commission operative on 24 July 2016, he described an ivory shipment that had been intercepted by Customs officers at Kuala Lumpur International Airport three days earlier. He alleged that Customs officers had contacted him to

ascertain whether the shipment belonged to him, and when he confirmed it did not, they went ahead with the seizure. He said he acts as an agent to find buyers for Customs seizures, and he was able to obtain access to 500-600 kg of ivory from that particular shipment. Media articles on the seizure were not published until 1 August 2016, where it was reported to be one tonne of ivory.²⁶³

In another case, a Vietnamese national was arrested at Maputo International Airport in late May 2012 when boarding a Kenya Airways flight to Nairobi, carrying seven rhino horns in his luggage. However, he was apparently able to negotiate his release along with the contraband, as he was reported to have been arrested again a few days later at Bangkok Airport with the seven rhino horns in his luggage, while in transit on a Kenya Airways flight from Nairobi to Hanoi.²⁶⁴

Embezzlement: Theft of official property, stockpiles

In May 2015, Mozambique made what was at that time its largest ever wildlife seizure, when police seized 65 rhino horns and 1.3 tonnes of ivory tusks from a residence in Maputo and arrested at

least one Chinese national. The confiscated products were moved to a police storeroom that was secured with three padlocks, but less than two weeks later, 12 horns were found to be missing and the arrested suspects were reportedly released by the public prosecutor. Police said six people were arrested in connection to the theft of the horns, including four security staff who were entrusted with looking after the storeroom, and two civilians who were involved in making replicas to replace the stolen rhino horns using bull horns.²⁶⁵

Eight rhino horn samples were also said to have been stolen from the luggage of a Vietnamese delegation in May 2015 that was bringing them to South Africa for DNA analysis. The delegation was headed by the Director of Vietnam’s CITES Management Authority and had travelled via Kenya and Mozambique to South Africa. According to the CITES permit, there should have been a set of 24 rhino horn samples, but only 16 samples were received in South Africa.²⁶⁶

In Vietnam, a customs officer who was responsible for supervising the arrival, storage, and withdrawal of confiscated goods at a customs warehouse used his position to steal 6.1 kg of rhino horns and

²⁶³. <https://www.malaymail.com/news/malaysia/2016/08/01/klia-customs-foils-attempt-to-smuggle-ivory-worth-over-rm10m/1173915>

²⁶⁴. <https://www.traffic.org/news/theft-of-rhino-horns-from-police-a-huge-setback-to-mozambiques-law-enforcement-efforts/>

²⁶⁵. <https://oxpeckers.org/2015/05/maputo-police-speak-on-rhino-horn-theft/>

²⁶⁶. Rademeyer, J. (2016), *Tipping Point: Transnational Organised Crime and the ‘War’ on Poaching. The Global Initiative Against Transnational Organised Crime*, p.34.

240 kg of ivory over several months.²⁶⁷ He worked with a civilian associate to find buyers for the products and to purchase fake replacements. The two men were arrested in September 2017 and in August 2018 convicted on embezzlement charges and sentenced to 16 years imprisonment.²⁶⁸



Image 51: A Vietnamese customs officer (on the right) convicted for embezzlement relating to theft of rhino horn and ivory from seized stockpiles, along with two other defendants. **Source:** Dan Viet Media. <https://danviet.vn/cuu-can-bo-hai-quan-linh-an-nang-vi-tham-o-nga-voi-sung-te-giac-7777907742.htm>

| Money laundering

In March 2022, a woman was sentenced to five years imprisonment for money laundering linked to the illegal rhino horn trade in South Africa. An undercover investigation identified her to be laundering large sums of cash through the casino on behalf of a criminal network dealing in rhino horns in Gauteng province.²⁶⁹

The Wildlife Justice Commission has also collected intelligence on a Chinese national operating in Maputo who is laundering money for all the Chinese customers of a major rhino horn trafficker in Mozambique. She is known to exchange funds from China into Mozambican or South African currency, or vice versa, sending money in either direction along the supply chain as necessary to fund poaching and trafficking operations in Africa or to send payments back to China.

²⁶⁷. <https://tuoitrenews.vn/news/society/20180601/vietnamese-customs-warehousekeeper-faces-death-for-stealing-multiple-seized-tusks-rhino-horns/45888.html>

²⁶⁸. <https://danviet.vn/cuu-can-bo-hai-quan-linh-an-nang-vi-tham-o-nga-voi-sung-te-giac-7777907742.htm>

²⁶⁹. <https://www.iol.co.za/news/south-africa/gauteng/woman-sentenced-to-five-years-in-jail-for-money-laundering-linked-to-illegal-rhino-horn-trade-1d1459b0-6bbe-485d-87d5-3f76b0477b86>

9.

Impact of COVID-19²⁷⁰

It is more than two years since the novel coronavirus (COVID-19) outbreak was first reported by China on 31 December 2019, causing unprecedented shutdowns across the world. Just as governments, businesses, and individuals globally grappled with the immediate and crippling effects of lockdowns, travel restrictions, and in many countries complete border closures, so too did the criminal networks. Sharp reductions in the number of rhinos poached in South Africa and global rhino horn seizures during 2020 indicate the abrupt impact of COVID-19 prevention measures in strangling criminal operations. However, this was only ever expected to be a temporary lull as criminal networks found ways to adapt to the new operating environment. As restrictions began to ease in many countries during 2021, the level of crime began to increase again.

²⁷⁰. Sanitised intelligence and findings from seven years' worth of Wildlife Justice Commission investigations are interwoven throughout this threat assessment to provide context and insights into changes in the criminal dynamics of rhino horn trafficking. Where information is drawn from any other source, it is referenced with footnotes and acknowledged as such. Any non-referenced information, inferences or interpretation should be understood as being sourced from Wildlife Justice Commission intelligence analysis.

KEY FINDINGS

- ✓ The impact of COVID-19 on rhino poaching levels is complex. While poaching numbers in South Africa in 2020 were reported to be the lowest in over a decade, they began to increase again in 2021, signifying the lull was only temporary. Some poaching coordinators in Mozambique are known to have been more resilient and successful than others during the pandemic.
- ✓ Organised crime networks were heavily impacted by transportation challenges compounded by the fear of quarantine, which meant travel to other countries was risky. Transportation

costs rose, major delays in receiving products meant that suppliers could not service their businesses, and clearance at airports facilitated by complicit customs officers was not as secure as it had been in the past.

- ✓ It is suspected that smaller traffickers and traders were hit harder by the pandemic challenges, while more established, high-level actors were able to draw on more resources to adapt to the changing conditions.
- ✓ Wildlife markets in Southeast Asia that relied primarily on Chinese customers have particularly struggled in the pandemic, and it is suspected that the lack of customers may have increased the online sale of rhino horn products to continue doing business.

This chapter highlights some of the impacts that COVID-19 has had on the criminal dynamics of the illicit rhino horn supply chain, from poaching to trafficking to markets and consumption, and adaptations that have been observed in the criminal networks. It is based on intelligence collected during Wildlife Justice Commission investigations, poaching and seizure data, and other open-source information.

Impact on rhino poaching

There were initially fears that wildlife poaching in general could increase during the COVID-19 pandemic, as many countries closed their national parks as part of social distancing measures and restrictions.²⁷¹ The main concerns related to the financial losses associated with a lack of park visitors and tourism revenue, which is a major industry and funds park management and wildlife conservation activities in most African countries. The impact would extend to local people working in parks as trackers, eco-guards, and other roles servicing the travel and tourism industry, possibly leading some to turn to poaching as an alternate source of income if their jobs were threatened.²⁷²

There was also concern that poaching networks may perceive park closures or the reduced presence of rangers as ideal opportunities for exploitation. The absence of tourists from parks who may unwittingly act as “capable guardians” also increased this risk.²⁷³

The Wildlife Justice Commission received intelligence that several known poaching organisers in Mozambique were intending to take advantage of the strict lockdown in South Africa during the April 2020 full moon period, with six different poaching teams set to enter Kruger National Park. At that time, South Africa reported no increase in poaching during the initial lockdown,²⁷⁴ and overall, the national rhino poaching figures for 2020 (394 rhinos killed) were the lowest in more than a decade.²⁷⁵ This was likely aided by the strict enforcement of curfews and lockdowns in South Africa and closure of the border with Mozambique for several months. In 2021 the rhino poaching losses for South Africa increased to 451, still 24% lower than pre-pandemic levels in 2019.²⁷⁶

In Botswana, the pandemic did not disrupt the escalating trend of rhino poaching, with a 77%

²⁷¹ <https://www.nationalgeographic.com/animals/article/wildlife-safaris-halted-for-covid-boost-poaching-threat>

²⁷² <https://www.afrik21.africa/en/kenya-park-shutdown-due-to-covid-19-puts-wildlife-at-risk/>

²⁷³ Tourists can provide additional protection through their presence and interaction in the parks. Source: Paulsen et al. (2009), *Tactical Crime Analysis*.

²⁷⁴ <https://www.dispatchlive.co.za/news/2020-04-07-peace-for-rhinos-as-lockdown-keeps-poachers-away-for-now/>

²⁷⁵ https://www.dffe.gov.za/mediarelease/rhinopoaching_sa

²⁷⁶ https://www.dffe.gov.za/mediarelease/rhinopoaching_2021

increase in reported rhino killings in 2020 compared to 2019.²⁷⁷ However, elsewhere in Africa, it appears that rhino poaching continued at relatively stable levels or was reduced during the pandemic, again likely supported by global travel restrictions and border closures.²⁷⁸ Although it appears that overall, the early fears of increased poaching were largely not realised for rhinos, there was a reported increase in snare poaching for bushmeat in Kruger National Park²⁷⁹ and in Kenya.²⁸⁰

One pertinent event from which the resultant impact is not yet clear, was the release of 83 Mozambican rhino poachers from South African prisons in July 2020.²⁸¹ The prisoners received a presidential pardon and were returned to freedom to ease congestion in prison facilities during the pandemic. ANAC was reported to suspect that many have returned to poaching activities in the districts of Magude, Moamba and Massingir, and been part of incursions into South Africa to kill rhinos,²⁸² but there is insufficient data to attribute the increase in rhino poaching in 2021 to the released poachers.

The experience of two major poaching coordinators in Massingir during the COVID-19 pandemic

illustrates differences in the resilience of some criminals to the changes forced by lockdowns and travel restrictions. Both men were known to be prolific coordinators for several years with suspected connections to corrupt officials in Mozambique and South Africa, but while one excelled during the pandemic, the other struggled.

The first coordinator previously worked at Limpopo National Park in Mozambique, which has enabled his ongoing access into the park. Despite having a long history of direct involvement in poaching, all intelligence received from 2020 onward indicated he has been heavily involved in preparing and orchestrating poaching incursions into Kruger National Park, including personally buying supplies, transporting teams to the border of the park, and at times, remaining on location to collect the rhino horns afterwards. He is also known to diversify the recruitment grounds and penetration points into the park as a tactic to avoid law enforcement detection. By employing an agile, hands-on, low-cost structure, this poaching coordinator continued to operate successfully throughout the pandemic. His luck ran out in July 2022 when he was arrested by SERNIC in a strong

²⁷⁷. CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, p.31. Rhino poaching in Botswana increased from 31 rhinos killed in 2019 to 55 killed in 2020.

²⁷⁸. Ibid.

²⁷⁹. SANParks (2020), *South African National Parks Annual Report 2019/20*, p.69.

²⁸⁰. <https://www.infonile.org/en/2021/07/bushmeat-hunting-on-the-rise-as-covid-19-stifles-tourism/>

²⁸¹. <https://oxpeckers.org/2021/03/mozambique-tackling-rhino-crimes/>

²⁸². Ibid.

operation, caught in possession of eight rhino horns he was expecting to sell to a potential buyer in Maputo.²⁸³

Conversely, the second coordinator operated a larger business structure and did not have a profitable year from poaching in 2020. This coordinator is believed to run his operations from a purpose-built house in Massingir via delegates or employees, while also maintaining legitimate employment and additional community roles that likely offer him a degree of insulation from arrest or prosecution. Intelligence suggests he utilised corrupt connections within Limpopo National Park to provide counter-surveillance for rhino poaching incursions. His social media account includes an image of him handing cash to a suspected park employee and images of helicopters that may have been used to transport rhino horn and cash payments in Mozambique. This coordinator was reported to be struggling financially in 2020, with low yields from poaching attempts and few rhino horn buyers in Mozambique as many foreign traffickers returned to their home countries at the start of the pandemic. He was said to be selling a lodge he owned, possibly to offset his high operating costs and diminished poaching profits.

²⁸³. <https://news.mongabay.com/2022/08/mozambique-busts-notorious-rhino-poacher/>

²⁸⁴. Refer to Key Finding (i) in Chapter 2 of this report for full details.

²⁸⁵. Refer to Key Finding (i) in Chapter 2 of this report for full details.

| Impact on trafficking dynamics

“Business is really tight, and the bosses are worried. Can’t do any business.”

– VIETNAMESE TRAFFICKER, MARCH 2020.

The rhino horn seizure data shows that the illegal trade dramatically slowed as a result of the pandemic, but it did not stop. While travel restrictions, transportation challenges and increased border security all had a significant impact on trafficking dynamics, some very clear trends can be inferred from the seizure data analysis.

Both the total number of seizures and the total weight of rhino horns seized globally decreased by approximately half in the 2020-2021 period compared to the 2018-2019 period.²⁸⁴ However, the average weight of African rhino horn shipments increased to their highest weights yet during the COVID-19 pandemic era, up 55% from an average of 28.7 kg per shipment in 2018-2019 to an average of 44.5 kg in 2020-2021.²⁸⁵ The fact that the trade not only persisted, but shipments also expanded in size during the pandemic, could indicate a larger involvement of transnational organised

crime in the rhino horn trade that was finding ways to adapt to the new trafficking challenges. It is also suspected that moving larger shipments became more important during the pandemic to absorb increased transportation costs while still generating sufficient profits.

The 2020-2021 period saw the highest level of consistency and simplification of trafficking routes used, presumably due to the limited availability of transportation options. South Africa was the most significant African exit point for large rhino horn shipments, Malaysia consolidated its role as a key transit country, and Vietnam remained the major destination country.²⁸⁶ Furthermore, while the majority of rhino horn shipments were previously smuggled in passenger luggage, this transportation method became unviable during the pandemic due to travel restrictions preventing the movement of people. Instead, there was an increase in the volume of rhino horn being smuggled by air cargo.²⁸⁷

At the beginning of the pandemic in early 2020, aviation security measures resulted in some sudden and unpredictable flight diversions that may have contributed to a few rhino horn seizures by throwing smugglers off their usual routes. For example, in March 2020 customs officers at Can Tho airport in southern Vietnam seized 28.7 kg of

rhino horn carried in passenger luggage on a flight from Korea that had been diverted to Can Tho at the last minute to prevent a quarantine overload at Ho Chi Minh City airport.²⁸⁸

Transnational organised crime networks were heavily impacted by transportation challenges and intelligence collected by the Wildlife Justice Commission indicated traffickers were scrambling to find ways to continue their business. The fear of quarantine meant travel to other countries was risky, transportation costs rose, major delays in receiving products meant that suppliers could not service their businesses, and clearance at airports facilitated by complicit customs officers was not as secure as it had been in the past.²⁸⁹

“Can’t deliver, the transportation fee is very high right now.”

“Yes. Because of the coronavirus. It’s difficult now so they avoid it.”

— VIETNAMESE TRAFFICKER, FEBRUARY 2020.

“Security is too heavy at the border. Products can’t go out now. It’s just too difficult.”

— VIETNAMESE TRAFFICKER, MARCH 2020, REFERRING TO TRANSPORTING PRODUCTS TO CHINA.

While it is known that other commodities such as ivory and pangolin scales were being stockpiled in large quantities in Vietnam, Lao PDR, and Cambodia due to difficulties transporting products into China, this does not appear to have occurred with rhino horn. Rhino horns were still being traded domestically within Vietnam, and higher-level brokers were still able to offer transportation to China, but only 4 km over the border to Nanning or Pingxiang, and the buyer would be responsible for arranging their own onwards delivery.

It is assessed that smaller traders with fewer connections were hit harder by the pandemic challenges, while more established, high-level traders, including transnational organised crime networks, had more resources to draw on to adapt to the changing conditions. The experience shared by

a Vietnamese trafficker in June 2021 epitomised this scenario. He said he had minimal involvement in rhino horn trade during the past two years because COVID-19 restrictions had impacted his ability to travel to and from Cambodia where his main client base was, and he experienced a general decline in interest from his Vietnamese customers. He appeared extremely disillusioned with the business and spoke numerous times of being ripped off by other traders and how bad the current market is. However, he was still attracted by the profitability of rhino horn trade and said he may become involved in the business again when the borders open freely again.

Impact on demand and consumption

Considering the ongoing appetite of traffickers to obtain rhino horn and the fact that it generally moves quickly through the trade, it is presumed that corresponding high levels of consumer demand continue to exist for rhino horn products. Perhaps the main impact of the pandemic on consumer demand is on the locations where it is sold.

For example, findings from Wildlife Justice Commission investigations suggest wildlife markets in Southeast Asia that relied on Chinese customers

²⁸⁶. Refer to Key Finding (ii) in Chapter 2 of this report for full details.

²⁸⁷. Refer to Key Finding (viii) in Chapter 2 of this report for full details.

²⁸⁸. <https://e.vnexpress.net/news/news/29-kg-of-rhino-horns-seized-from-man-arriving-from-south-korea-4063687.html>

²⁸⁹. Wildlife Justice Commission (2020), *Rapid Assessment of the Impact of COVID-19 on Wildlife Trafficking*.

have particularly struggled in the pandemic. Tour guides, taxi drivers, and shop owners in Cambodia and Lao PDR lamented the lack of customers to operatives during visits in February and March 2020. It is suspected that the lack of customers at physical markets may have increased the online sale of rhino horn products to continue doing business, primarily on communication apps and social networking platforms that can offer more privacy and security.²⁹⁰

In May 2020, Wildlife Justice Commission investigators were proactively approached on Facebook by two separate traffickers based in DRC who were offering to sell rhino horns. In both cases after initial contact was made, the traffickers wanted to switch to WhatsApp for further discussion and to send photos of the available horns. It is an unusual and highly risky modus operandi for a trafficker to be actively soliciting unknown prospective buyers in foreign countries via Facebook, but it was assessed as potentially showing the traffickers' desperation to sell their products during the COVID-19 pandemic.

A UNODC study conducted in certain border areas and trade hubs of Southeast Asia throughout 2020 indicated an apparent decline in market demand for wildlife products linked to the perception that the COVID-19 virus emerged from a wet market in China. This decline in demand was believed to principally affect wildlife that is consumed as food, but traders anticipated that business activity and demand would return to pre-pandemic levels when restrictions were lifted, vaccines became widely available, and fear of infection subsided.²⁹¹ The study did not detect any specific findings related to rhino horn consumption.

The Wildlife Justice Commission has also collected intelligence suggesting some traders in Asia have attempted to opportunistically market rhino horn as a treatment for the COVID-19 virus, linked to its traditional medicinal use to treat fever and detoxify the body, and expected business to pick up during the pandemic. It is not known to what extent buyers are engaging with this ploy, but it demonstrates the flexibility of criminals to quickly exploit a new situation in order to sell their products.

²⁹⁰. <https://news.mongabay.com/2022/04/a-risky-business-online-illegal-wildlife-trade-continues-to-soar-in-myanmar/>

²⁹¹. UNODC (2021), *Illegal Wildlife Trade in Select Border Areas of the Upper Mekong Sub-Region During the COVID-19 Pandemic in 2020*, reported at this link: <https://www.reuters.com/business/environment/exclusive-wildlife-traffickers-creeping-back-pandemic-restrictions-ease-un-2021-09-21/>

10.

Conclusion: Recalibrating the response to tackle transnational organised crime

With 9,561 rhinos poached across Africa²⁹² and 7.5 tonnes of rhino horns seized from illegal trade globally during the past 10 years, the scale of the rhino crisis has now likely eclipsed anything that was envisaged in 2012. Sadly, few achievements can be held up as demonstrating real, substantive progress in combating this issue, despite the many millions of dollars that have been poured into a litany of anti-poaching, law enforcement, and demand reduction efforts in key countries across the supply chain.

²⁹². CITES CoP19 Doc.75 (Annex 4), *African and Asian Rhinoceros – Status, Conservation and Trade*, prepared by IUCN Species Survival Commission's African and Asian Rhino Specialist Groups and TRAFFIC, pp.30-31.

Poaching rates in South Africa have markedly declined since the peak in 2014, more recently aided by the disruption of COVID-19 lockdowns and travel restrictions on criminal networks, which is undoubtedly crucial and encouraging. However, it is difficult to see the 2021 rhino poaching rate (451) as a success when it is equivalent to the 2011 poaching rate (448), which was deemed alarming at the time. Population estimates reported in September 2022 indicated that almost 77% of white rhinos in Kruger National Park had been lost compared to 2011 levels (with drought a contributing factor in addition to the heavy poaching toll).²⁹³ In this context, reduced poaching likely has at least some correlation to the dwindling supply of wild rhinos in what has been the main source location up till now. Meanwhile, a substantial increase in poaching in Hluhluwe-iMfolozi Park in KwaZulu-Natal province²⁹⁴ could signal displacement of the problem to other parks. Rhino poaching patterns could be shifting in other southern African countries as well, such as a reported surge in poaching in Etosha National Park in Namibia in 2022.²⁹⁵ Either way, the crisis is far from over.

At this juncture, there is irrefutable evidence pointing to the involvement of transnational organised crime networks that are driving rhino poaching and rhino horn trafficking – from the size, reach, and resilience of the networks to the increasingly large volumes of shipments, sophisticated modus operandi, the trail of complicit officials, and the vast illicit income estimated to be generated by the trade. Criminal networks are servicing and monetising the demand that exists for this high-value product, neither of which shows any sign of abating. The resources and approach deployed in response across the entire supply chain must therefore be geared towards tackling transnational organised crime.

However, it is clear from this assessment that all six key countries and territories have been slow to shift their response from “conservation crisis” to “crime problem”. This can be seen in the sluggish reform of legal frameworks – which is the vital first step – with Mozambique only criminalising rhino poaching in 2014, Vietnam finally providing legal clarity in the application of criminal penalties to rhino horn crimes in 2017, and Hong Kong SAR’s recognition of wildlife trafficking as a form of serious, organised crime in 2021. It can be seen in the lack

of further investigations beyond rhino horn seizures to identify the owners and financiers of the shipments and other members of the criminal networks, particularly in Malaysia, Hong Kong SAR, and Vietnam. It can also be seen in the almost universal lack of prosecutions and convictions of high-level criminals – with the exception of China and a few notable cases in Vietnam. There is still a paucity of international cooperation across the supply chain and in-depth, intelligence-led investigations that focus on the criminal network rather than the individual. Advanced investigation techniques such as controlled deliveries are seldom used. Parallel financial or corruption investigations are not common practice. Even at the most high-profile end of the wildlife crime spectrum, rhino-related crimes are not free of this malaise.

None of this is new. These are the same law enforcement issues that have been raised throughout the last decade by governments, intergovernmental organisations, and various stakeholders in conservation, and they are just as relevant today. But precious time has already been lost during the intervening years and criminal networks have now become entrenched in South Africa, Mozambique, and Vietnam in particular.

²⁹³. DFFE reported the present Kruger National Park rhino population was 2,458 in September 2022, down from 2,809 at the end of 2020 and 10,621 in 2011. <https://www.citizen.co.za/witness/news/da-concerned-over-decline-in-rhino-numbers-at-kruger-national-park/>; SANParks (2020), *South African National Parks Annual Report 2019/20*, p.96.

²⁹⁴. <https://www.dailymaverick.co.za/article/2022-04-05-rhino-bloodbath-in-kzn-as-poachers-gun-down-75-animals-this-year/>, <https://kormorant.co.za/rhino-poaching-on-the-rise-in-kzn/>

²⁹⁵. <https://www.aljazeera.com/news/2022/6/14/namibia-rhino-poaching-surges-in-june-ministry>





To address the persistent problems of rhino poaching and illegal rhino horn trade, all jurisdictions affected along the supply chain regardless of whether they are source, transit or destination locations need to step up and redirect their efforts to ensure that wildlife crime is tackled in an effective, coordinated, and enduring manner. The same criminal networks trafficking rhino horns are often trafficking other wildlife products or other types of illicit commodities, so increased efforts by affected countries would have a broader impact than just rhino conservation.

Good law enforcement practices can be found in each of the six most prominent countries and territories which should be adopted and implemented systematically across all jurisdictions in the supply chain.²⁹⁶ Law enforcement cannot be the sole solution to stop the poaching of rhinos or the trafficking of rhino horns, but the full weight of law enforcement has not yet been applied to this issue.

Impactful demand reduction and behavioural change initiatives must also be targeted to the areas of highest consumer demand and fully

informed about the different drivers of consumer behaviour. The assessment shows that the demand for rhino horn is large and diverse with different uses in different places, and this needs to be better reflected in the strategies and programmes that are aiming to address it. So far very little effort, if any, has focused on addressing rhino horn demand in China.

The criminal landscape is constantly changing and innovating, as demonstrated by shifting modus operandi, crime displacement, and developments in the use of non-traditional methods to commit crime such as cryptocurrency payments and rhino horn trade on the dark web. The question now lies in how to get ahead of the criminal networks and prepare for these types of developments when there are still too often inadequate responses to the well-known, traditional criminal methods.

The ongoing threat to rhinos is clear but the status quo cannot be maintained for another 10 years. All efforts must be reviewed and recalibrated with a renewed sense of urgency to protect rhinos, respond appropriately to the complex dynamics of the illegal trade, and dismantle the criminal networks.

Appendix 1: Compilation of key intelligence gaps

²⁹⁶ See Appendix 2 of this report for some recommended tools and resources to support law enforcement efforts to combat illegal wildlife trade.

Crime displacement and trafficking roles	The extent of rhino poaching displacement from South Africa to other southern African countries, particularly Botswana and Namibia.
	The impact and extent of crime displacement in Angola as a wildlife trafficking hub in Africa.
	The impact of crime displacement on trafficking routes through Asia and modus operandi following the recent arrest of a major Malaysian trafficker.
	The potential role of the Philippines, Indonesia, and Japan in the illegal trade as locations for consolidation and transshipment of rhino horn products.
	The extent and nature of wildlife trafficking occurring through Myanmar.
Modus operandi	The potential connection of Russia to the rhino horn supply chain, with some Vietnamese traffickers based in southern Africa known to travel to Russia and use Russian mobile phone SIM cards.
	The extent of the use of maritime transportation to smuggle rhino horn and its potential to increase as a preferred transportation method.
	The extent of illegal rhino horn trade occurring on the dark web and the potential for convergence between wildlife crime and other forms of criminality facilitated by this platform.
	The nature and scope of the threat posed by the convergence of rhino horn trafficking with other forms of crime such as drug trafficking.
	Whether front companies that were established to access shipping routes and other useful business infrastructure to facilitate rhino horn smuggling are also used by transnational organised crime networks for wider criminality and smuggling other types of contraband.
Price dynamics and illicit financial flows	The extent to which fake rhino horn products circulate in the black market
	Price elasticity of demand for rhino horn and how supply and demand dynamics impact black market prices across the supply chain.
	Further data to determine how the provenance of horns (poached vs. harvested horns) influences price.
	Deeper understanding of how money flows within the supply chain and which payment methods criminals are using to enable better detection of illicit transactions.
Use and consumption	The extent of the use of cryptocurrency for rhino horn transactions and potential for this to increase in the future.
	The nature and scale of Chinese demand for rhino horn, and deeper insight into the carving process, market distribution, and use of rhino horn as an investment product.
	Other countries where demand in various forms or markets could increase in the future.
	The role of “freshness” of rhino horn in illegal trade and how it impacts use and consumption of rhino horn products.

Appendix 2: Law enforcement tools and resources

The Global Wildlife Program (GWP) and the International Consortium on Combating Wildlife Crime (ICWC) have compiled various existing and emerging law enforcement tools and resources that are available to support efforts to combat illegal wildlife trade.²⁹⁷ A sample of some of the recommended resources include the following:

²⁹⁷ World Bank Group (2018). *Tools and Resources to Combat Illegal Wildlife Trade*.

Tool Name	Responsible Agency	Description
Communication Platforms		
CENcomm	World Customs Organization	The Customs Enforcement Network (CEN) communication system is an encrypted means for customs officers to communicate and transfer data on environmental crime cases. http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools/cen-suite.aspx
ENVIRONET	World Customs Organization	ENVIRONET is a real-time communication tool for information exchange and cooperation on environmental issues among customs administrations, competent national authorities, international organisations, and their regional networks. The WCO posts media updates related to wildlife crime and other environmental crimes, alerts, manuals, handbooks, and enforcement-related messages via ENVIRONET.
ECO-Message	INTERPOL	ECO-Message is a system for reporting all international environmental crime cases. It facilitates real-time information exchange in a standardised format, creating a reliable, searchable platform for officers to use.
I-24/7	INTERPOL	I-24/7 is a secure network linking all INTERPOL member countries and giving access to INTERPOL's criminal databases. It enables authorised users to share sensitive information with their counterparts around the globe.
Databases		
CITES Trade Database	CITES	The CITES Trade Database holds over 15 million records of trade in wildlife and over 50,000 scientific names of taxa listed by CITES. It is a unique tool available to CITES Parties and to the public at large. It is an indispensable source of information on the international trade in wild fauna and flora. https://trade.cites.org/
RhODIS	University of Pretoria	The RhODIS rhino DNA database contains information about DNA samples of rhinos across South Africa. The goal is for all rhinos to be listed on the system. This will deter poachers and assist in prosecutions. https://erhodus.org/
World WISE Database	UNODC	The UNODC's World Wildlife Seizures (World WISE) Database aims to provide a global database of all seizure incidents related to wildlife crime. Seizure data is derived from CITES, ICCWC, WCO, and the European Commission's Enforcement Working Group (EU-TWIX).

Tool Name	Responsible Agency	Description
Online Platforms and Mobile Apps		
WildScan	Freeland Foundation	WildScan is a comprehensive species identification and response app designed to help frontline law enforcement agencies correctly identify, report, and handle wildlife caught in the illegal trade. https://www.freeland.org/uploads/1/3/6/2/136275344/8.pdf
In-Situ Geographic Information Systems		
Spatial Monitoring and Reporting Tool (SMART)	SMART	SMART consists of a software application that enables collection, storage, communication, and evaluation of ranger-based data on patrol efforts, patrol results, and threat levels. The SMART Tool is open-source, non-proprietary, and freely available. https://smartconservationtools.org/
Forensics		
TRACE DNA Sampling Guide	TRACE	The TRACE Wildlife DNA Sampling Guide is a free downloadable training guide to accompany wildlife DNA sampling kits to support the collection of forensic samples from crime scenes. http://www.tracenet.org/wp-content/uploads/2012/08/Wildlife_DNA_Sampling_Guide_web.pdf
Strategic and Technical Analysis Tools		
Manual on Wildlife and Forest Crime for Frontline Officers	UNODC	This manual is designed to provide an overview of the key considerations for investigators in dealing with wildlife and forest crime. https://www.unodc.org/documents/Wildlife/WLFC_Annual_Report_2014.pdf
Wildlife and Forest Crime: A Field Guide for Frontline Officers	UNODC	This is a condensed pocket guide version of the Manual on Wildlife and Forest Crime for Frontline Officers mentioned above. https://www.unodc.org/roseap/en/resources/toc/border-management.html
IBM Analyst's Notebook – i2	IBM	The IBM i2 Analyst's Notebook is a prominent example of available intelligence analysis software which allows a user to find connections and patterns in data. It allows for mapping of criminal groups through network visualisations, social network analysis, and geospatial or temporal views.

Tool Name	Responsible Agency	Description
Training and Reference Materials		
CITES Virtual College	CITES	The CITES Virtual College is a free online resource that aims to increase awareness of the convention and provide learning and training materials on CITES. https://cites.unia.es/
Risk Management Compendium	World Customs Organization	The Risk Management Compendium outlines the risk management process and identifies risk assessment, profiling, and targeting tools that inform selection criteria for identifying high-risk consignments, passengers, and conveyances for customs intervention. http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools/compendiums/rmc.aspx
UNODC E-Learning	UNODC	The UNODC Global eLearning Programme offers comprehensive training and learning solutions across a range of crime types including wildlife crime, in many languages. https://www.unodc.org/elearning/index.html
ICCWC Wildlife Crime and AML Training Programme	ICCWC	ICCWC has developed an anti-money laundering training programme for investigators, prosecutors, judges, and other stakeholders involved in the investigation and prosecution of wildlife crimes. https://cites.org/eng/prog/iccwc.php/Tools
Legal		
goCASE	UNODC	goCASE is an investigative case management and analysis tool for government law enforcement, investigation, intelligence, and prosecution agencies of all UN member states. https://gocase.unodc.org/
Mutual Legal Assistance Request Writer Tool	UNODC	The UNODC MLA Tool has been developed to assist states in drafting appropriate MLA requests where no specific bilateral or regional treaty exists. https://www.unodc.org/mla/
SHERLOC	UNODC	The SHERLOC portal is an initiative to facilitate the dissemination of information regarding the implementation of the UN Convention Against Transnational Organised Crime and its three protocols. It contains case law and national legislation databases covering a range of crime types including wildlife crime. https://sherloc.unodc.org/



Law enforcement and legal experts fighting transnational organised wildlife crime.



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