

A study on ASM Gemstone Value Chain in KBK Districts, Odisha, India



1

The project “Mitigating the impacts of COVID-19 in artisanal and small-scale mining (ASM) communities in KBK regions of Odisha, India is supported by Extractives Global Programmatic Support (EGPS) and administered by the World Bank Group (www.worldbank.org/egps).

SRADHA

Content

Introduction

Methodology

Study Area

Review of Secondary Data

Occupations of Participant Gemstone Miners

Nature of Mining

Nature of Excavation

Types of Gemstones Mined

Pattern of spending of income from mining

Gemstone Trading

Mining of Gemstones during the last 1 year

Women Participation in Value Chain

The Volume of Gemstone Trade from Kalahandi

Pattern of distribution of gemstone revenue

Formal and informal actors in the value chain

Stages and routes of gemstone trade in KBK

The Power Dynamics in the Gemstone Value Chains

Financing of Gemstone Trade

Volume of Gemstone Trade

Challenges

2

The project “Mitigating the impacts of COVID-19 in artisanal and small-scale mining (ASM) communities in KBK regions of Odisha, India is supported by Extractives Global Programmatic Support (EGPS) and administered by the World Bank Group (www.worldbank.org/egps).

SRADHA

Introduction:

The old districts of Koraput, Balangir and Kalahandi (popularly known as KBK districts) have since 1992-93 been divided into eight districts: Koraput, Malkangiri, Nabarangpur, Rayagada, Balangir, Subarnapur, Kalahandi and Nuapada. These eight districts comprise of 14 Sub- divisions, 80 Tahsils, and as many Community Development Blocks. The total number of revenue villages forming part of KBK region is 12,293.

Kalahandi and Bolangir districts have artisanal mining communities who mostly belong to indigenous tribal communities mining gemstones since long. It was understood that about 75 percent (every three out of four) of the communities are connected with the trade. Various types of gem stones are mined through alluvial and surface mining. Local ASM community digs gem-stones including corundum, garnets, emeralds, cat's eye, aquamarine, blue and yellow sapphires and diamonds. Since the 1990s, mining has involved an organised network of stakeholders including landowners, miners, brokers, agents, traders and exporters.

The local chain is now linked to the global market. As reported, gemstone business involves about 100 Crore Indian Rupees (16 million USD) annually. It is reported that half the stock is sent to Jaipur (in Rajasthan) and Bombay for cutting, polishing and exporting. The balance remains is cut, polished at in the regional market and sent to national markets (Banerjee, 1993). It is reported that Kalahandi along with Balangir supply gem stone for handicraft work that can be found in Delhi Haat. Kalahandi and Bolangir are the main artisanal mining districts. Other districts include parts of Koraput, Sonepur, Sambalpur, Deogarh, Rayagada, Boudh and Phulbani districts.(Arnab Roy Chowdhury , Kuntala Lahiri-Dutt, 2015)

Methodology:

For collection of value chain and supply chain data, interviews with miners during baseline survey, interview with key informants and focus group discussions were conducted by engaging various stakeholders from Artisanal and Small-scale Mining (ASM) communities, as well as consultative meetings were held with traders, private and public-sector stakeholders.

Existing secondary data has been collected and relevant literature reviewed to supplement and validate primary data. The focus minerals for value chain analysis included colored gemstones of Kalahandi:

Study Area: Kalahandi - Jhillingdara, Hinjlibahal, Banjipadar and Kermunda

3

The project “Mitigating the impacts of COVID-19 in artisanal and small-scale mining (ASM) communities in KBK regions of Odisha, India is supported by Extractives Global Programmatic Support (EGPS) and administered by the World Bank Group (www.worldbank.org/egps).

SRADHA

Review of Secondary Data

The global trade of coloured gemstones was roughly US\$4 billion in 2008. Trade analysts say that this market has grown considerably since 2003. Gems had always been produced locally at a limited scale until then, mostly controlled by the class and caste elites for regional markets. The stones were mined by indigenous tribes and other so-called scheduled caste labourers. Speculative investors, businessmen, brokers and agents arriving in this region after the 1990s sparked a gem rush. Many people, irrespective of caste and class, started coming into the business to make the most of the emerging opportunities, using their existing traditional knowledge of gem production (Roy Chowdhury and Lahiri-Dutt 2016).

Gemstone mining is local tribal groups' traditional occupation and they knew the art of mining. Mining has been mostly informal in nature. However, scavenging gemstones from the banks of Mahanadi River near Hirakud Dam in Odisha or panning gold from the riverbank sand in Subarnarekha River in Jharkhand can be called non-legal or probably extra-legal, as no laws specifically criminalise these activities. Mining is mainly for livelihood purposes, but miners make very little money. Many miners live hand to mouth, and are extremely poor (Deb et al. 2008).

Before the gem rush, tribal people were digging for the caste and class elites, mostly in off seasons at a relatively restricted and limited production scale. With the gem rush, the Khonds, other *adivasis* and other marginalised and so-called lower castes started digging for themselves individually and in groups, and also sometimes for illegal syndicates. Some also formed smaller groups of three to four people working as independent entrepreneurs; many of these groups have started working full-time in artisanal mining (Roy Chowdhury and Lahiri-Dutt 2016).

The increasing interest in mining was also in a way the last straw that poor, marginalised people could have grabbed at, against failing agriculture and economies of transition. That was the only option left for many of them before they would have migrated out of the region temporarily or permanently. In a way, agrarian distress, together with the reform, pushed and pulled a significant number of erstwhile marginal rural proletariat into artisanal mining. It became an activity in which they became doubly vulnerable to exploitation of various kinds—on one hand by the traditional elites and, on the other hand, by large corporations who pushed them out from their lands (Roy Chowdhury and Lahiri-Dutt 2016).

This area has recently started attracting many large corporate interests. They came with different levels of investment of capital and knowledge, in different capacities, to participate in the trade.

A Special Economic Zone (SEZ) for gems and jewellery manufacturing is planned to be opened in the area by the Geetanjali group, one of the oldest companies in this industry. Chhattisgarh Futuristic Infrastructure Development Company has also proposed to open an SEZ for gems and jewellery manufacturing in Bhubaneswar, covering 150–200-acre lands

4

The project “Mitigating the impacts of COVID-19 in artisanal and small-scale mining (ASM) communities in KBK regions of Odisha, India is supported by Extractives Global Programmatic Support (EGPS) and administered by the World Bank Group (www.worldbank.org/egps).

SRADHA

with an initial investment of about US\$45 million. Additionally, the Oriental Timex company has acquired mining rights for black granite in the Malkangiri district of western Odisha.

Multilateral development organisations such as the United Nations Development Programme have assisted the Odisha Government in setting up a semi-mechanised panning and screening facility, with mobile washing plants on the banks of the Mahanadi River (Government of Orissa 2009). Around 1991, the state of Odisha established a gem-testing laboratory in the Directorate of Geology under the guidance of the United Nations, which tests various kinds of stones at a very cheap rate (Biswas 1994).

The Government of Odisha's Department of Steel and Mines is planning a survey of 80,707 km in northwest and central Odisha to find traces of coal, gold and gemstones. It has sought the assistance of the Odisha branch of the Geological Survey of India (GSI). They are also planning to survey the Kalahandi district for gemstones. Somewhat related to these mineral explorations, the state is also planning to draft a state-specific policy on SEZs, corporate social responsibility and industrial policy resolution. A total amount of approximately US\$1.7 million has been allocated for this survey (*Business Standard* 2014).

The Odisha branch of GSI revealed that they have found significant gemstone deposits of topaz, tourmaline, agate and minerals like gold in the Boudh–Ramgarh area, along the Mahanadi and Tel riverbeds (Sahoo 2014). Through plans and programs, the state is aiming to extend and consolidate its extractive terrains in collaboration with capitalist firms. However, the global coloured gemstone production economy is slightly different from other mineral sources or even the diamond economy.

An entire 150-km stretch in western Orissa from Sambalpur to Koraput forms the hunting ground. Though Kalahandi and Bolangir are the main artisanal mining districts, others include parts of Koraput, Sonapur, Sambalpur, Deogarh, Rayagada and Phulbani districts. Various stones including corundum/rubies (*Manik*), emeralds (*Panna*), garnets (*Ceyloni Gomed* and *Gomed*), cat's eye/tiger's eye (*Lahsunia*), aquamarine (*Beruz*), blue and yellow sapphires (*Neelam/Pukhraaj*), and small amounts of diamonds (*Hira*) are mined here.

Jilindara in Kalahandi has one of the largest ruby deposits of Asia as per Geological Survey of India

Officially, 605 mining leases have been sanctioned in Odisha, of which only 16 to 21 are for precious and semi-precious gemstones (Murthy and Giri Rao 2006). Among these, 13 legally leased gemstone mines are situated in Kalahandi (Government of Orissa 2009). But official gem mines are scarce in Odisha, so the main sources of gems are mined artisanally.

Most mining activities are carried out clandestinely in pits hidden in the agricultural fields. Most of the *adivasis* and the so-called scheduled caste miners, who do not hold any land, work in artisanal mining as wage labourers employed by pit owners to dig. Their chore is the

same as agricultural labourers tilling fields, but they earn a little more in wages (Roy Chowdhury and Lahiri- Dutt 2016).

Some pits are also dug in jungles, inaccessible mountain areas and common lands by individuals, loosely organised groups or highly organised syndicates. The syndicates also employ the *adivasis* and the lower-caste population as wage labourers in the mine.

They operate at night in relatively difficult areas of the forest, clandestinely hiding their activities from forest officials and the police.

The process of mining is very rudimentary and primitive, using shovels and pickaxes. Because of the bluntness of these heavy instruments, sometimes stones get cracked internally and good-quality stones are not always produced (Roy Chowdhury and Lahiri-Dutt 2016). Pits are usually dug vertically like wells, about 1–3 m deep. Sometimes the pits are dug horizontally over a large area, as miners find good caches this way.

Occupations of Participant Gemstone Miners

When asked about their occupation, about 21.5 percent of the participants described them as a miner, 39 percent described them as farmer-miner, 10 percent were doing both mining and business and 29.5 percent said doing farming-mining and business together. Majority of the participants were indigenous people and *Dalits*.

Table: Occupations of Participant Gemstone Miners

Occupation	Number N=200	%
Miner	43	21.50
Farmer-Miner	78	39.00
Miner – Business	20	10.00
Farmer-Miner-Business	59	29.50

Nature of Mining:

Regarding legality of their mining activities, it was understood from participants that mining activity was unorganized, clandestine and informal in nature

Nature of Excavation:

Regarding excavation, most of the gem stones are eluvial and alluvial that are mined artisanally, and are scavenged from the soil surface directly or by making small ditches. In the study region, gemstone mining includes scavenging, washing from alluvial and eluvial deposits, digging in shallow trenches or inclines and surface mining such as quarries. It also includes small-scale mines such as un-mechanised underground and surface mining. The mining pits are mostly dug in agricultural lands. Mining pit owners are usually rich farmers—mostly Kulita, Agariya or Mali by caste. Many pits are also owned by Brahmin *gauntias*.

Sometimes, small holes are carved in pit walls horizontally, just enough without any reinforcements, and they often collapse after rains. Accidents and deaths of miners are common in these pits. But people take these risks for daily subsistence money and in hopes of getting lucky.

Types of Gemstones Mined:

Regarding the types of gem stones mined in the last 2 years or so, the participants shared the mining of the following minerals:

Table: The types of gem stones mined and no and percent of participants (multi-choice):

Types of Gemstones	Numbers N=200	%
Cat's eye (<i>lahsunia</i>),	48	24.0
Sapphire (<i>pukhraaj/neelam</i>),	172	86.0
Quamarine (<i>beruz</i>),	72	36.0
Emerald (<i>panna</i>)	191	95.5
Corundum (rubies)	107	53.5

In the last two years 24 percent of the participants said that they had mined Cat's eye (*lahsunia*), 86 percent had mined Sapphire (*pukhraaj/neelam*), and 36 percent said they had mined Quamarine (*beruz*), 95.5 percent had mined Emerald (*panna*) and Corundum (rubies) was mined by 53.5 percent miners.

It is shared that the important corundum and ruby-bearing zones in Kalahandi are Jhillingdara, Hinjlibahal, Banjipadar and Kermunda

Pattern of spending of income from mining

Table: Approximate spending of income from mining:

Spending of Income	Percent spent of Income spent
Onsite (food, alcohol, etc.)	10.30
Buying groceries and food and household amenities	47.40
Health care	2.00
Repay of debt	3.00
Buying clothes	3.00
Investing in Housing/House repair	7.00
Spending in marriages, religious ceremonies and funerals	5.50
Investing in business	5.50
Investing in buying agricultural assets/Land/ Buying Agri-inputs: Seeds, fertilizers or hire laborers	7.50

School fee/ Education of children	6.30
Savings	2.50

Regarding spending their income from mining, 10.30 percent of the income was spent for buying onsite food, alcohol etc. 47.40 percent was spent for buying groceries and food and household amenities, 2 percent for health care, 3 percent each was spent for repaying debt and buying clothes, 7 percent of the income was invested in housing and house repair, 5.5 percent was spent in marriages, religious ceremonies and funerals, 5.5 percent was invested in business, 7.5 percent was invested in buying agricultural assets including land and buying agri-inputs including seeds, fertilizers or hire laborers. 6.3 percent of the income was spent for education of the children. The big upper caste landlords of the area who are locally called *gauntias* invested their income from mining for educating their children in disciplines like Geology and Mining, Metallurgy and relevant disciplines on mining in various institutes imparting such trainings in India (Key Informant Interviews)

The coexistence of mining, farming and business generates socio-economic development for households. Mining generates income that supplemented household income and contributed to their prosperity. The respondents uniformly shared that mining contributed in terms of supplementing farming, business and educating children in reputed institutions.

.Gemstone Trading:

Table: Selling of gemstones by the Miners –Multi-choice

Gemstones sold by the Miners (Types of Buyers)	Nos N=200	Percent
Local intermediaries: land owners (Gauntias) and local brokers	178	89
Outside Brokers	76	38
Traders and Dealers	47	23.5
Cut and Polish Units	08	4.0
Jewelers	05	2.5

About 89 percent respondents shared that they sell the gem stones to local intermediaries like big land owners (Gauntias) and local brokers. 38 percent miners had sold to outside brokers from Kolkota, Raipur, Mumbai and Jaipur. 23.5 percent sold to traders and dealers visiting the area. Only 4 percent miners sold directly to cut and polish units and 3 percent sold to their known jewelers who offered them right price.

Table: Whether they get right Price of their Products

Response	Nos N=200	Percent
Yes-received right price	32	16
No – did not get right price	168	84

When asked about getting right price of their products, 84 percent miners shared that they did not get right value for gemstones as everything was done clandestinely. The scope to identify its quality and price with appropriate authority was never possible. Only 16 percent said that they could wait a longer time to collect right information about the value of their stones before selling it to the agents.

Mining of Gemstones during the last 1 year:

During last one year, due to COVID-19, the extraction was substantially declined and there were incidences of distress sale of stock and seizure by law enforcement agencies as shared by the respondents and the key informants.

Women Participation in Value Chain

Women’s participation, besides digging and scavenging focuses on washing stones and sorting uncut pieces. Most labourers live hand to mouth with a subsistence living. They are relatively better paid than the farm labourers. But their job is also risky in terms of health, life and legal issues involved.

The Volume of Gemstone Trade from Kalahandi:

The gemstone business of Kalahandi sends out stones worth more than 100 Crore Indian Rupees (16 million USD) annually of which half the stock is sent to Jaipur (in Rajasthan) and Bombay for cutting, polishing and exporting (Banerjee, 1993). The balance remains in the regional market to be cut, polished and exported to national markets. As assessed by some of the key-informants in the sector, in the year 2018-19 KBK had sent 43 million USD worth gemstones of various types and some of the licensed miners were also involved.

Pattern of distribution of gemstone revenue:

The trade provides lucrative returns, for example, a 1 kg garnet stone would fetch 10 rupees (0.12 US dollar) for the digger, about 100 rupees (1.4 US dollar) for the middlemen, and the trader in Katabanji would get 500 rupees (about 6.7 US dollar) from the dealer in Jaipur along with transportation cost. The Jaipur trader would cut, polish and sell it for even higher prices per carat rate or per stone rate from shops that they own.

Some stones were of very high quality. Their varied accordingly. Uncut emeralds were sold for about 11500 rupees (151.14 US dollar) per 10 g After cutting and polishing they were sold at very high prices in cities like Delhi, Bengaluru, Jaipur,

Mumbai, Kolkata and Chennai. When a large piece of ruby ore is cut and polished in the local lapidary, it brings them larger profit.

A quality piece of cat’s eye fetched about 6000 rupees (80 US dollar); ordinary ones are sold either by kilogram rates or per piece rates of 50–100 rupees (.76–1.52 US dollar). The mining of diamonds in Boudh and Sonapur are prominent. Diamonds collected from the Mahanadi River beds of Boudh and Sonapur districts are sold in the national and international markets. In adjoining Deogarh district, the smugglers work along with the local agents deep inside the jungle for digging gemstones and pay them a daily wage labour of 60–80 rupees (0.8–1.07 US dollar).

It is reported that very often peasant-miners and peasants find corundum ore while tilling their field. Digger farmers often trapped by middlemen, sell Rs 1,000 a kg of stones at a paltry Rs 10 to middlemen. This is what drives the gemstone trade in KBK.

The trade in general is lucrative. One kg piece of garnets fetches the digger Rs 10; hiked to Rs 100 by the middleman, the trader hikes it by another Rs 500 to buyers in Jaipur. Mumbai and Kolkata and the cost of transportation is added to it. While the final cost price is Rs 1,000, the final sale price becomes Rs 1,250 and above. Though stones have different grades, this ratio is taken as the rule of thumb by pipeline operators who keep every step well-greased and in a tight circle of windfall income in a low income zone, one level protects the higher up.

Table: The Value Chain Agents and their average approximate margin

Value Chain Agents	Number of Persons Interviewed	Approximate Average Margin in %
Miner	200	20-30
Local intermediaries/land owners	10	15-20
Brokers	5	10 -20
Traders and Dealers	4	5-10
Cut and Polish Units	2	5-10
Jewelers-Selling to customers	6	10

From the mine to the customer, the collected gemstones pass through local intermediaries, brokers, traders and dealers, cut and polished units, value addition by jewelers and selling to customers. The usual path a gem takes in getting to the client is the mining pit, dealers, to jewelry manufacturers, to retailers, and finally, to the customers. Some artisanal miners sometimes sell directly to cutters and treaters. As shared by the respondent value chain agents, miners’ margin is 20-30 percent, the margin of local intermediaries/land owners is 15-25 percent, brokers receive 10-20 percent as margin, cut and polish units get 5-10

percent and jewelers get a margin of 10 percent.

Formal and informal actors involved in the gem stone value chain

Formal and informal actors involved in the gem stone supply chain	Routes of gemstone trade
Miner - They work for big peasants/farmers and gauntias/organised network of miners, shop-owners, middlemen, agents, buyers and exporters, thereby linking this local chain to the global market.	KBK districts including Koraput, Balangir and Kalahandi (popularly known as KBK districts) divided into eight districts since 1992-93: Koraput, Malkangiri, Nabarangpur, Rayagada, Balangir, Subarnapur, Kalahandi and Nuapada
Informal unregistered individual entrepreneurs & registered small scale entrepreneurs	KBK districts including Koraput, Balangir and Kalahandi (popularly known as KBK districts) divided into eight districts since 1992-93: Koraput, Malkangiri, Nabarangpur, Rayagada, Balangir, Subarnapur, Kalahandi and Nuapada
Rough stone traders/ informal brokers/ traders/ rough traders,	Kolkota, Mumbai, Raipur, Jaipur, Surat
Sellers of rough and first generation cut materials (gems) Miners and local traders	Kolkota, Mumbai, Raipur, Jaipur, Surat Koraput, Malkangiri, Nabarangpur, Rayagada, Balangir, Subarnapur, Kalahandi and Nuapada
Buyers for cartels and corporate entities	Kolkota, Mumbai, Raipur, Jaipur, Surat
Buyers for collectors. Sales to other dealers	Kolkota, Mumbai, Raipur, Jaipur, Surat
Processors - cutters and polishers/ cutters and polishers, polished-stone traders	Surat and Jaipur
Jewelry Manufacturers	Jaipur, Kolkata, Mumbai
Retailers	Jaipur, Kolkata, Mumbai

- After gems are mined, they pass through a chain of miners, brokers and wholesalers before being cut, polished and sold to the retail market. Many people in the coloured gemstone industry operate in the informal market, and are therefore difficult to track down. In contrast to diamonds, coloured gemstones are produced from relatively small, low-cost operations with a few dominant monopolizes in the market. Artisanal mining accounts for about 80–90 per cent of gemstone production (Cross et al. 2010).

- These stones are usually bought at a wholesale rate from the mines by middlemen employed by bigger businessmen, who mostly come from Rajasthan and operate their base from the adjoining Katabanji in Bolangir (Banerjee 1993). These stones gain a social and economic life of their own. They are sorted and go through a process of cleaving (giving an initial cut or shape), calibrating, cutting and bruising (polishing) mostly on the local or regional lapidary.
- The best stones travel through Raipur and Jharkhand, and usually end up in Rajasthan’s international gem market. Here, stones are further cut and sorted, and sold directly from the retailer, either loose or more usually embedded in jewellery produced there or exported outside the country.
- The extremely fragmented nature of the gemstone market at every value chain makes it very difficult to identify significant actors.
- Most deposits of coloured gemstones are low yielding, and therefore mainly mined and produced through artisanal methods. The non-diamond coloured gemstone industries are cyclical and register a high point of production when a deposit is discovered, then go to a low point when it is exhausted.
- A gemstone’s cost increases with each tier it moves through. The cost of accessing a gem grows with the actions needed to acquire it. For example, buying involves an expensive chain of transport costs.
- Marketing costs (trade only), direct sales, gem trade shows, etc., all add to a gem’s cost.
- A gem’s value ceiling is dictated by comparable gems of equal color, clarity, size, cut and availability..

A gem has price ceilings in three domains:

- The dealer market. Here, a stone is purchased at a price allowing a markup to wholesale.
- The wholesale market. Here, the stone is marked up to allow profit when sold to a retailer.
- The collector market: Here, the stone is purchased/sold in a manner that assess value based on previous sales of like material in these specific venues.

Stages and routes of gemstone trade in KBK

Table: The different stages and routes of gemstone trade in KBK:

Different steps in gemstone trade	Routes of gemstone trade
Mining	Kalahandi, Bolangir & Subarnapur
Trading	Kantabanji, Raipur, Kolkota, Jaipur, Mumbai

Lapidary (engraving, cutting, or polishing of stones and gems)	Jaipur, Mumbai, Surat
Manufacturing	Jaipur, Mumbai
Marketing	Jaipur, Mumbai

From mining to engraving, cutting, or polishing, manufacturing and finally marketing the stone travels through a complex route from the place of mining (Kalahandi, Bolangir & Subarnapur) to Kantabanji, Raipur, Kolkota, Jaipur, Mumbai and lands in international markets.

The Power Dynamics in the Gemstone Value Chains:

This immediacy, urgency and uncertainty drive the under-priced gem economy in this region, which also fills the coffers of big traders (Banerjee, 1993). The pipeline operator keeps every level greased and the lower level protects the higher level.

Most of the middle men are bound to the traders in Katabanji. Some traders distribute motorcycles to middlemen so that they would bring the best of the stones to them. As competition is tough and some traders do not want to be overtaken by other traders. In this situation, as visitors approach the diggers, they usually disappear quickly; the traders would talk only in conditions of anonymity. Some of the local officials do admit about the racket, but they believe that smugglers are one step ahead of them.

Kantabanji is a major re-routing centre for gemstones which find their way west, through Raipur in Madhya Pradesh and via Bihar to Jaipur: "With more stones comes more money. A *hafta* goes to the police, politicians get help during elections and all those who matter are taken care of - teachers, lawyers, even bankers."

- Miners
- Local government authorities
- Local businessmen and brokers linked to political and bureaucratic patronages
- Law enforcement agency
- Lobby of licensed mining agencies with political and bureaucratic patronages
- Powerful traders with political and bureaucratic patronages
- Big branded processors/manufacturers

Financing of gemstone trade:

The system in KBK is well-established now. It is understood that if a Kantanbanji trader suddenly needs cash, local banks give unauthorized advances. After the stones are sold in Jaipur, the money is repaid.

It doesn't show in the records, and the extra - minus the advance - is shared by bank officials. If patrons need help, say to marry a daughter, the dealer gives them cash. Others receive washing-machines and VCRs to look the other way.

The producers and retailers at either end of the value chain can usually access other financing sources, such as commercial banks and the debt and equity capital markets. And—in contrast to practices in some other industries—producers do not provide trade credit to their buyers, instead requiring payment up front.

The financing needs of different players along the value chain vary by the structure of their working capital. Rough traders, for example, need mainly to finance purchases of rough gemstones, typically paid for up front. Cutters and polishers, on the other hand, need to finance inventories of stones held for processing. Longer asset-rotation cycles are one of the chief reasons that outstanding middle-market debt has swelled in recent years. Cutters and polishers also need capital to purchase the machinery necessary to their business.

Polished-gem stone traders' financing needs are different. Not only must they finance their inventories, they have a growing need to finance accounts receivable generated by transactions with wholesalers, retailers, and jewelry manufacturers. According to industry participants, these debts are taking longer to collect than in the past. Jewelry manufacturers, too, have a growing need for receivables financing. Their receivables collection times have also lengthened, a reflection of the increased bargaining power of retailers

Total volume of Gemstone Trade:

Kalahandi transports up to Rs 100 crore worth of stones a year, or about half of what Jaipur traders use for cutting, polishing and export.

Challenges:

Informal and illegal mining: Gemstone mining in KBK districts is mostly informal and illegal in nature and miners often are prosecuted by the law enforcement agencies and to escape from being arrested often resort to bribing officials and politicians.

Health Hazards: Health hazards in and around the mining communities is observed from different types of ailments among the miners.

Child Labor: The level of child labor in the mines is high and women and children are subject to oppression and forced labor practice. Children and their parents and family members said that it is necessary because of their poverty and they need income after school or during school vacation to buy food, school books and stationeries. It is observed and reported that the children are exploited with poor wages and suffer from the lack of any economic future due to lack of opportunity for vocational education, their irregular school attendance and incidences of children dropping out.

Gender Based Violence: The suppression of women through wage inequality, poorer health and safety protection, and sexual abuse are reported by the respondents during the survey.

Violence and extremism: In the project districts, ASM communities are under the control of LWEG (left wing extremist groups). These groups and followers in ASM communities have a stake in informal mining and any violation by miners often leads to violence.

Annexure-1:

Question – Miners, Key informant interviews and Focus group discussion with ASM workers/traders

1. **How do you describe yourself?** a peasant or a miner./ indigenous people, peasants and farmers
2. How do you describe your mining activity legally?
3. How are gemstones excavated?
4. What is the extent of women Participation in Value Chain
5. **How do you spend your income from mining:**
6. What are the types of gem stones you have mined in the last 10 years or so?
7. To whom do you sell your gemstones? Gem dealers/brokers, any other
8. Do you get value for gemstones? Yes/No
9. Does mining contributes to your household income
10. How do gemstones pass through, from the mine to the customer

15

The project “Mitigating the impacts of COVID-19 in artisanal and small-scale mining (ASM) communities in KBK regions of Odisha, India is supported by Extractives Global Programmatic Support (EGPS) and administered by the World Bank Group (www.worldbank.org/egps).

SRADHA

11. What is your extraction during the last 1 year?
12. What types of gemstones you collected during last 1 year?
13. In what price did you sell per unit weight? Diamond, gold, colored stone, Ruby, Sapphire, other, cat's eye (*lahsunia*), sapphire (*pukhraaj/neelam*), aquamarine (*beruz*), emerald (*panna*) and garnets (*gomed*)
14. To whom did you sell?
15. Are you directly engaged in gem-stone mining activity
16. Do you use your income from mining for other activities: food, agriculture, education of children, business, buying of land, any other
17. Do you work of your own in mining gemstone or with a license holder

18. What is the labour value in the process Extraction, separation, refining, alloying and manufacturing

19. What is the usual path a gem takes in getting to the client?

- 20. What value is generated in the following points: ASM Sites - Transporters and Traders, Points of Sale and SMEs, Construction SMEs**
21. What is the unit price of *Manik* (ruby/ corundum ore)?
22. Please share about mining–agriculture complementarity?
23. How does mining compete with mining competes with agriculture for land, water and labour, and extent of pollutes agricultural water.
24. Does income from mining contribute to mining generates income for farmers? Buying fertilisers or hire labourers and send their children for higher education, meeting health care needs, other specify.....

Question 25: Who are the formal and informal actors involved in the gem stone supply chain?

Formal and informal actors involved in the gem stone supply chain	Response Yes/no
Miner - They work for big chasis and gauntias/ organised network of miners, shop-owners, middlemen, agents, buyers and exporters, thereby linking this local chain to the global market.	
Informal unregistered individual	

entrepreneurs & registered small scale entrepreneurs	
Rough stone traders/ informal brokers/ traders/ rough traders,	
Sellers of rough and first generation cut materials (gems)	
Buyers for cartels and corporate entities	
Buyers for collectors. Sales to other dealers	
Processors in Surat and Jaipur/ cutters and polishers/ cutters and polishers, polished-stone traders	
Jewelry Manufacturers	
Retailers	

Question 26: What are the different routes of gemstone trade?

Question 27: What are the power dynamics in the gem stone supply chains?

Question 28: How is gemstone traded?

Question 29: How is gemstone revenue distributed?

Question 30: What is the approximately total volume of gem stone business?

Question 31: How are gemstone excavation, processing and trade financed?

Question 32: Types of gemstones excavated in KBK by peasant-miners