



**Wildlife Justice
Commission**

SYNOPSIS

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

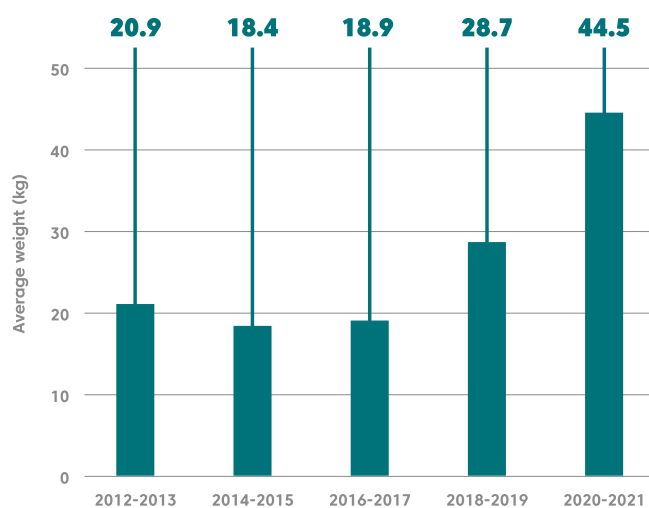


Figure 1: Average weight of smuggled shipments of African rhino horns, 2012-2021.

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

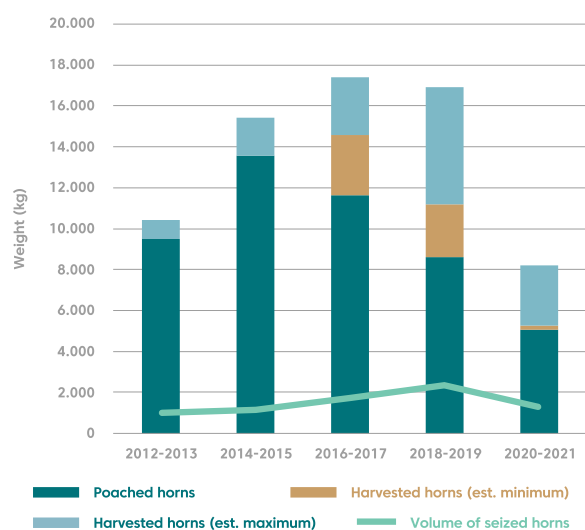


Figure 2: Estimated supply of African rhino horns entering illegal trade 2012-2021 based on reported rhino poaching in Africa and estimated diversion from legal stockpiles, compared to the volume of horns detected and seized globally by law enforcement authorities. (Based on data and calculations in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

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

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.

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

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.



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://theaseanpost.com/article/rhino-horn-seizure-thailand-leads-major-trafficking-syndicate>

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 trans-continental 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

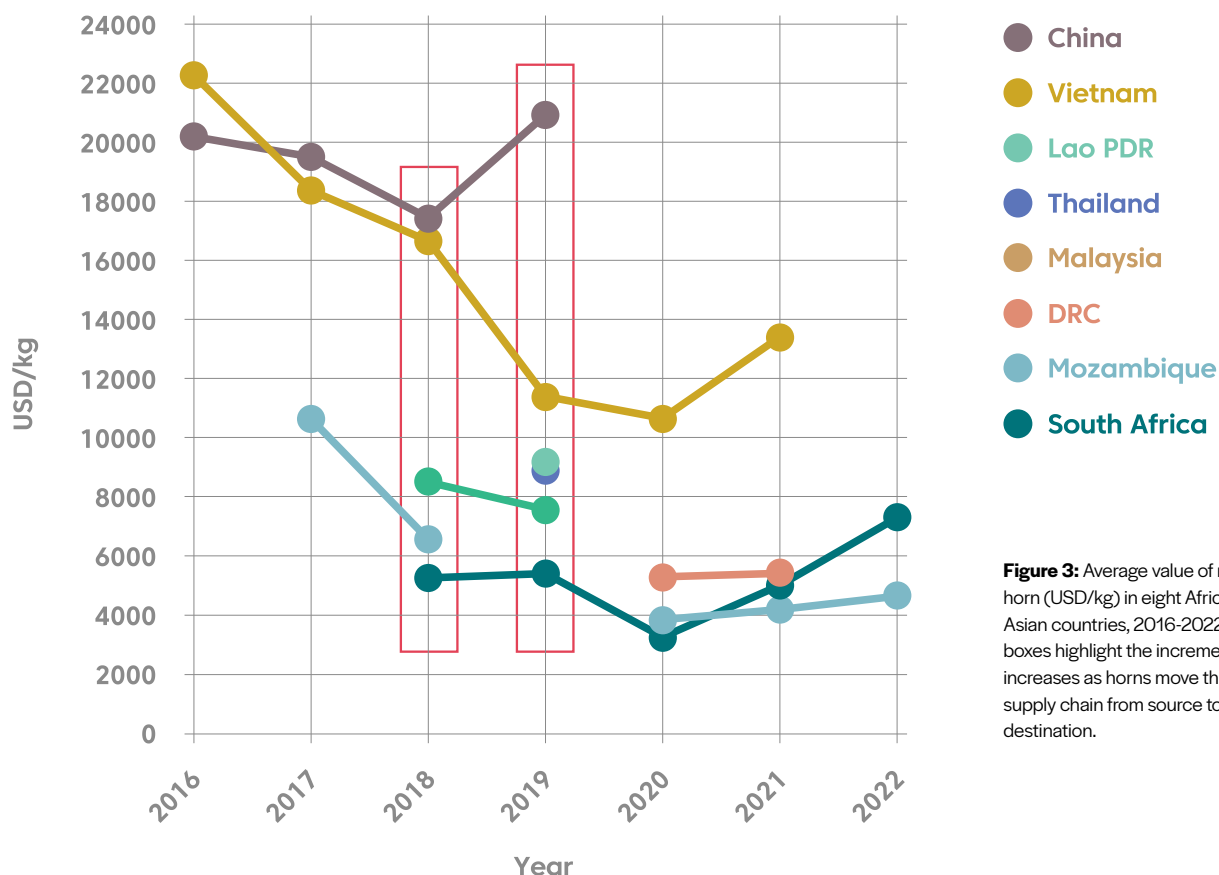


Figure 3: Average value of raw rhino horn (USD/kg) in eight African and Asian countries, 2016-2022. The red boxes highlight the incremental value increases as horns move through the supply chain from source to destination.

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.



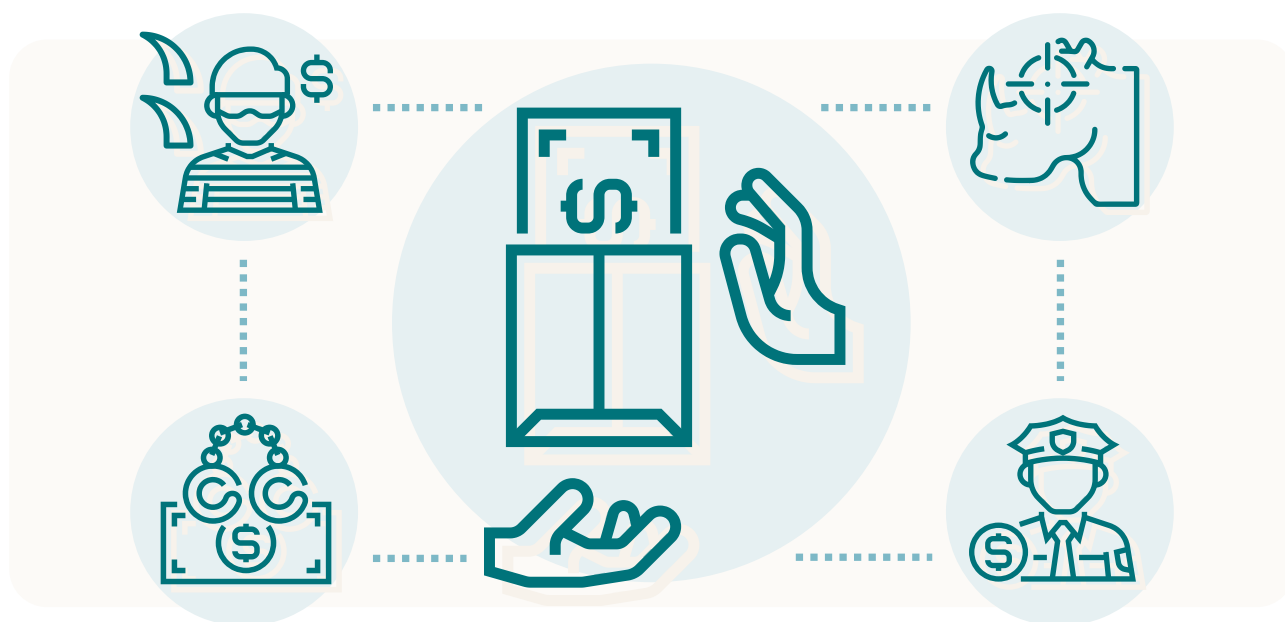
Image 6: Nguyen Mau Chien, the first high-profile wildlife criminal to be convicted in Vietnam, in relation to smuggling 36 kg of rhino horn.
Source: Education for Nature – Vietnam.

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”.

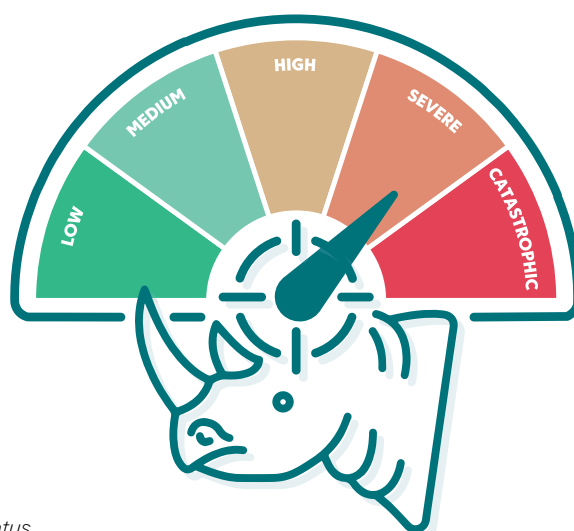
All jurisdictions – regardless of whether they are source, transit, or destination locations – need to step up and redirect their efforts to ensure crime is confronted in an effective, coordinated, and enduring manner.

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.

Law enforcement and legal experts fighting transnational organised wildlife crime.



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