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**COLOURED GEMSTONES  
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**TRADING**

OCEANS APART?

CONVENTIONS, PRACTICES  
AND PERCEPTIONS IN  
COLOURED GEMSTONE

TRADING



COLOURED GEMSTONES:

# OCEANS APART?

## CONVENTIONS, PRACTICES AND PERCEPTIONS IN COLOURED GEMSTONE TRADING

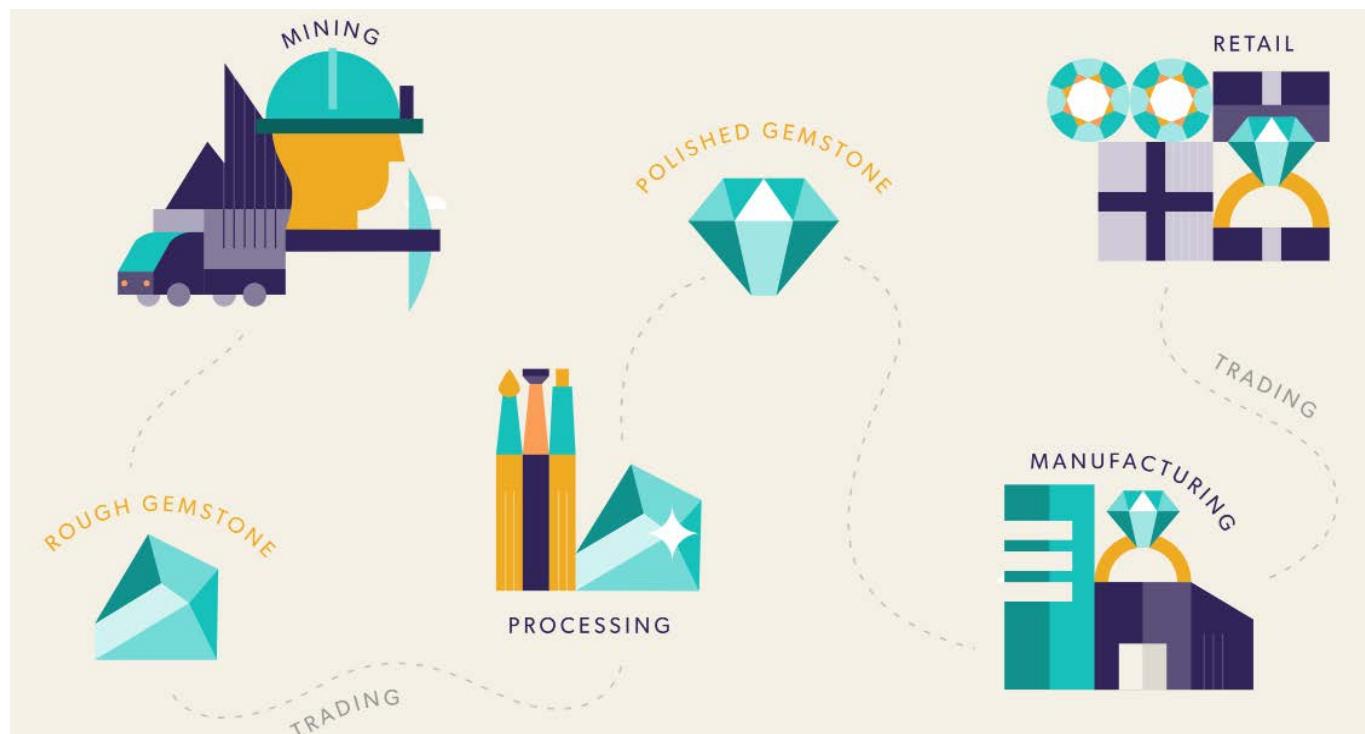
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TDi Sustainability

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The second part of *Ancient crafts, modern challenges: A series of six expert papers on the coloured gemstone supply chain*

To view the complete series, please visit  
[www.gemstones-and-jewellery.com/research/](http://www.gemstones-and-jewellery.com/research/).



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# INTRODUCTION

Gemstones cross countries, continents and oceans on their journey from mine to market. And while it may seem conventions and practices are a world apart from those of a modern industry, possibly incompatible with the requirements of brands and consumers, this paper aims to demonstrate – in-spite perceptions created by a handful of reported incidents worthy of controversy – there are very many positive conventions and practices on which to build, most of which resemble any other type of business in any other sector. And that building on them, rather than fearing them or failing to understand them correctly, will retain the essential character of this resilient and flexible trade. Ensuring in the process a sustainable supply of the diverse coloured gemstones upon which jewellery consumers have come to depend. The emotional appeal of which many argue is inextricably bound with the mystery and intrigue which often surrounds them.

In this paper we explore the ways in which coloured gemstones are traded. We pick up their journey as they leave the mine site and are passed hand-to-hand, making their way to jewellery-makers around the world.

Coloured gemstone supply chains are complex

and might seem opaque. Trust is vital, multi-faceted, and remains a key ingredient to business success. There is a perception that few paper records are kept across the board, and that deals are sealed with a shake of the hand. In the modern economy of e-money, bitcoin, contactless credit cards and smart contracts, the way that coloured gemstones are traded might seem out of date, but gemstones worth hundreds of millions of dollars are being bought and sold and are successfully reaching customers subject to conventions, structures and knowledge honed over centuries. The trade's nebulous structure might be viewed as an opportunity for illicit activities but that is not why it is shaped the way that it is. The process of coloured gemstone trading is technically challenging, much of it taking place in countries and regions with persistent social and environmental problems coupled with weak governance, and navigating its complexity generates livelihoods for a vast network of small enterprises and individual traders, many of whom bring enormous resilience, expertise, skill and passion to bear in order to satisfy market demand for a wide variety of coloured gemstones. Through the income they gain, independent traders around the world benefit those close to them – supporting their families, funding their children's education, and contributing to deve-

lopment in their countries and communities.

Although the way the bulk of the coloured gemstone trade is conducted has not followed the same changing path as fast as some other industries, the modern world is starting to press up against it and it is starting to adapt, professionalising at every level in ways not previously envisaged.

New technologies, such as blockchain-based traceability platforms and nanoparticle marking of gemstones have the potential to align traditional trading practices with the new demands of branded jewellery manufacturers and retailers integrating social and environmental considerations into their value-chains – who view the world through a different lens to miners and traders upstream in producer countries. Meanwhile some large companies are entering the coloured gemstone sector and providing with relative ease the verifiable assurance responsible sourcing policies demand.

While there is concern the industry is resistant to change, or that it will not adapt quickly

enough, we might equally question if responsible sourcing policies, as currently constituted, are realistic. Might they be reducing sourcing options for branded manufacturers and retailers, as well as market opportunity for producers? This is after all an industry filled with instinctive, solutions-focused, highly entrepreneurial business people who are adept at dealing with complexity.

Responsible sourcing is also a moving target. And its possible perceptions rather than reality compound an already knotty problem – how to deliver assured gemstones to consumers. The objective of this paper is to shine a light on this part of the coloured gemstone value-chain without dodging legitimate concerns, and right-sizing others where necessary. We explain some reasons for certain practices, identifying and anatomising the status quo within the business – its practicalities, and its intricacies – and what bearing they have on responsible sourcing, a voluntary commitment by companies to take into account social and environmental considerations when managing their relationships with suppliers.<sup>1</sup>

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<sup>1</sup> "ICC Guide to Responsible Sourcing." International Chamber of Commerce. 2008. <https://iccwbo.org/publication/icc-guide-to-responsible-sourcing/>

# A GEMSTONE'S TALE

Imagine a group of artisanal miners, working an alluvial deposit in a remote rural corner of Sri Lanka. They find a sapphire. To the untrained eye, it could be mistaken for an irregular glass pebble or coloured rock – a far cry from the beautiful stone that might eventually be set into a piece of jewellery.

For the miners, who do not have the means to travel far, it is worth only what local traders will pay. Traders will travel to mine sites, often undertaking long journeys on poor roads, to look for rough – unworked gem material – that will turn a profit, after transport and other expenses have been covered. The miners may have little option but to sell the sapphire to this trader, probably someone already known to them and their fellow workers, for the price offered because they cannot afford to hold out for a better deal.

The trader then transports and sells the sapphire to the next person in the chain, often in the nearest town with good communications, where a cluster of buyers will congregate. This could be another mobile trader or an office or a regular at a nearby gemstone market, such as Beruwala. Sometimes the rough will be sold directly to a lapidary who will pre-form, cut and polish it

into a jewel for the domestic jewellery industry, or it will travel onwards to Colombo, Sri Lanka's national and foremost international trading hub, reaching an international trader or buyer, where it is joined by more sapphires from other parts of Sri Lanka, and possibly from other countries too.

The gemstones in Colombo – as in other locations – are sold on their merits of colour, weight, and clarity – and while there is no official pricing system, business is transacted within remarkably well-defined price ranges, known to local traders, in each location in respect of how far the stone has travelled, who is selling it, its quality and the extent of value-added.

Traders will aim to maximise profit selling for what they can, and this may be the first of several hubs the gemstone travels through internationally.

Very small gemstones known as melee – less than 0.20 carats each in weight – tend to be sorted by size and quality and sold in parcels of specific weights. Larger, more unique and especially desirable gemstones – for example those suited to a solitaire ring, or a pair of earrings – will be sold individually or in matching pairs.



Beruwala Gemstone Market, Sri Lanka – where you can buy stones from all over the world. Photo credit: TDI Sustainability

Buyers who come to these hubs might work for jewellery companies, or they could be independent traders in touch with designers, goldsmiths and retailers in their own country. They may be scouting for unique pieces, or they might have bulk orders to fulfil, stipulating the number of gemstones, their colour, clarity, cut and carat weight – probably their dimensions too – as well as, of course, the budget.

Eventually, the sapphire in our story will be set into a piece of jewellery, possibly a ring with smaller sapphires on either side whose own journeys may have started in completely different parts of the world. The ring might be sold on to a wholesaler or a retailer, perhaps the manufacturer owns retail outlets, or is a designer-maker or

goldsmith with their own shop window. From that window the ring will attract the attention of a customer, and find its way onto someone's finger.

As a final twist to this tale, now imagine that all the events described above took place fifty years ago, or a hundred years ago, without modern communications and the familiarity and connection with each other and markets they afford traders today, after which point the ring was treasured for many years by its owner. The owner eventually passes, and years later the ring finds its way onto the workbench of a jeweller, who prizes out its central stone with care, swapping it for a ruby for a client, and puts the sapphire up for sale. Its journey begins once again.

If the gemstone could speak then it could describe the people and places it encountered along its journey. While it is often assumed the origin of the gemstone and therefore this narrative itself is necessarily lost along the way, most jewellers

and traders usually have a pretty good sense of from where the rough originated based on years of experience, but would find it hard to offer concrete assurances beyond those they receive from their long-standing business partners.

# THE COLOURED GEMSTONE SUPPLY CHAIN

Over the course of this paper, we take a magnifying glass to the journey of coloured gemstones. Is the story above really typical? What other types of gemstone journeys are there? Who benefits along the way, and how? What innovations and commercial benefits might incentivise this traditional trade to embrace the level of disclosure responsible sourcing policies require? We explore these issues in the sections to come.

## TRADING NEAR MINE SITES

The miners who discovered the sapphire in our story worked in a small group. These miners are categorised as artisanal and small-scale miners, they work with simple tools and little or no mechanisation.<sup>2</sup> The World Bank estimates 80% of sapphires globally are produced by such enterprises. Similar percentages are cited for other types of coloured gemstones too.<sup>3</sup> So the miners depicted in our story are probably quite typical in many respects (for more information on how coloured gemstones are mined, see *Hands That Dig, Hands That Feed: Lives Shaped by Coloured*

*Gemstone Mining*).

It is also typical for artisanal and small-scale miners to be removed, geographically, from gemstone markets, and, historically, to have limited direct access to them – though modern technology is rapidly changing this picture as we discuss below. Many important sites for artisanal and small-scale gemstone mining are remote and under-developed to varying degrees. From the densely forested hills of Colombia's Western Boyacá province, the dry, mountainous district of Badakhshan in the far north-eastern corner of Afghanistan, and the island of Madagascar, 400 miles off the coast of mainland Africa, to sites within an hour's drive from major roads in the border-lands between Kenya and Tanzania.

Miners working in these locations, many without ready access to transport, the means or contacts needed to sell far afield or who are simply unwilling to leave the location, will sell to traders from towns and villages local to the mine who form links in a chain, stretching over oceans, and

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2 "Artisanal and Small-Scale Mining". The World Bank. 21st November 2013. <http://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining>

3 "Governing the Gemstone Sector: Lessons from Global Experience", p8. Natural Resource Governance Institute. May 2017. [https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone\\_sector-lessons-from-global-experience.pdf](https://resourcegovernance.org/sites/default/files/documents/governing-the-gemstone_sector-lessons-from-global-experience.pdf)



Traders haggling over uncut rubies in the Mundarara mining area of northern Tanzania. Photo: TDi Sustainability.

criss-crossing countries and continents.

Much of the trading close to the mine will be informal, with little paperwork changing hands beyond perhaps bank notes – though mobile phone payment systems like Vodafone's M-PESA are fast gaining in popularity because they eliminate the risk of carrying cash.<sup>4</sup>

## NATIONAL AND INTERNATIONAL TRADING

As illustrated, a gemstone may change hands

several times after leaving the mine. The traders who operate in towns and villages near mine sites will sell gemstones to traders from the capital city or a cutting centre, like Brazil's Teofilo Otoni, from where they are exported and a paper trail begins. Occasionally the miner, a family member or a trusted lieutenant will offer the rough gemstones for sale directly to lapidaries – gemstone cutters – or exporters in these locations.

Where there is no domestic cutting capacity, rough will be exported to an international trading hub where value-addition expertise is clustered.<sup>5</sup>

4 "What is M-PESA?". Vodafone. <https://www.vodafone.com/about-vodafone/what-we-do/consumer-products-and-services/m-pesa>

5 "Rough Cut: Sustainability Issues in the Coloured Gemstone Industry". SOMO. February 2010. <https://www.somo.nl/wp-content/uploads/2010/02/Rough-Cut.pdf>

Each transaction in the process is typically undertaken by small trading enterprises or individual traders. Prices are determined by a number of factors, including the interplay of supply and demand and urgency. Sometimes, these traders will be guided by supply-side considerations – knowing what gemstones they can source, and for what cost, and trying to place these gemstones with buyers to turn a profit. At other times, these traders will be guided by demand. A buyer

might place an order with a trader for a set quantity of a certain type of stone, and it will be up to the trader to engage with their network to have the order filled. If an order is particularly large or specialised, it can take years for a trader to fulfil it effectively building up a new supply chain in the process, reaching up to the gemstone deposits themselves, often with no guarantee of a sale at the end.<sup>6</sup>



Gemstone producing countries, processing hubs, and manufacturing sites, TDi Sustainability

## INFORMALITY AND THE IMPORTANCE OF TRUST

Each one of these traders, whether operating local-

ly, nationally, or internationally, typically maintains a complex network of relationships – professional, personal and a mix of the two. Historically, the gemstone industry at all levels and scales has been

<sup>6</sup> Based on an interview conducted for this paper with Manraj Sidhu, Director at Multiple Gems Ltd, in December 2019.

predominantly based on trust, often relying on business relationships within and between families that span generations, and sometimes they operate together in different parts of the value chain, from the mine through to wholesaling or jewellery manufacture. There may be little by way of documented paper trail beyond a written ledger, customs declarations – which typically require detail about origin – from point of export, and commercial invoices reaching downstream towards retail. And levels of literacy may be one among many explanations for a lack of paperwork up to or close to the point of export, including informality and producer government preference to collect taxes on the sector here for practical and capacity-related reasons as discussed in *Hands That Dig, Hands That Feed: Lives Shaped by Coloured Gemstone Mining*.

In East Africa, in the present day, a ruby sold by a retailer, in the United States for example, for tens of thousands of dollars can change hands on a dirt street with no paperwork at all, given to a trusted expert who will examine it, work out the best way to cut it, perhaps pre-form it – creating the shape onto which facets will be placed – and, then hand it back to its owner a week or so later on the same street, all based on trust.<sup>7</sup>

Dealing with trusted partners helps gemstone traders manage risk and minimise potential for disputes or financial losses. Trust and reputation are inextricably linked in the world of coloured gem-

stone trading, and traders who break trust risk their reputation for life – suffering loss of livelihood, in the extreme. Trust is maintained because the consequences of breaching it normally outweigh any short-term benefit from so doing.

Physical security is also a continual concern for miners and traders, who would most certainly be targets for robbery were they to broadcast what they find and what they carry.

Traders must find ways to mitigate such risks, and the foundation of their efforts are typically dealing with trusted counter-parties and discretion. A trader may have a network of trusted shops in the towns he visits that will let him store his gemstones in their safe overnight. A particularly rare or valuable gemstone might only be offered to trusted contacts, or people personally recommended by a trusted contact, lest its existence become known to too wide a circle. Close to the mine site, a foreign trader may choose to stay put in a hotel and have local 'runners' come to him with gemstones he might want to buy – relying on the runners' own networks to keep them from harm. And a mine-owner will avoid transporting monthly production at predictable intervals, possibly using different routes and vehicles, storing and transporting production in tamper-proof containers requiring multiple keys or combinations to open. While their employees are incentivised or sanctioned to prevent information leaking out into local towns and villages.

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<sup>7</sup> Based on observations from TDI fieldwork in East Africa in October 2019.

## BACK, FORTH AND AROUND AGAIN

A gemstone's journey may not be one straight line from mine to customer. Gemstones can be traded back and forth sometimes too. An intermediary trader, for example, could present a parcel of gemstones, roughly sorted by size and colour, to a buyer, who then selects the gemstones they want and returns the parcel to the same trader, or passes them on to another trader entirely.

It is also possible a gemstone will have more than one final owner. Gemstones are imperishable, and they concentrate considerable value, so after decades of use, or speculative storage, a gemstone can simply be put back on the market again. According to an estimate by coloured gemstone experts Laurent Cartier and Vincent Pardieu, in a blog published by National Geographic "fewer than 2% of gemstones in circulation were mined in the last two years."<sup>8</sup>

Important gemstones are also passed down through generations as heirlooms, often to be resold on the open market when a family's circumstances change. Or they may be held for more commercial reasons, by speculators who wait until the price of a particular type of stone is sufficient to realise a good return.<sup>9</sup> Coloured gemstones can re-enter the market at a number of stages – perhaps through an auction house

specialising in fine vintage jewellery for collectors and high-end retail customers, or maybe via an intermediary trader who adds value to the stone by recutting it either to repair damage from wear, or to keep up with changing market preferences. So, we see many coloured gemstones continue to be bought and sold long after the mine they come from is closed and faded into memory.

## LARGE-SCALE MINERS AND TRADING

In recent years, large mining companies including Belmont, Gemfields, The Muzo Companies and Greenland Ruby have established themselves in the coloured gemstone sector. Unlike small, traditional gemstone miners, these companies operate industrial scale mines and, in the case of Gemfields, in several countries (the topic of large-scale gemstone mining is covered in *Hands That Dig, Hands That Feed: Lives Shaped by Coloured Gemstone Mining*).

Each of these companies have their own trading operations, a business model that typically results in shortening supply chains. Gemfields's trading operations are well developed, and involve formal, structured rough auctions of emerald and ruby for select gemstone manufacturing and distribution partners.

Gemfields also organises marketing campaigns

<sup>8</sup> "Conservation Gemstones: Beyond Fair Trade?". National Geographic Society Newsroom. 12th January 2012. <https://blog.nationalgeographic.org/2012/01/12/conservation-gemstones-beyond-fair-trade/>

<sup>9</sup> "Sapphire Shop", Case Study No. 32 of the Lubin Business School Case Studies series. Pace University. 17th April 2007. [http://digitalcommons.pace.edu/business\\_cases/6](http://digitalcommons.pace.edu/business_cases/6)

to support the retail sector, and collaborates with up-and-coming and well-established designers, to showcase gemstones from company mines in luxury jewellery, often at “red carpet” events.<sup>10</sup> It also reaches the retail customer directly through its stewardship of the world-renowned Fabergé brand.

The Colombian emerald mining concern Muzo Companies adopts a similar approach, with an online store and physical presence in New York and Geneva, through which it sells a prestigious range of jewellery featuring the finest emeralds it mines.

The Muzo Companies issues certificates of origin for retail customers to whom it sells direct, providing provenance to the specific shaft or tunnel where each gem was uncovered. Greenland Ruby assures customers of the origin of its important gemstones, passing down the chain-of-custody via its ‘preferred partners’ a certificate issued by the Greenlandic government.<sup>11</sup>

These large companies can offer things to buyers small scale traders generally have not been able to provide: documented disclosure, along a closed chain-of-custody, from the mine to the retail customer.

A large-scale mining company can also be fairly confident it will produce a continuous, uninterrupted supply of sought-after sizes and qualities, month-on-month for years. A jewellery-manufacturer whose gemstones originate from large mining companies’ concessions, can therefore be assured of a steady stream of similar gemstones with which to satisfy their customers.

Currently, it is assumed large-scale mining accounts for about 20%-30% of coloured gemstone production,<sup>12</sup> and is primarily active in two, high-value varieties occurring in more than one country: ruby and emerald.

While concerns were voiced during consultation for this series that large scale mining will eventually come to dominate the sector, the nature of gemstone deposits and the diverse requirements of jewellers and their clients would suggest this fear is overstated. (See *Hands That Dig, Hands That Feed: Lives Shaped by Coloured Gemstone Mining*).<sup>13</sup> Sources at large scale mining companies explain there are a limited number of commercially viable deposits worldwide that would justify the level of investment typically undertaken by them.

Nevertheless, apprehension exists.

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10 “Collaborations”. Gemfields website. <https://gemfields.com/marketing-sales/collaborations/>

11 “Responsible Source”. Greenland Ruby website. <https://www.greenlandruby.gl/responsible-source/>

12 Extrapolated from: “Artisanal and Small-Scale Mining”. The World Bank. 21st November 2013. <http://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining>

13 This section is based on several interviews conducted by TDI with experts from large gemstone companies and from the world of small-scale gemstone trading.

A concern that small traders articulate is that the allure of a continuous supply will tempt buyers away from the diverse stock they offer, irrespective of whatever skill and expertise they pour into selecting their merchandise. Another concern is the supply chain assurances large companies can offer will increasingly come to be expected by their own clients – expectations they may not be able to meet.

Meanwhile, miners and traders, especially in well-established mining jurisdictions, have been impacted by waves of regulation over the past 50 years, involving a growing number of government agencies and permits, all of which have to be navigated, accommodated, applied for and kept up-to-date. Much of the legislation, they claim, is designed for larger mining interests, based around resource estimates, which are notoriously hard to define in coloured gemstone mining. Some of it is ill-considered and unevenly enforced to the detriment of the coloured gemstone trade. Compliance for smaller operators can seem daunting – or beyond reach for the illiterate – and may be restricting supply, driving up prices and jeopardising livelihoods. Convincing them an increased bureaucratic load associated with responsible sourcing is in their interest may prove equally difficult, especially when they already have willing buyers.

Many traders would also point to the advantages traditional trading models can bring. For example, the director of a small, family-owned trading company in Tanzania, Manraj Sidhu, gave his opinion for this report:

“When you buy from a local trader in a gemstone-producing country, all the money you part with flows into the local economy in one way or another. For a country to benefit from its gemstones, the maximum fraction of the value of those gemstones should stay in the country – these gemstones start as dust in the ground, and you’re literally turning them into dollars. Large mines might pay 30%-40% of their revenues in taxes, but most of the remaining 60%-70% leaves the country, so small traders can help to retain more value for producer countries.”<sup>14</sup>

## THE IMPACT OF TECHNOLOGY

In many sectors the Internet is shortening supply chains. The coloured gemstone sector is affected just like any other. Gemstone sellers, even miners, in producer countries now offer gems online to jewellery-makers and traders overseas, sometimes targeting consumers too. Instagram and Facebook are also used to cut out the middle man. Online sellers offer many coloured gemstones on eBay, and at very attractive prices

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14 Interview with Manraj Sidhu conducted in December 2019

15 “Are all or most of the imported gemstones sold on Ebay fake?”, Ebay discussion forum, accessed 23rd December 2019. <https://community.ebay.com/t5/Archive-Fine-Jewelry-Gems/Are-all-or-most-of-the-imported-gemstones-sold-on-Ebay-fake/td-p/1378535>

too, meanwhile their clients often express disappointment.<sup>15</sup>

Inside the trade, in the wholesale market, new technology-enabled trading platforms are emerging seeking to replace the assurance provided by face-to-face dealing, for which many see no substitute. Screening takes the form of Know Your Counter-party (KYC) checks. They are self-policing, and sanction by removal, sometimes naming and shaming too, in the event of misconduct tends to be the norm.

One of the most recent platforms is GemCloud, an inventory management system that allows detailed stock information to be synced to its global online marketplace.<sup>16</sup>

GemCloud's CEO, Mariaveronica Favoroso, shared her perspective on the potential benefits of the platform for the coloured gemstone trade in an interview for this paper:

"One of GemCloud's most compelling features is its potential to empower small-scale traders. It can be used by traders in mining regions in Africa, Asia or South America to connect directly to buyers without the need for long chains of middle-men or international travel. GemCloud is an evolution of the traditional, interpersonal, trust-based model of gemstone trading, which had already started to shift in recent years. Pre-coronavirus, miners and

traders who could afford to travel sold for cash outside their trust circle at gem shows in Tucson, Hong Kong, and elsewhere. GemCloud makes virtual gemstone trading available to all wholesale market participants. Many traders are selling online already, but they're doing it with pictures of gemstones sent on WhatsApp. With GemCloud they can trade in a standardised digital environment, which we believe is safer and more transparent. Traders are vetted and we check that they are up to speed with basic Environmental, Social and Governance principles. We are also in the process of launching a traceability service, GemTrust, which will work alongside the GemCloud platform. A carefully curated marketplace like this is the only way to truly evolve from the close, personal, 'handshake' way of trading gemstones."

Another emerging platform, Singapore-based Gembridge, facilitates discovery and trading of important, certified coloured gemstones for a verified community of buyers, sellers and consignees via the Internet. Like GemCloud it is designed to extend the reassurance of dealing face-to-face with a known, trusted counter-party to a virtual environment.

It provides solutions for showing large, valuable gemstones bringing buyer and gemstone together in a single geographical location of

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<sup>16</sup> "The Software for Color Gemstones You Can Trust". GemCloud website. Accessed 6th May 2020. <https://www.thegemcloud.com/>

the buyer's choosing, while protecting the commercial and confidentiality interests of all parties. Also, it protects the asset itself against tampering during a temporary loan or viewing, and processes payments securely via escrow type arrangements.

## WHICH GEMSTONES FLOW WHERE – AND WHY?

In many well-established coloured gemstone-producing countries there are craftspeople to cut faceted gemstones for local and export markets. However, countries without a long tradition of gemstone mining often lack the know-how or capacity to manufacture on a commercial scale, or to international standards. Here, large volumes of gemstone rough are exported to international hubs with capacity, expertise in the material, and affordably-priced labour to manufacture it. Often rough of different grades and sizes – not just varieties – will be separated and sent to different hubs.

Trading destinations for these gemstones are often determined by proximity. East African gemstones, for example, are frequently exported to Colombo, Sri Lanka – a nearby gemstone hub, across the Indian Ocean. They are manufactured and enter international markets from there.

Certain hubs are known for their expertise

in specific types of gemstone. Emeralds from Zambia, on the other hand, are more likely to end up in Jaipur, India, than they are to be traded through Sri Lanka, because Jaipur has worked with emeralds for centuries, in the same way Sri Lanka has worked with sapphire.

Some trading hubs specialise in quality, while others focus on quantity. Sri Lanka, for example, takes high-quality sapphires from countries like Madagascar and Ethiopia. It is renowned for the expertise of its craftspeople, which has been passed down over generations.

The city of Chanthaburi in Thailand, in contrast, is the biggest centre in the world for processing high volumes of lower-grade sapphires. It started to gain in international standing as a trading hub after domestic sources of high-quality gemstones were mined out in the mid-twentieth century, and the government introduced a favourable taxation framework. As they worked their own dwindling reserves, Thai craftspeople adopted and refined heat treatment, filling and other enhancement techniques, and miners and traders began to move gemstones from other countries through Thailand to take advantage of this expertise.<sup>17</sup>

The town of Idar-Oberstein in southwest Germany caters for gemstones at the other end of the spectrum – crafting rare and high-value

<sup>17</sup> "A market like you've never seen". The Hindu. 29th July 2017. <https://www.thehindu.com/thread/arts-culture-society/a-market-like-youve-never-seen/article19384978.ece>

jewels for the luxury market. Nestled in the Hunsrück Mountains, this historical town was an important source of agate, jasper and quartz for many centuries. Like Chanthaburi in Thailand, the city of Idar-Oberstein has lived on as a hub for the processing of coloured gemstones, even though its own deposits are now largely exhausted. Traders in the city import rough gemstones from all over the world, often direct from miners, to be cut and polished by the city's master craftspeople. Although the quantity of gemstones that moves through Idar-Oberstein

is far lower than the amounts processed in Sri Lanka and Thailand, this quiet Rhineland town enjoys a towering reputation for quality in the world of gemstones and jewellery.<sup>18</sup>

Global trading patterns in coloured gemstones are shaped by the fact that expertise for certain types of gemstone, sizes and qualities occurs in clusters influenced by tradition or historical expertise, and capacity to innovate, combined with favourable taxation regimes and ease of doing business.

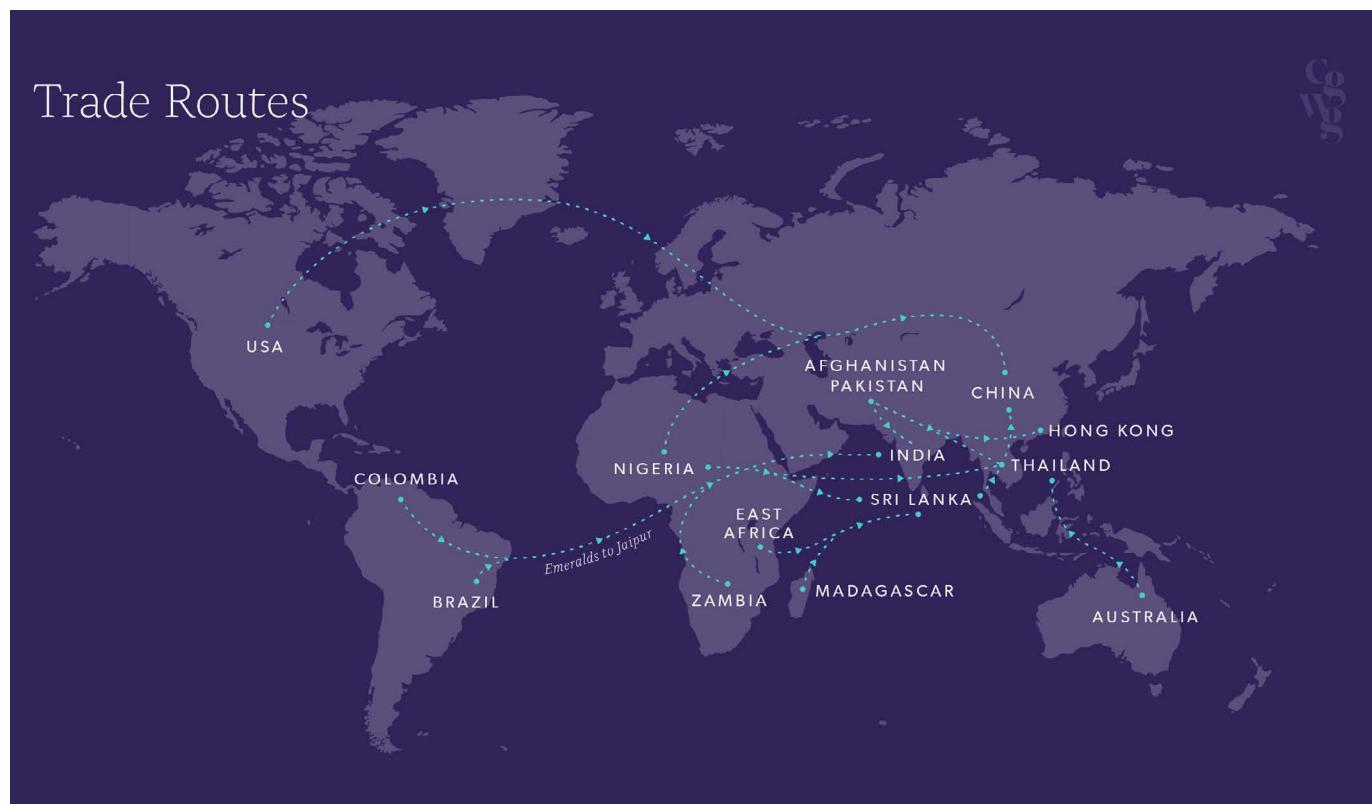


Figure 1: A map of some of the principal global coloured gemstone trading routes worldwide

<sup>18</sup> "Lapidary Tradition of Idar-Oberstein". James Shigley, Gemological Institute of America. 2019. <https://www.gia.edu/UK-EN/lapidary-tradition-idar-oberstein-reading-list>

# HOW SUPPLY CHAIN STRUCTURE AFFECTS RESPONSIBLE SOURCING

When looking at a jewel in a shop window, it isn't a given you will be informed from which country it originates. If you're looking for the exact mine, it's even less likely. This poses a significant challenge for those implementing responsible sourcing policies. Without knowing the origin, and through whose hands the gemstone has passed, how can assurances be confidently made

about social and environmental performance in the gemstone value-chain?

We have already discussed some of the commercial dynamics that contribute to translucence. Below we explore some other issues that can lead to confusion, and perhaps compound unjustly negative perceptions.

## 1. SPEAKING THE SAME LANGUAGE? CONVENTIONS AND PERCEPTIONS IN QUALITY, VALUE AND COMMUNICATION

As with gold, tin and tantalum gemstone miners generally have a good idea of how much the material they mine is worth. In the case of gold, small-scale miners generally have means to access to the London gold price - it can be passed along by mobile phone too.

Unless in areas so remote it is impractical – and there other means are adopted, which even if mostly slower are no less effective, eventually – gemstone miners and traders also communicate by mobile phone, particularly WhatsApp. They may also have access to the Internet and therefore

international market prices. Nevertheless, the notion persists miners are taken advantage of because they are necessarily “in the dark” – this is arguable.

Just as every experienced trader knows where the margin is and what to offer and ask for a single gemstone or a lot of gemstones, a miner has a pretty good idea too. There are conventions and mark-ups, and each step in the supply chain, where transport is provided or value is added, presents a fresh opportunity for a profit – as in any business.

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62 A discussion on the inclusion of small gold producers in voluntary supply-chain initiatives and standards. TDi Sustainability, the Responsible Jewellery Council and the Swiss Better Gold Association. July 2016.

## Upstream conventions and practices in producer countries

However, coloured gemstones differ from gold because, by comparison, each gemstone variety and each find is unique, not a commodity with uniform physical properties or visual characteristics. Some varieties strongly resemble one another, and a minimal level of familiarity is required to sort one from the other using visual cues.

Quality factors – or visual characteristics once the variety is correctly distinguished – are more precisely determined once a gemstone is recovered from the rough because they are much easier to see. There are also published wholesale price guides, usually in US dollars and based on reported transaction prices, as well as a coloured gemstone grading framework taught by the Gemological Institute of America. This framework based on conventions observed in some countries, while by no means universal, does offer a common language where there are currently many used by miners and traders in different countries and regions.

Rough gemstones are not easy to value precisely. There are no published price guides or grading systems. Their perceived value is judged by colour first, then clarity, then weight – expressed in grams rather than carats – or size and likely

recovery. A sawer, pre-former or lapidary – gemstone cutter – is most likely to be able to estimate correctly what a piece of rough will yield in quality and weight.

Of course, opinions will vary – often depending on whether we are looking through the eyes of the seller or the buyer. Sometimes sellers ask too much through inexperience. Sometimes buyers pay too much through inexperience. Sometimes miners accept too little because they need funds. Perceptions may be manipulated. Urgency can be created, or intolerable delay introduced, to wear the other side down. It is a game of great skill at any level to negotiate a gemstone's price.

Differences of opinion, opportunism and precarity can also present chances for hardened negotiators. As an anecdote from Manraj Sidhu, the director of a small Tanzania-based trading company, illustrates:

"African traders travel to Bangkok quite frequently to try to sell parcels of gemstones there, but sometimes they will be offered very poor prices. A stone that could fetch US\$ 150 in a fair market might receive offers of a fraction of that price. After a few days in Bangkok, with hotel bills racking up, the African traders will cut their losses and sell for whatever price they can get, and a few Bangkok traders know that and capitalise on it."<sup>19</sup>

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<sup>19</sup> Interview conducted in December, 2019.

Even for a finished gemstone, however, there is a lot of information to consider and subtle variations missed do have the potential to be costly – in either direction. A degree of subjectivity is always involved. A gemstone's carat weight can be measured using a relatively inexpensive set of scales, but the other factors require judgement and experience.

Gemstones can be treated – heated, filled with resin or glass. They can be synthesised in a laboratory – and synthetic material is often found in mining regions, passed off as natural ruby, for example. The price difference, of course, is enormous – *caveat emptor* most certainly applies – and any buyer purchasing such rough will have little right to redress of any kind.

As with the paper trail, this picture slowly changes the further downstream, and deeper into the developed world, we travel, as conventions and legislation offer increasing levels of assurance to maintain essential confidence in the jewellery industry.

## **Downstream conventions and practices: the common language of disclosure**

### *Harmonisation*

Common terms like ruby, sapphire, amethyst

and citrine are defined and disseminated by international bodies, often representing different aspects of the trade, including CIBJO, which is the French acronym for the Confédération Internationale de la Bijouterie, Joaillerie, Orfèvrerie des Diamants, Perles et Pierres, referred to in English as the World Jewellery Confederation. CIBJO defines acceptable terminology throughout the world for the jewellery industry, including for coloured gemstones. The CIBJO Gemstone 'Blue Book' sets guidelines for how gemstones should be classified and traded to promote clarity and honesty.<sup>20</sup> The guidelines must be followed by all traders who are affiliated with CIBJO globally.

A key element of CIBJO's work is the harmonisation of standards, and the promotion of responsible business practices through jewellery industry supply chains. To support the latter, in June 2021, it launched a responsible sourcing Tool-kit which is provided at no cost to all participants in the supply chain worldwide.<sup>21</sup> The CIBJO tool kit is also hosted on the Gemstone and Jewellery Community Platform, a free online source for a rich array of sustainability tools developed by the Coloured Gemstone Working Group for all sizes of businesses in the supply chain and currently used by hundreds of suppliers to major jewellery brands.<sup>22</sup>

20 The CIBJO Blue Books are available here: <http://www.cibjo.org/introduction-to-the-blue-books/>

21 "CIBJO Responsible Sourcing Tool-kit." CIBJO, June 2021. <http://www.cibjo.org/rs-toolkit/>

22 The Gemstone and Jewellery Community Platform is available here: <https://gemstones-and-jewellery.com/>

## Disclosure

The CIBJO Gemstone Blue Book calls for sellers of gemstones to fully disclose information about the nature of the gemstones they are selling at the time of the sale, regardless of whether the buyer has requested the information or not.

Specifically, the CIBJO Blue Book requires disclosure of the type of gemstone, any processes or treatments it has undergone (which we discuss in *Wheels of Fortune: The Industrious World of Coloured Gemstone Cutting and Polishing*). The guidelines go on to stipulate how certain terms can or can't be used, including 'real', 'precious' 'genuine' and 'natural'. Disclosure must be made verbally, and also in writing on all commercial documents relevant to the sale. This protects all industry participants and supporting consumer confidence in the jewellery trade.

Most countries have trading standards for gemstones too. The U.S. Federal Trade Commission, for example, provides a guide for the jewellery, precious metals, pewter, diamond, pearl and coloured-gemstone industries, which for gemstones details how words relating to physical characteristics such as colour, weight and cut can or cannot be used to sell them, as well as giving details of what needs to be disclosed.<sup>23</sup>

## Gemmological laboratories

Gemmological laboratories assess and attest to all the physical characteristics of a gemstone: its shape, cut, carat weight, clarity and colour, species, variety, its exact dimensions, whether it is natural or synthetic and any treatment or enhancement it has undergone.<sup>24</sup>

In addition, they assess – where requested and possible – gemstones' country of origin. This is most common with emerald, sapphire and ruby where certain origins can command a substantial premium.

Gemmological laboratories establish gemstone origin using a range of equipment to compare mineral composition and physical properties against reference samples collected at or submitted direct from mines. Laboratories offer this service, usually reserved for valuable gemstones, to corroborate claims, supporting confidence in transactions and offering assurance to retail customers, particularly where a price premium related to origin or lack of treatment is concerned. Ultimately a laboratory's origin report is an opinion. It's rare, but possible, two laboratories might disagree regarding a stone's origin. Because the service relies on reference material, new finds pose a challenge until

23 "Electronic Code of Federal Regulations, Part 23. Guides For The Jewelry, Precious Metals, And Pewter Industries". US Government website. Accessed 11th December 2019. <https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=4a2f3f01fd9b6bfd85de4de12e987c2f&ty=HTML&h=L&mc=true&r=PART&n=pt16.1.23>

24 Sample coloured gemstone origin report from Gemmological Institute of America. <https://www.gia.edu/analysis-grading-sample-report-colored-stone>

sufficient material is acquired.

The cost of an origin report typically starts at around US\$ 70, plus transportation costs to and from the laboratory, meaning it is not a viable solution for lower value material or lots of gemstones. Additionally, many of the determinations sought to confirm if a gemstone is treated and its origin are practically impossible to reach for most other varieties of gemstone.

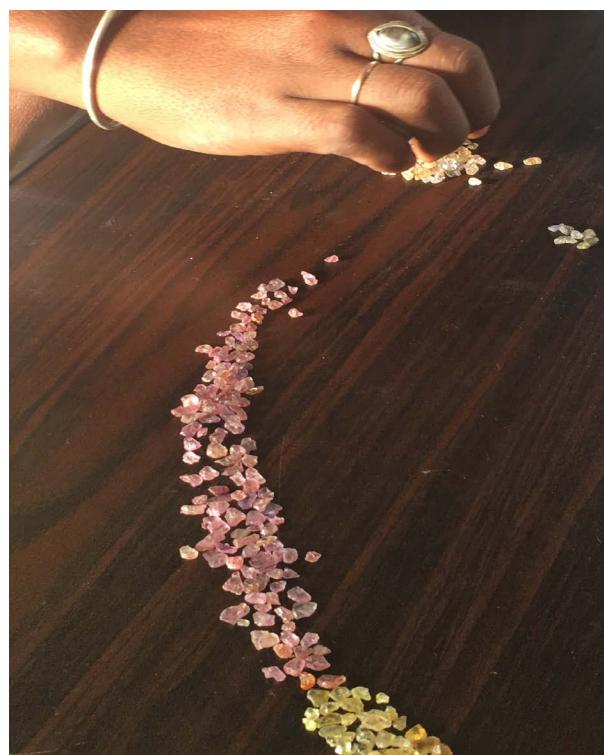
#### *Education: improving outcomes for artisanal and small-scale miners?*

Miners can be less knowledgeable about gemmology than the traders they sell to – or they may interpret characteristics differently, using different terminology and language. This leads to a perception they are always at a disadvantage. The scientific discipline of gemmology is vast but some basics may help miners sort and present for sale material more profitably, for example distinguishing between a red garnet and a much more valuable ruby. Perhaps between a blue spinel and a sapphire, or a tsavorite garnet and a chrome tourmaline. Often these determinations can be made with visual characteristics like crystal form. Grading knowledge, on the other hand, helps miners determine different qualities and therefore potential values.

There have been various highly commendable

initiatives in the past decade designed to strengthen artisanal and small-scale miners' capacity in both areas.

In 2017 the Gemological Institute of America developed a visual guide to most frequently recovered rough gemstones initially used by 45 women miners in Tanzania's Tanga province to separate cabochon grade material from facet grade material and better understand quality and value in the context of the journey from mine to consumer.<sup>25</sup> The program, which to the authors' knowledge has not been evaluated and does not address pricing, is designed to improve economic development opportunities, and has since been expanded to other areas of Tanzania.



A female miner working with sapphire melee in the Women's Lapidary Centre in Sakaraha, Madagascar. Photo: Lynda Lawson.

<sup>25</sup> More information on the project is available here: "GIA Develops Free Gem Guide for Artisanal Miners". GIA press release. 4th April 2017. <https://www.gia.edu/gia-news-press/gem-guide-artisanal-miners>

GIZ (the German government's international development agency) and Tiffany & Co, funded a project around the towns of Sakaraha and Ilakaka in Madagascar which in phase one provided free, basic field gemmology tools and training after extensive research conducted, in conversation with hundreds of local women, found there were very few opportunities for them to participate in the gemstone trade beyond sieving tailings in the river, surface mining and the sale of small

gemstones. As a vulnerable group responsible for their families' well-being, the project aimed to help them develop independent livelihoods working initially with lower grade sapphires, often discarded by artisanal miners. As well as introduction to basic gemmology and concepts of quality and value, lapidary skills were shared. A year later, some of the local stone like jasper and agate had been made into simple jewellery.<sup>26</sup>

## 2. TRACEABILITY OF GEMSTONES

### **Keeping ahead of the competition**

The gemstone market is highly segmented. It's also very fluid, with market demand ebbing and flowing and supply-side variables constantly moving too.

Traders therefore depend greatly on their close network of business associates to keep in touch with buying, selling and mining activity, including new finds.

Fundamentally, a trader – like any businessman – is always looking for a good deal. When a trader finds a source of gemstones that presents a new and strong commercial opportunity, they will be inclined to keep the source confidential. If a Masai miner shows up in a buying office in Nairobi, they are unlikely to reveal exactly where they have found the material they are

offering. Their commercial interest lies in keeping competitors and customers away from the source. Demands for full transparency and disclosure clearly are at odds with these reflexes and commercial imperatives.

### **The challenge of transparency**

Stimulated by regulators and changing consumer expectations, retailers and brands in many sectors are implementing raw material traceability schemes throughout their entire value-chain as first step to engaging with social and environmental issues

It's not an easy journey in any sector and coloured gemstones are no different. In fact, the sector presents some unique commercial challenges for responsible sourcing, whether it is viewed as opaque or translucent. Traders in gemstone

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<sup>26</sup> "Signature Project 2 - Gemmology and Lapidary for Women in South West Madagascar", Gemstone and Sustainable Development Knowledge Hub website. Accessed 11th December 2019. <https://www.sustainablegemstones.org/signature-projects/signature-project-2>

producing countries will often have a good idea of the geographical area from which their gemstones originate, based on the information given to them by their suppliers and the physical properties of the gemstones themselves. This information may be passed on to international buyers, particularly those who visit in person and who make it their business to find out. At international trading hubs, however, the situation may be more complex because goods may be aggregated – usually in the source country. This is particularly true of Sri Lanka where imported goods are sourced by networks of buyers in the mining regions of other countries.

One gemstone exporter in Nairobi, Kenya, speaking on condition of anonymity, said:

“What’s most remarkable is that we never see Sri Lankans in our offices. We don’t know how they are exporting. They are strong in the mining areas, driving hard bargains, creaming the best material and then it vanishes.”

There are also more basic instincts at play. Recall the example, above, of the foreign trader who visits a gemstone area and stays in his hotel, sending runners to bring him parcels of gemstones. Local traders closer to mine sites can be extremely unwilling to disclose precise information on a location, since their livelihood may depend on exclusive access to the source. Fraudulent representation of and the switching of gemstones is a potential threat to origin

assurance too. An anecdote from the field gemmologist Vincent Pardieu illustrates one possibility:

“There was a recent case of a responsible sourcing initiative at a gemstone mine in Sri Lanka. The international partner seemed to put a lot of work into getting all the right systems in place for environmental and social protections, and they eventually had everything up-and-running, but the mine started to cheat the system. They brought in cheap, heat-treated gemstones from Madagascar, claimed they mined them themselves, to try to sell them at a premium as responsibly sourced Sri Lankan gems.”<sup>27</sup>

New technologies are, for the very first time, showing signs of promise to enable more assured traceability including mine level disclosure in the coloured gemstone trade, especially when combined with other standards and techniques. The most prominent of these – blockchain-based traceability and nanoparticle systems – were originally developed for other applications, but are rapidly being adapted to the gemstone sector. We examine both of these technologies in the next section.

One final point of clarification. The relationship between transparency, traceability and responsible sourcing is complex but critical – without knowing where material comes from, how can responsible sourcing claims be credibly made? That doesn’t mean traceability isn’t at

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<sup>27</sup> Interview with Vincent Pardieu conducted in July 2019.

times problematic or controversial. We explore some of the ethical issues around traceability at the consumer level in *A storied Jewel: Responsible Sourcing and the Coloured Gemstone Retail Sector*. In *Letting it Shine: Governance in Coloured Gemstone Supply Chains*, we look at whether schemes to support it create barriers to or facilitate better market access for small producers. We also discuss how traceability might fit within governance frameworks and how commercial imperatives might be accommodated.

## Blockchain-based traceability

Blockchain is an internet-based system for recording transactions, time-stamping them and encrypting them in a way that is tamper-proof and incorruptible. It is a “distributed ledger” technology, which means there is no centralised storage of data. Information can be spread across multiple servers, in multiple countries or institutions, rather than being controlled by a sole administrator.

Blockchain can be used to document a gemstone’s journey from mine to customer verifying changes in ownership, and other relevant characteristics along the way.

There are however some practical concerns.

Firstly, while the blockchain ledger itself is tamper-proof, it provides no assurance the information entered into it is accurate. There are cost and access to technology concerns too.<sup>28</sup> It is widely acknowledged independent assurance of environmental, social and governance data will be required – the blockchain is not designed to provide this. It also leaves the responsibility to maintain a secure chain-of custody-to the value-chain participants. As the authors of an influential 2018 paper on blockchain in the gemstone industry put it, “the blockchain is only as strong as the data supplied,” and it “does not replace robust standards in the supply chain”<sup>29</sup>

Many experts who deal with blockchain-based traceability are enthusiastic about its potential and are helping to find solutions to the remaining practical impediments; while the demands of legal compliance, the appeal of being able to access a wealth of data about the origin of a gemstone and its journey, together with data of use to insurers and government agencies, does seem to be driving interest, investment, uptake and refinement of the technology.<sup>30</sup> Since 2017, blockchain technology is being trialled in the diamond value-chain. Pioneered by digital transparency company Everledger, the Diamond Time-Lapse initiative,<sup>31</sup> tracks the

28 “Is It Really Possible to Know Where Your Jewelry Comes From?”. JCK Online. 16th August 2019. <https://www.jckonline.com/editorial-article/possible-know-jewelry-comes-from/>

29 “Blockchain, Chain of Custody and Trace Elements: An Overview of Tracking and Traceability Opportunities in the Gem Industry”, p222. Laurent E. Cartier, Saileem H. Ali and Michael S. Krzemnicki, The Journal of Gemmology, 36(3). January 2018. [https://www.researchgate.net/publication/327555908\\_Blockchain\\_Chain\\_of\\_Custody\\_and\\_Trace\\_Elements\\_An\\_Overview\\_of\\_Tracking\\_and\\_Traceability\\_Opportunities\\_in\\_the\\_Gem\\_Industry](https://www.researchgate.net/publication/327555908_Blockchain_Chain_of_Custody_and_Trace_Elements_An_Overview_of_Tracking_and_Traceability_Opportunities_in_the_Gem_Industry)

30 Based on insight from interviews conducted by TDI Sustainability with blockchain experts for this paper.

31 “Diamond Time-Lapse: A Diamond Provenance Journey”. Diamond Time-Lapse website. Accessed 11th December 2019. <https://www.mydtl.io/#mining>

journey of a diamond through every step in the value-chain and provides data about country of origin. Further initiatives have been launched by DeBeers and IBM in partnership with diamond manufacturing and jewellery companies.

In coloured gemstones the Provenance Proof initiative, led by Gübelin Gem Lab in partnership with Everledger similarly aims to increase transparency and traceability within the gemstone industry. It also begins to address data assurance issues, by combining it with an additional technology, The Emerald Paternity Test, that allows emerald rough to be marked at mining location using a nano-particle technology that is permanent, relying on fractures within emerald for its durability.

### **Nanoparticle systems**

The 'Emerald Paternity Test' developed jointly by Gübelin Gem Lab and Gemfields, proves to downstream buyers the mine from which an emerald or a lot of emeralds originates. The nanoparticles can be decoded at any stage of the stone's journey from the mine to the

customer. These are invisible and do not affect the appearance of the gemstone.

The Paternity Test – like the Provenance Proof Platform itself – requires all users of the technology to abide by a Code of Conduct which demands adherence to applicable local and national laws, and that due diligence systems are in place to assure the gemstones are "mined or sourced legally, not associated with smuggling or illegal activities."

The codes of conduct further require "each authorised user to define or select some basic ethical, social and environmental standards for all its operations, practices and processes that directly or indirectly relate to Provenance Proof technology or its processes."

Gubelin Gem Lab recognises the cost may be prohibitive for smaller operators and wants to "avoid small and artisanal miners getting sidelined by finding ways to make the technology accessible and affordable for them." The lab says it is working with governments and civil society to achieve this.<sup>38</sup>

## **3. PERCEPTIONS OF ILLICIT TRADE**

There is a perception trading chains are opaque and that as a consequence they provide cover for illicit activities. Add that gemstones are small,

portable and non-perishable, and this logic may be reinforced.

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<sup>38</sup> "Proof of Provenance". Gem-A blog post. 31st July 2019. <https://gem-a.com/news-publications/news-blogs/gems-from-gem-a/gem/proof-of-provenance>

However, legitimate participants in the coloured gemstone trade, as in any other business where official interest is high, resist the encroachment of organised crime as was seen in the case of Colombia and Brazil – two countries where criminal elements attempted to infiltrate or take over the coloured gemstone trade, attracted by high-value varieties, specifically emerald. They were vigorously resisted in both cases though less violently, less controversially and more deftly in Brazil.

Allowing this element to take hold is unacceptable to the coloured gemstone trade. Based as it is on trust, it is apparent when outsiders attempt to break-in and they are often treated with suspicion. It is not just considered morally and ethically wrong by this relatively conservative group, it's bad for business, bad for people and bad for livelihoods which are pursued by-and-large peacefully. Examples of widespread human rights abuses do exist, principally where non-democratic regimes are in power or where states are weak or failing due to conflict or widespread criminality and corruption. But even here the situation can be nuanced.

For example, it would be a mistake to conflate without hesitation the ruby trade in Burma and the trade in jade. Jade is a mineral extracted on an entirely different scale to gemstones, and in Burma is clearly directly controlled by the military. The scale of the abuses against ethnic

communities there is well-documented and horrific.

Ruby, and other coloured gemstone mining and trading provides a livelihood for many of the communities the military routinely coerces. And while there are government organised and sanctioned ruby and sapphire auctions in Burma, there is at least anecdotal evidence that an amount of mined material is smuggled across porous borders into Thailand eventually entering the international market there.

### **Smuggling and tax avoidance**

While setting an appropriate level of taxation on the sector and collecting it can be a complex business, cross-border smuggling in the coloured gemstone industry is reportedly widespread, though of course reliable data is hard to obtain.<sup>39</sup> In some cases, gemstone mining takes place in ethnically complex regions where ethnic groups straddle land-borders and may have right to roam.

Other reasons for smuggling include avoidance of export taxes and royalties – we discuss taxation briefly in *Hands That Dig, Hands That Feed: Lives Shaped by Coloured Gemstone Mining* and return to the topic in *Letting it Shine: Governance in Coloured Gemstone Supply Chains*, Governance - onerous paperwork requirements, delays at customs or requests for bribes from corrupt officials.

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<sup>39</sup> "The Truth About Gem Smuggling". Ganoksin. 11th December 2019. <https://www.ganoksin.com/article/truth-gem-smuggling/>

Like under-valuation of gemstones at export which is also said to be a widespread practice, but where evidence again is hard obtain, smuggling deprives producer countries of revenues from the gemstone trade.

Smuggled gemstones are sometimes represented as originating from the country they are smuggled to. A good example here is Madagascar and Sri Lanka. According to a US-based industry source, interviewed for an article about threats to critical eco-systems for London-based newspaper The Guardian, "about 70% of [Madagascar's] sapphire market is controlled by Sri Lankans, who smuggle the gems back to their country to be cut and exported for sale. About \$150m worth of sapphires might leave Madagascar every year, though the exact figure is impossible to know as the industry is not well regulated."<sup>40</sup>

Speaking anonymously, an international gemstone trader explained for this paper:

"If you want to export legally from Madagascar then you have to set aside a few days in the capital to arrange all the paperwork, and there's very little clarity on what you can take out, in terms of volumes or gem types. Tax is only 2%, but gems need to be sealed, stamped and have all the required export documents.

Bribery and corruption are issues. Officials hope to get payoffs so they create delays. They make it take hours and days to get gemstones out legally. The cost of sending is huge, it could cost US\$260-\$325 to export. Once you've added in the taxes from the Malagasy side and the destination country taxes it can cost US\$500 for a small parcel of sapphires."<sup>41</sup>

## Fuelling conflict

When trade in gemstones is controlled by paramilitary, insurgent or militia groups, revenues can fuel armed conflict through the purchase of arms and of other resources needed for warfare. While these cases are considered exceptions, there are instances of coloured gemstones being used in this way. Rubies mined in Cambodia and sold in Thailand in the 1980's and 1990's were used to fund the Khmer Rouge insurgency.<sup>42</sup> In Colombia, emerald mafias fought a long war over control of the gemstone trade with the country's drug cartels (discussed in more detail in *Hands That Dig, Hands That Feed: Lives Shaped by Coloured Gemstone Mining*). Contemporary fears have been raised over possible links between tourmaline mining and non-state armed groups in the eastern areas of the Democratic Republic of Congo.<sup>43</sup>

40 "Sapphire rush' threatens rainforests of Madagascar". The Guardian. 2nd April 2017. <https://www.theguardian.com/world/2017/apr/02/sapphire-rush-threatens-rainforests-of-madagascar>

41 Interview conducted in July 2019.

42 "Rubies Are Swelling the War Coffers of Cambodia's Feared Khmer Rouge Rebels". Los Angeles Times. 18th November 1990. <https://www.latimes.com/archives/la-xpm-1990-11-18-mn-6584-story.html>

43 "Coloured Gemstones in Eastern DRC: Tourmaline Exploitation and Trade in the Kivus". IPIS. 11th May 2016. <https://ipisresearch.be/publication/coloured-gemstones-in-eastern-drc-tourmaline-exploitation-and-trade-in-the-kivus/>

Perhaps the most prominent modern conflict associated with coloured gemstones, however, is the ongoing instability in Afghanistan and Pakistan. The trade in lapis lazuli and other

coloured gemstones in Afghanistan has been linked for decades to the funding of insurgent and militia groups including the Taliban.

## TWO COUNTRIES, ONE TRADE: AFGHANISTAN, PAKISTAN, CONFLICT AND COLOURED GEMSTONES

The Afghan province of Badakhshan is rich in fine rubies, tourmaline, spinel, aquamarine and lapis lazuli, while high quality emeralds are mined in the neighbouring Panjshir Valley. Past wars, geology and geography, contemporary conflict, weak governance and inadequate infrastructure mean that Afghanistan's mineral assets<sup>44</sup> have not seen large-scale development. The country does, however, have a thriving artisanal and small-scale mining sector, which focuses on resources suited to manual and low technology mining processes, such as gemstones.

Afghan gemstones have funded militants since the time of the anti-Soviet mujahideen in the 1980s, through the Jamaat-i-Islami and United Islamic Front in the 1990s to the Taliban today. They may also have funded anti-Taliban fighters. In 2005 the Afghan Ministry of Mines estimated that 80% of the country's mines were under the control of non-state armed or criminal groups,<sup>45</sup> and experts estimate that the numbers are similar today.<sup>46</sup>

Corruption is endemic in Afghan commerce.<sup>47</sup> Much of the illegal gemstone mining, transportation and trading that takes place in Afghanistan is widely perceived to be linked to high level officials, profiting at the expense of the national treasury. A 2016 report by the NGO Global Witness, "War in the Treasury of the People: Afghanistan, Lapis Lazuli and the Battle for Mineral Wealth"<sup>48</sup> estimates that a full 95% of potential government revenues were lost from certain of Afghanistan's lapis lazuli mines in 2015.

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<sup>44</sup> These assets include important deposits of lapis lazuli, emeralds and rubies, as well as copper, iron, gold, silver, chromium, marble and coal. See USGS 2011 summary sheet: <https://pubs.usgs.gov/fs/2011/3108/fs2011-3108.pdf>

<sup>45</sup> "Afghanistan's Conflict Minerals: The Crime-State-Insurgent Nexus," CTC Sentinel, Vol. 5(2), p13. February 2012. <https://ctc.usma.edu/app/uploads/2012/02/CTCSentinel-Vol5Iss27.pdf>

<sup>46</sup> Interview conducted in September 2019 with Emma Irwin, natural resource governance consultant.

<sup>47</sup> "Afghanistan's Anti-Corruption Efforts". Special Inspector General for Afghanistan Reconstruction. November 2019. <https://www.sigar.mil/pdf/audits/SIGAR-20-06-AR.pdf>

<sup>48</sup> "War in the Treasury of the People: Afghanistan, Lapis Lazuli and the Battle for Mineral Wealth", p7. Global Witness. 5th June 2016. <https://www.globalwitness.org/en/campaigns/conflict-minerals/war-treasury-people-afghanistan-lapis-lazuli-and-battle-mineral-wealth/>

The same report estimates that armed groups made US\$ 12 million from lapis lazuli in 2015, US\$ 4 million of which went to the Taliban. A 2015 Security Council report cites unnamed Afghan officials estimating Taliban income from mined sources overall at tens of millions of US dollars each year.<sup>49</sup> For comparison, the Taliban's total overall revenue from all sources for 2011 was estimated by the UN at US\$ 400 million.<sup>50</sup>

Despite its association with conflict and corruption, there is no easy or clear-cut case to be made for international disengagement from the Afghan gemstone sector. Although the Taliban receive funds from gemstone mines, it is not the Taliban who are doing the mining. This is typically carried out by miners from nearby communities, many of whom subsist in economically precarious conditions, and rely on mining to provide additional income for their families alongside farming. If the Afghan gemstone trade were halted, then this important source of income would be removed. Further downstream, the ethical picture is also complex. Afghanistan's insecurity, and its limited domestic infrastructure for processing rough gemstones, mean that most Afghan gemstones are transported to Pakistan for cutting, polishing and onward sale. Afghanistan's gemstones travel to Peshawar, Pakistan through the Khyber Pass border crossing, and along the myriad small paths that crisscross the neighbouring mountain ranges - well-trodden smuggling routes for drugs, arms and other commodities.<sup>51</sup>

Peshawar's Namak Mandi is one of the world's oldest gemstone markets. It sells rough and cut gemstones mined in Pakistan, as well as those that come across the border from Afghanistan. Anti-government insurgency in Pakistan's gemstone mining regions<sup>52</sup> and in Afghanistan, and insecurity in Peshawar itself, have led to the gradual demise of the city's traditional, commercial gemstone market, as international buyers have stopped coming. According to one article, "they have been replaced by money launderers, drug smugglers and terrorist financiers."<sup>53</sup> The Financial Action Task Force, an inter-governmental body, has identified Pakistan as a monitored jurisdiction

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49 "Letter dated 18 August 2015 from the Chair of the Security Council Committee established pursuant to resolution 1988 (2011) addressed to the President of the Security Council", p15. UN Security Council. 26th August 2015. [https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s\\_2015\\_648.pdf](https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2015_648.pdf)

50 "Taliban raked in \$400 million from diverse sources: U.N". Reuters. 11th September 2012. <https://www.reuters.com/article/us-afghanistan-un-taliban-taliban-raked-in-400-million-from-diverse-sources-u-n-idUSBRE88A13Y20120911>

51 "The Dangerous World of Pakistan's Gem Trade". McClean's. 24th May 2014. <https://www.macleans.ca/news/world/pakistans-blood-stones/>

52 For context on insurgency in Pakistan's gemstone mining regions, see "Taliban jihad against West funded by emeralds from Pakistan", The Telegraph, 4th April 2009. <https://www.telegraph.co.uk/news/worldnews/asia/pakistan/5106526/Taliban-jihad-against-West-funded-by-emeralds-from-Pakistan.html>

53 "The Dangerous World of Pakistan's Gem Trade". McClean's. 24th May 2014. <https://www.macleans.ca/news/world/pakistans-blood-stones/>

for trade-based money laundering, indicating a heightened level of risk.<sup>54</sup>

Like the miners of Afghanistan, the traders of Namak Mandi do not aid insurgent and criminal groups as an end motive. They do so because they are entwined in a system that makes illicit activities an inevitable part of pursuing their livelihoods. At the same time as gemstone revenues are flowing to criminals and insurgents, however, they are flowing to gemstone workers' families, and often providing relief from desperate poverty. How this picture evolves since the collapse of President Ashraf Ghani's government in August 2021 following the withdrawal of US forces is not yet clear.

It remains to be seen whether Afghan gemstones will be embargoed by governments in liberal democracies, notably the United States, or whether their vital role in the country's economic development will pragmatically be recognised. Early signs are of the latter.<sup>55</sup>

## **Sustaining systems that violate human rights**

Just as coloured gemstones can sometimes be used by insurgent groups to build their power base, they can be used by regimes that are already in power, to stay there. In Myanmar, for example, the country's military has historically held extensive commercial interests in gemstone mining,<sup>56</sup> often violently suppressing indigenous people for control of mining areas, particularly

for jade and rubies. The country has undergone significant reforms since the military began to loosen its grip on power in 2011,<sup>57</sup> including in the mining industries.<sup>58</sup> However, despite these reforms, an August 2019 report from the UN Human Rights Council stated that the military still "benefits from and supports extractive industry businesses operating in conflict-affected areas in northern Myanmar, at a significant human cost." The report asserts that "higher-level [military] officials have granted land and

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54 "High-risk and other monitored jurisdictions". Financial Action Task Force website. Accessed 11th December 2019. <http://www.fatf-gafi.org/countries/#high-risk>

55 "So What Happens To Afghanistan's Gems Now?" Rob Bates. JCK Magazine Online. 20th August 2021. <https://www.jckonline.com/editorial-article/what-happens-afghanistans-gems/>

56 "Gemstone Sector Review In support of Myanmar EITI", p22. Extractive Industries Transparency Initiative. July 2016. <https://www.mata-nrg.org/wp-content/uploads/2016/08/Myanmar-EITI-Gemstone-Sector-Review-190716-FINAL-1.pdf>

57 "Myanmar country profile". BBC Website. 3rd September 2018. <https://www.bbc.com/news/world-asia-pacific-12990563>

58 "Myanmar Government Announces Ground-Breaking Reforms of Toxic Jade Business". Global Witness. 28th July 2016. <https://www.globalwitness.org/es/press-releases/myanmar-government-announces-ground-breaking-reforms-toxic-jade-business/>

resource concessions in Kachin and Shan States as a way to generate personal revenue and develop a political and economic power base.”<sup>59</sup>

The February 2021 military coup might be expected to reverse some of these reforms, though, as with Afghanistan, the picture is not yet entirely clear.

In any country with widespread corruption, the gemstone trade can be harnessed by political elites for personal enrichment, and for favour-trading in order to keep a tight grip on power. Corrupt government officials might own stakes in mines, collude in criminal mine invasions or claim-jumps, accept bribes to issue export licenses or mining permits illegally, or facilitate the activities of organised crime. These perks might also be gifted to trusted allies, in exchange for political support or other favours. These types of corrupt systems not only deprive national treasuries of gemstone revenues that

could be used for development, they are also self-sustaining, because they empower the people who are perpetrating them – making it much harder to bring about political reforms and much-needed change.

There is no hard data available on the scale of these problems within the coloured gemstone sector, but Transparency International’s Corruption Perceptions Index gives cause for concern. Transparency International is an anti-corruption NGO, whose Index rates countries worldwide “by their perceived levels of public sector corruption according to experts and businesspeople”<sup>60</sup>. Eleven key gemstone-producing countries were in the bottom 50% of the index in 2020. In ascending order of perceived corruption, these were: Colombia (39), Tanzania (38), Brazil (38), Ethiopia (38), Zambia (33), Kenya (31), Pakistan (31), Myanmar (28), Madagascar (25), Mozambique (25) and Afghanistan (19).

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59 “The economic interests of the Myanmar military - Independent International Fact-Finding Mission on Myanmar”. UN Human Rights Council. 5th August 2019. [https://www.ohchr.org/Documents/HRBodies/HRCouncil/FFM-Myanmar/EconomicInterestsMyanmarMilitary/A\\_HRC\\_42\\_CRP\\_3.pdf](https://www.ohchr.org/Documents/HRBodies/HRCouncil/FFM-Myanmar/EconomicInterestsMyanmarMilitary/A_HRC_42_CRP_3.pdf)

60 “Corruption Perceptions Index 2020”, Transparency International. 2020. <https://www.transparency.org/en/cpi/2020/index/nzl>

# CONCLUSION

Gemstone trading is a complex, arcane, intricate, and sometimes clandestine process. It has been so for centuries. People in the trade will give many compelling reasons why it is, and should always be, the way that it is. Without globe-spanning networks of traders, each with their own special areas of expertise and trusted group of counterparties, the unique gemstones of the world might flow less easily to the craftspeople who can realise their full potential as dazzling jewels. And, although no precise figures are available, it is safe to say that gemstone trading provides livelihoods for hundreds of thousands, if not millions, of people around the world, including a great many women in countries where commerce is typically dominated by men.

The nature of coloured gemstone supply chains, which are perhaps best described as translucent rather than opaque, presents formidable challenges for disclosure, and transparency is not a natural reflex for commercial reasons, to avoid attracting unwarranted attention or for simple physical security. Yet, these trading chains, based on trust, deliver a diverse range of goods to customers worldwide, as they have for centuries. Change is coming. This is accepted. But more transparency can only be achieved by protecting and building on what is already there.

Tools and standards should be developed in way that is sympathetic to existing conventions and practices working at a pace that preserves and does not destroy. If this approach is adopted, these systems will be successful in providing assurance that creates value.

It would be a mistake to assume there is no transparency. There is disclosure between trusted counter-parties much of the time, but not all the way to the mine necessarily, often for complex reasons. Coloured gemstones as we have shown are unique. They aren't gold or tin or copper. It might therefore be legitimate to ask how realistic it is to require full transparency. There is no smelter that simply aggregates a commodity and whose competitive advantage exists in its location. Some flexibility and reciprocity that accommodates an often complex commercial and competitive reality will be required.

Distributed electronic ledgers, such as Blockchain, can carry digitised information about gemstones' journeys from mine to market, and nanoparticle technologies are being trialled with emerald to permanently mark mine of origin, though as far as the authors are aware, are yet to be adapted for use with other varieties of gemstone. The cost of such systems may be

prohibitive for elements of the trade, but there is evidence this is recognised, and those wishing to be truly inclusive are taking steps to facilitate universal access. How successful they will be is not yet clear. Simply knowing a gemstone's origin and journey provides no ethical assurance in its own right. Strong industry standards and good governance remain vital to delivering that assurance.

Business models adopted by some large companies shorten supply chains, operating within existing conventions and structures – including those of pricing – often involving well-established gemstone manufacturers, traders, jewellery manufacturers and retailers. And while such companies are able to deliver benefits smaller operators cannot, the authors believe they are unlikely to ever really dominate the coloured gemstone market because of the nature of deposits and market preferences for a varied and diverse supply of coloured gemstones.

For the small, sometimes informal and largely traditional traders that occupy the bulk of the upstream coloured gemstone trade in producer countries, there are challenges to address. It is accepted that change is being demanded. And the industry is responding. But it does question how realistic or appropriate some of these demands are. Whether assumptions are rooted in fact or perception.

An unwillingness or resistance to change should not be inferred. Nor should the notion of a

structure designed to deflect from or conceal malicious practices.

In order for the coloured gemstone sector, as a whole, to be able to demonstrate that its trading practices are rooted in accountability, each stakeholder in the sector must play an important role.

National and local authorities and standards-setting organisations, meanwhile, should work to ensure that legal, taxation and customs regimes are effectively tailored to small scale trading, that compliance requirements for small operators are not unduly onerous, and that capacity and a culture of transparency in the bodies that oversee the sector are cultivated, and reform initiated where corruption and poor governance are endemic.

Expectations must be clear. And an incremental approach that takes account of life on the ground in producer countries and throughout the value-chain is vital.

Small enterprises and individual traders especially in producer countries must understand and perceive benefits if they are to work closely with the other entities in their value-chains – both upward and downward – to take steps toward more disclosure providing more verifiable assurance. Portraying them as bad or irresponsible probably won't lead to success.

Ill-considered, uncoordinated responses

provoked by controversy risk further restricting supply, access to markets, driving up prices and cost livelihoods. Insensitive handling of communication, poor research, failure to engage the right stakeholders and competitive dynamics within the responsible sourcing sector may result in poor outcomes for people in far-away places with few alternatives for livelihood. This would be a spectacular failure to take into account social and environmental issues affecting the value-chain.

Most value-chain participants take no pleasure

from being stigmatised based on exceptional cases. Or from being incorrectly assumed irresponsible. They are certainly adept at dealing with complexity, change and solving problems. There is encouraging evidence they are working in new ways, with new partners to assure origin as a first step to demonstrating accountability. And further developments in technology and standards appear to be making this a real possibility for all those involved in the coloured gemstone value-chain from the mine to the retail customer.

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**COLOURED GEMSTONES  
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