
Part 2: Sector Analysis

Matrix of Analysis

Milk and Yoghurt

Cashmere

Flour

Gemstones

Industrial Bread

Cakes

Candies

- A gemstone is a **mineral**, rock or petrified material, that when **cut or faceted and polished** is collectible or can be used in **jewelry**. **Gemstone specimen** -unusually rich pieces of ore or characteristic constituents- can also be sold in their natural form as collection pieces.
- Gems are classified into different **groups, species, and varieties**. For example, ruby is the red variety of the specie corundum, while any other color of corundum is considered sapphire. Emerald (green) and aquamarine (blue) are varieties of the mineral specie beryl.
- A gemstone is prized especially for great beauty or perfection so **appearance is almost always the most important attribute of gemstones**.
- **Precious stones** are rubies, emeralds, sapphires and diamonds. Other gems are classified as **semi-precious**.
- Main stone species that can be found in Afghanistan are precious (**ruby, emerald**) and semi-precious (**lapis lazuli, aquamarine, tourmaline and kunzite**).
- Large, high quality rubies can be sold by a retailer in the range of \$1,450-25,000 per carat. High quality emeralds sell in the range of \$1,500-7,000 per carat¹ and can sometimes exceed \$25,000 a carat (retail price).

¹: 1 carat = 200 milligrams.

Definitions & Product Categories (2/4)

RUBIES



- Ruby is a red gemstone that varies from a light pink to a blood red, and is a variety of the mineral corundum.
- Ruby gemstones are valued according to size, color, clarity and cut. All natural rubies have imperfections in them, including color impurities and inclusions.
- Large, high quality rubies can sell in the range of \$1,450-25,000 per carat.
- World wide annual ruby sales account for a \$1 Bn industry.
- The world's finest rubies historically have come from Mogok (Myanmar).
- Afghan rubies are located in the Jegdalek region (Kabul province, Sorobi district).

EMERALDS



- Emeralds are a variety of the mineral beryl.
- Emeralds come in many shades of green and blue green. There is a wide spectrum of clarity, dependent on the inclusions and fractures in the crystal. Clear stones with dark yet vibrant color command the highest prices.
- High quality emeralds sell in the range of \$1,500-7,000 per carat and can sometimes exceed \$25,000 a carat.
- World wide annual emerald sales account for \$1.9 Bn.
- High quality emeralds are only mined in 8 regions of the world: Columbia, Zambia, Brazil, Afghanistan (Panjshir), USA, Madagascar, Zimbabwe and Russia.

LAPIS LAZULI



- Royal blue lapis lazuli belong to the lazurite variety, one of the most beautiful opaque gemstones.
- Lapis is a sodium and aluminium mineral of a great complexity.
- Known as sapphires by the ancients, the stone occurs in only a few major deposits around the world, notably Lake Baikal in Siberia, Ocalle in Chile and in the Khoja Valley of Northern Afghanistan in Badakhshan.
- The Sar-e-Sang -or blue mountain- in Badakhshan province contains the most famous Lapis mines.

AQUAMARINE



- Aquamarine is a gemstone-quality transparent variety of beryl, having a delicate blue or turquoise color, suggestive of the tint of seawater. It is closely related to emeralds (same specie).
- It occurs at most localities which yield ordinary beryl, some of the finest coming from Russia.
- Small quantities are currently being mined in the area of Gur-Salak, in Konar Province.

TOURMALINE



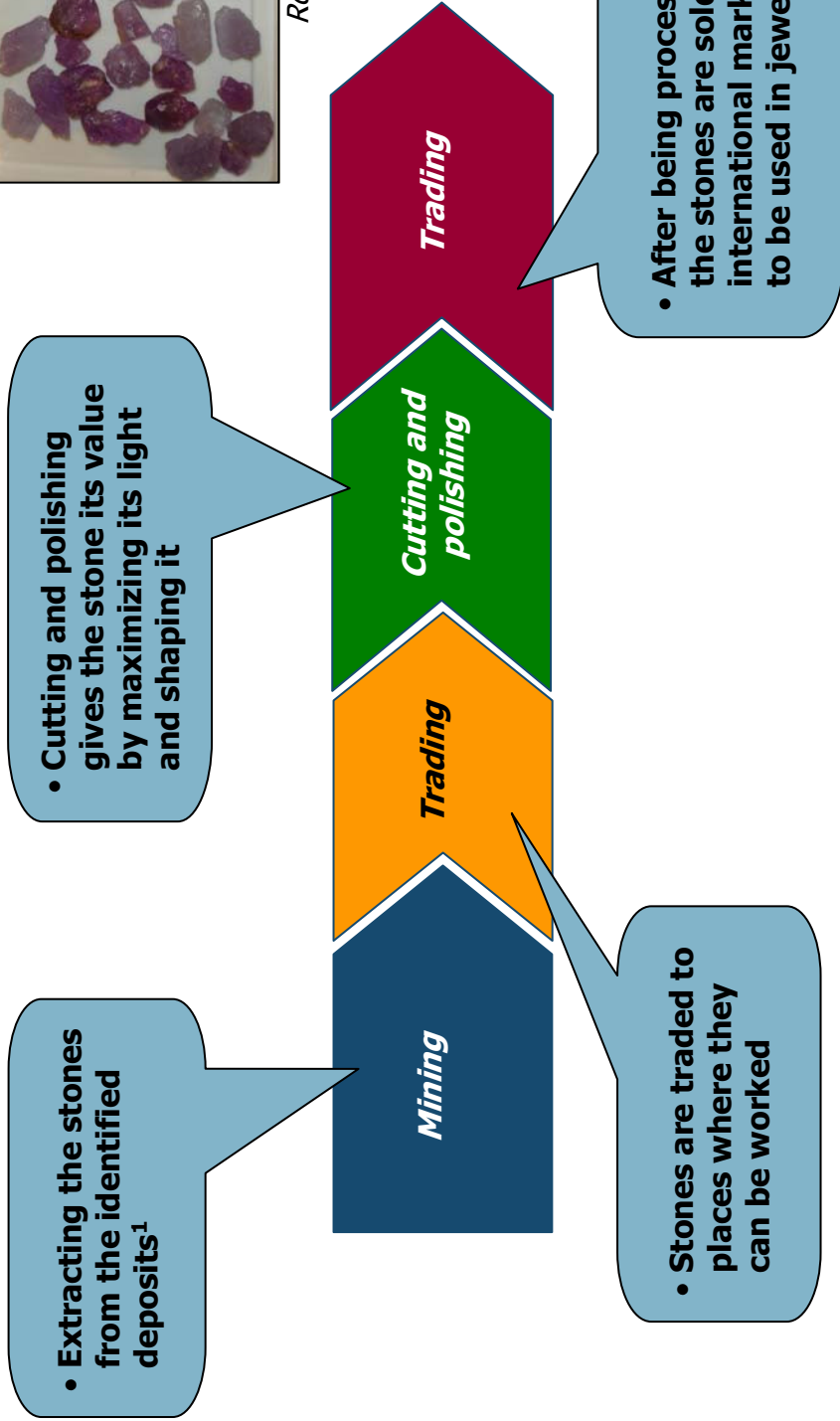
- The tourmaline mineral group is chemically one of the most complicated groups of silicate minerals.
- Tourmaline has a wide variety of colors: blue, green, red, yellow, pink etc. It is rarely colorless.
- Bi-colored and multicolored crystals are relatively common. Crystals may be green at one end and pink at the other, or green on the outside and pink inside: this type is called watermelon tourmaline.
- Deposits have been found in the Kolum District of Nuristan Province.

KUNZITE



- Kunzite is a pink to lilac colored gemstone, a variety of spodumene with the color coming from trace amounts of manganese.
- Source localities include Brazil, Madagascar, USA (North Carolina, California), Afghanistan, and Pakistan.
- The spodumene crystals from the Nuristan region are among the finest examples of this mineral ever found.

■ Mining as well as cutting and polishing are the two technical phases of gemstones processing.



¹: A "deposit" is defined as a group of occurrences large enough to be worked (also called a mine). A "find" is described as a single occurrence.

■ Conventional mining steps:

- **Prospect** to locate the deposit.
- **Explore** to find and then define the extent and value of ore located ("ore body").
- Conduct resource estimate to mathematically **estimate the extent and grade of the deposit.**
- Conduct mine planning to **evaluate the economically recoverable portion of the deposit.**
- Conduct a **feasibility study** to evaluate the total project and make a decision as whether to develop or walk away from a proposed mine project.
- **Create access to ore body.**
- **Extract** ore on a large scale.

■ In Afghanistan:

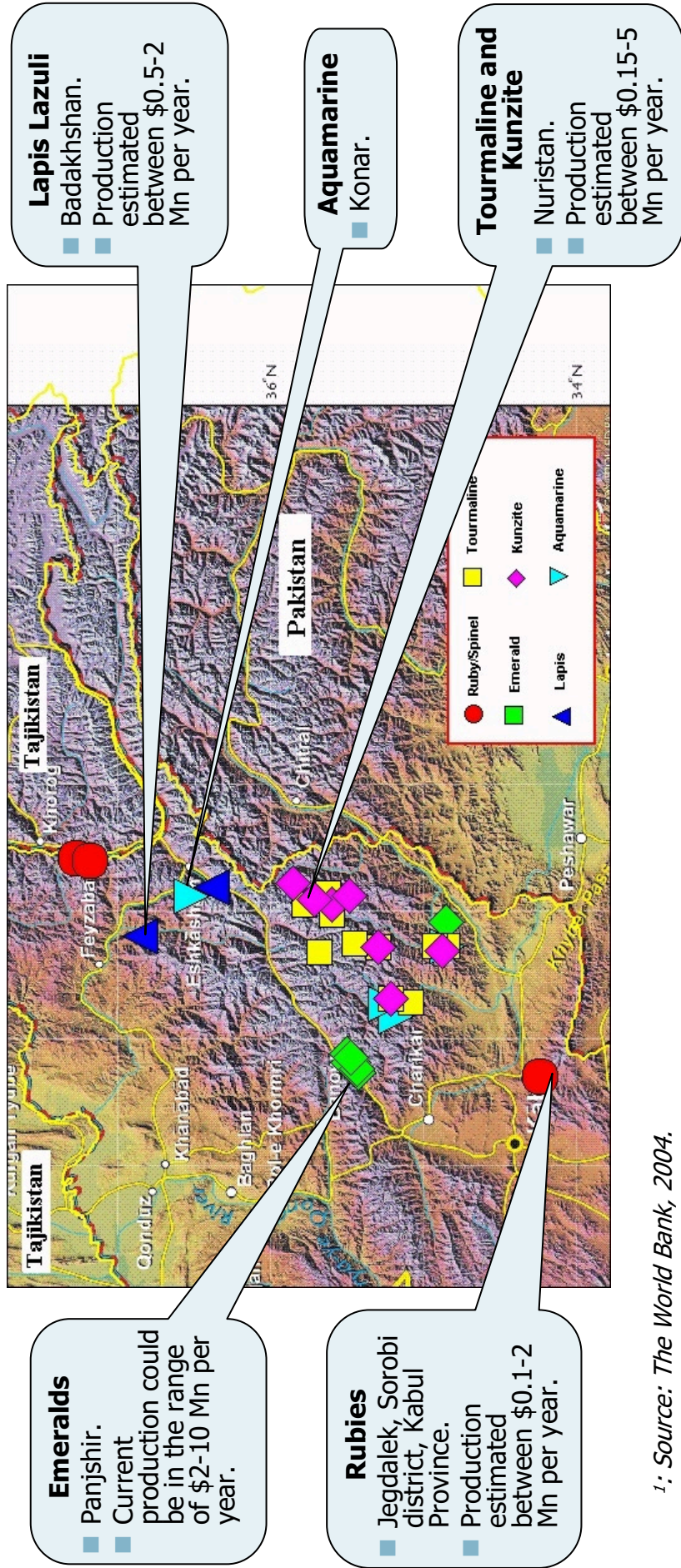
- Gem mining activities are done on a **small-scale basis** using basic techniques.
- The deposits are found and **exploited by local people.**
- **Blasting methods** are used to extract the stones which can damage the resources.
- Geological surveys have been conducted under the Russian regime but **no updated and accurate information exists on Afghan gem deposits.**



Miner in Panjshir

Gemstones Deposits and Mining (2/3)

- Afghanistan has a **large variety of gemstones**, precious and semi-precious.
- Deposits are still **largely untapped**.
- Estimated current value of gemstone yearly production in Afghanistan is **\$3 – 20 Mn¹**. Other sources cite much higher market sizes for gemstones production **up to \$160 Mn currently**, and a potential production of **\$300-400 Mn if resources were properly exploited²**.



¹: Source: The World Bank, 2004.

²: Source: Gary Bowersox, 2002.

- Ostensibly, the mines are under Government jurisdiction but **most active mining** and selling is done by independent miners, usually **local tribesmen**.
- So far, no gem mining license has been granted by the Government of Afghanistan¹ making any mining activity theoretically illegal.
- Given the instability of the current situation in Afghanistan, the gem-mining areas are difficult to access due to security reasons, especially in Nuristan province.
- In some of the regions where gem deposits can be found, the road network is very limited and many areas are inaccessible except by foot.
- **Deposits are generally exploited by a group of local people (4-5 persons)** sharing mining costs: each one is in charge of one duty (supply of explosives, labor, equipment, food, etc.).
- Dynamite is first used to identify where the gemstones are most likely to be found in the host rock. Then, using picks, pneumatic compressors and shovels, miners dig pits and tunnels to extract crystals or specimens.
- Due to extreme weather conditions in winter, some mines are closed for several months.
- **When gems are found, the explosive supplier has a priority right to buy the stones from his counterparts.** The stones are sold by the miners to traders coming to the mine areas.



Mine in Jegdalek

¹: Source: Ministry of Mines, Kabul.

■ The following cost structure has been drawn on the basis of **interviews of miners extracting emeralds** in Khenj Valley, Panjshir.

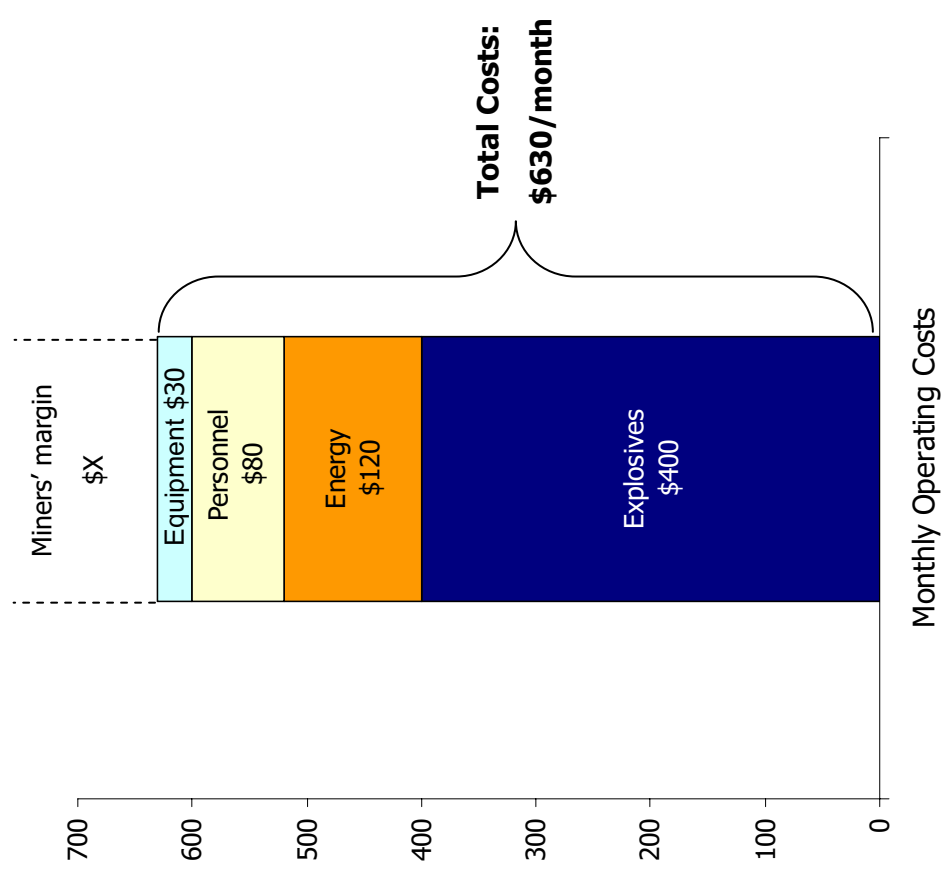
■ **Equipment is very basic** and consists of a small pneumatic drill with a compressor and a generator.

■ Teams of 4 to 6 miners are set up: they share investment and operating costs as well as the revenues from the gemstones they find.

Personnel costs are support staff (cook).

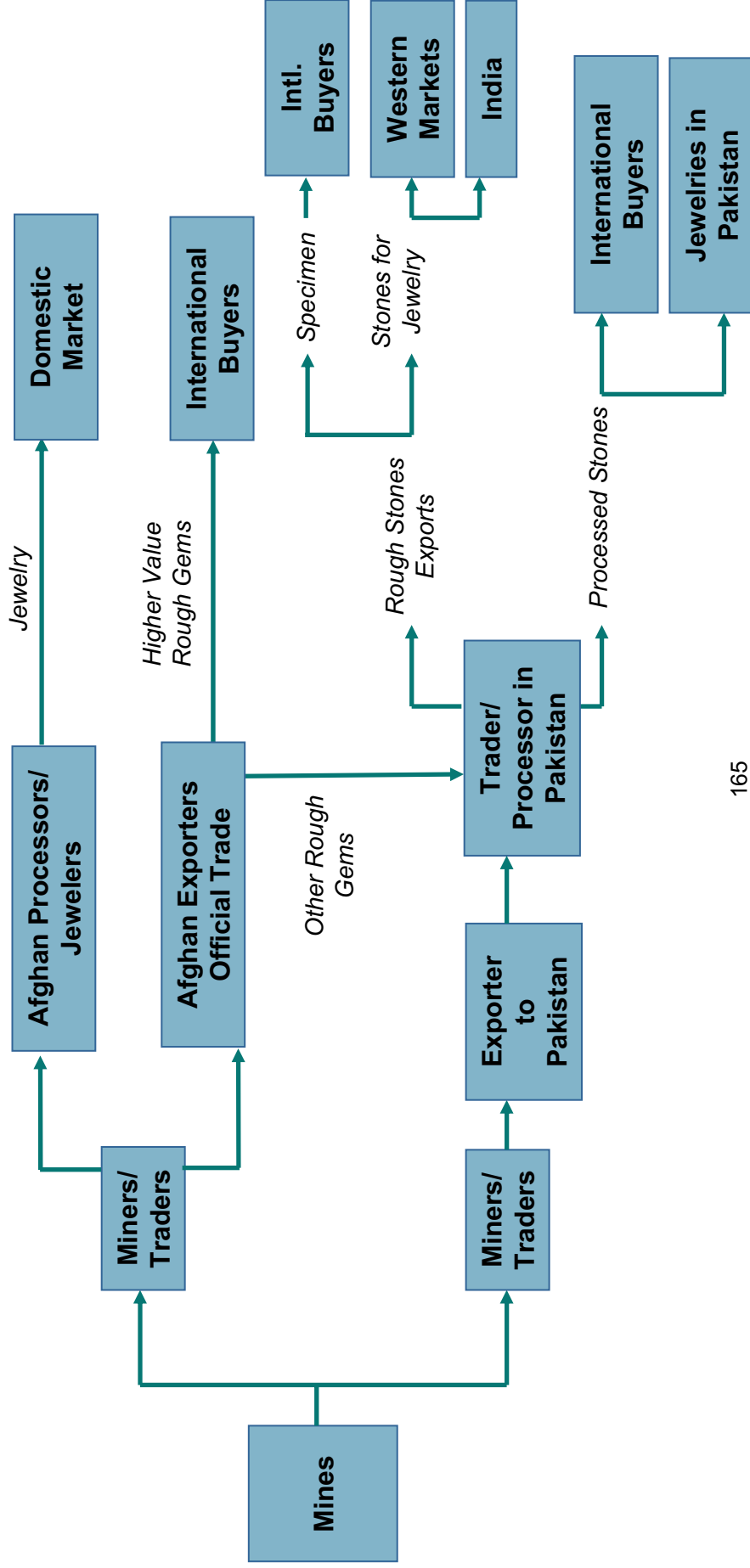
■ **Diesel to run the compressor and explosives are the main operating costs.**

Cost Structure of a Small-Scale Mining Activity



Gemstones Marketing Chain

- **The highest value gems mined in Afghanistan are sold rough** directly from Afghanistan (mainly Kabul) to international buyers.
- **Lower value stones are exported rough to Pakistan** where they can be processed or sold rough to India (lower value stones) or to other international markets (higher value stones).



- **Direct trade between Afghanistan and international gem markets started only recently** with the country's economic opening towards international markets.
- Most international buyers are independent traders not affiliated to any major gem company.
- There are 8 AISA registered gem traders in Afghanistan. They are mainly exporting through Afghan Emerald Company.
- **Afghan Emerald Co.**, created less than one year ago, is Afghanistan's main official gemstone exporter. The company has direct contacts with international buyers and markets other gemstone traders' goods against a 4% commission.
- Gemstones legally exported have their **value estimated by the Ministry of Mines** and a **15% royalty tax** is paid on this estimated value at the point of trade. An additional **export tax of 16%** is also charged. These taxes add up with unofficial taxes to a cumulative amount of almost 50%.

- Access to international markets is still very low from Afghanistan and a **large portion of the gem production is exported to Peshawar** where marketability of the stones is better and access to processing services (cutting and polishing) is available. The Karachi port is then the main point of export.
- Most Afghan traders are based in Peshawar and come to Afghanistan to buy the stones directly at the mine sites.
- The **stones are smuggled across the border into Pakistan**, primarily into tribal agencies such as Bajaur surrounding Peshawar. It is estimated that between 1,000 and 2,000 people are trading Afghan gems in Pakistan.
- **All gemstones exports from Afghanistan are rough stones.** A very small portion is processed in Afghanistan (only 30-40 processors) and transformed into jewelry to be sold on the domestic market to foreigners and upper-class Afghans.

- A few gemstones are used in their original form as decoration objects. However, most are **cut and polished for use in jewelry**.
- The two main classifications are gems cut as smooth, dome-shaped stones called ***cabochons***, and stones which are cut by polishing small flat windows at regular intervals and at planned angles: ***faceted stones***.
- **Stones which are opaque are commonly cut as *cabochons*** to show the stone's color or surface properties. Grinding wheels and polishing agents are used to grind, shape and polish the smooth dome shape of the stones.
- **Gems which are transparent are normally faceted**, a method which shows the optical properties of the stone's interior to its best advantage by maximizing reflected light. The facets must be cut at the proper angles, which vary depending on the gem's optical properties.



*Basic polishing machinery,
Namak Mandi, Peshawar*



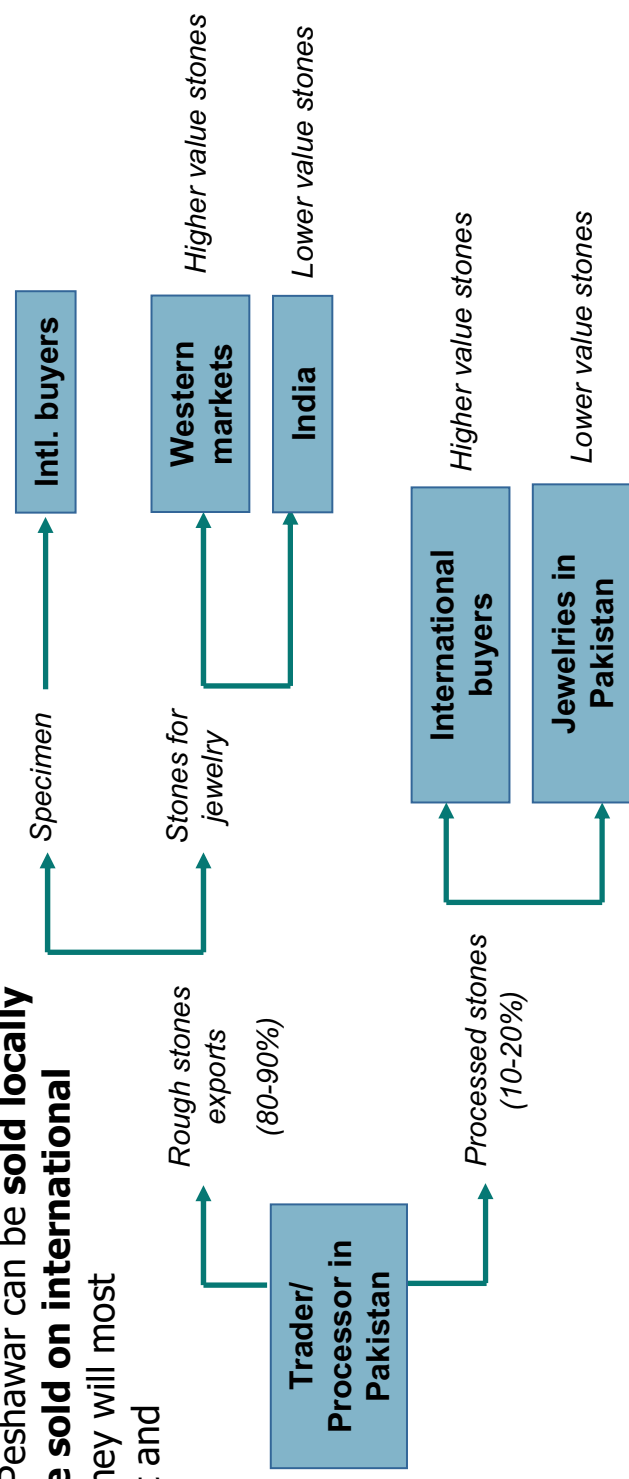
Polished Lapis Lazuli



Cut and polished colored gemstones

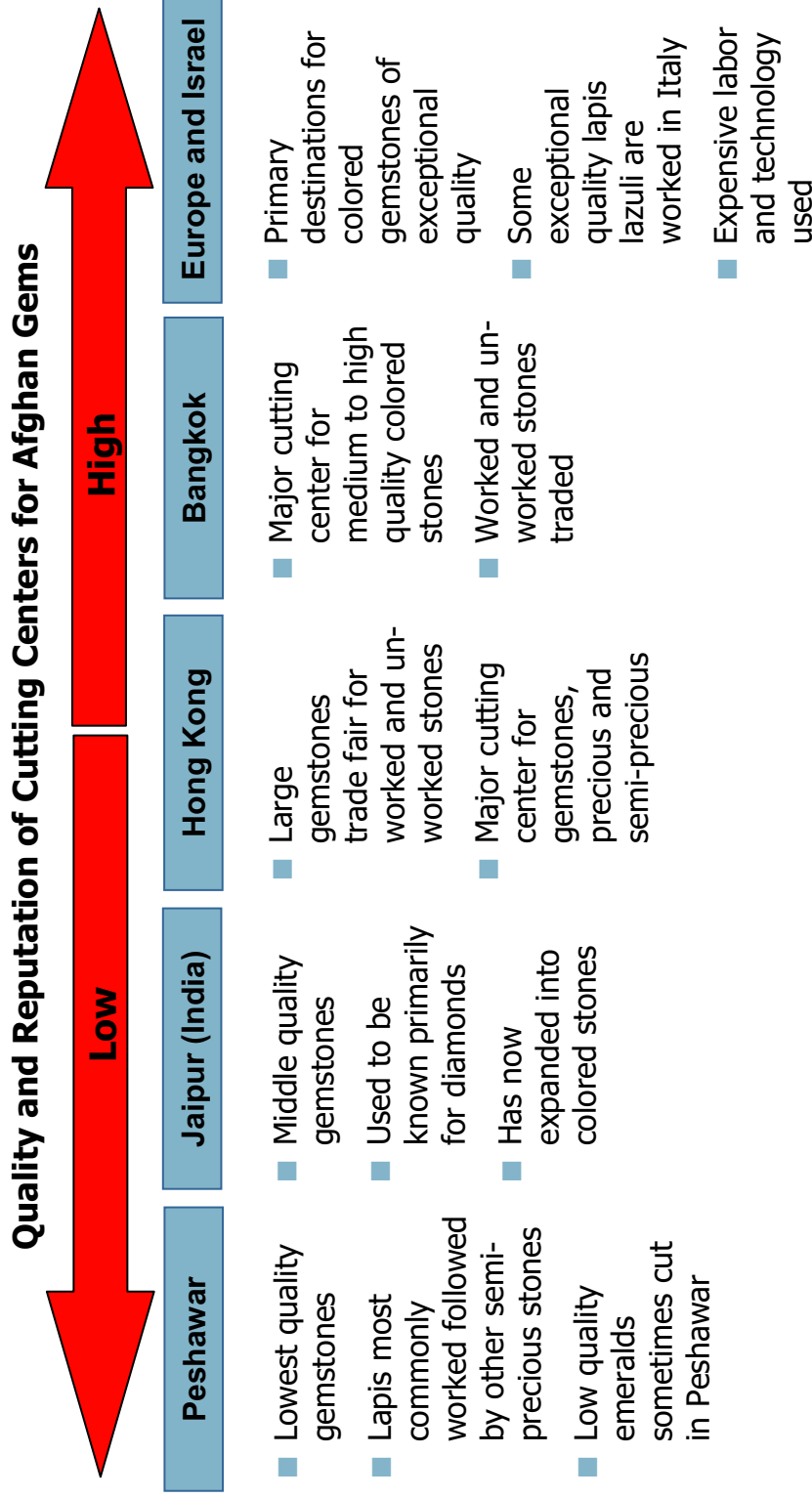
- **Peshawar** is the main market in Pakistan for gem **trading and processing**. As Pakistan’s main port, Karachi remains the main export point for gemstones.
- The industry generates as much as an estimated **20,000 direct and indirect jobs**.
- There are **300 to 400 traders** operating in Peshawar, only a small part of them being exporters and most of them also having small processing facilities.
- This market has long been living on Afghan imported gems. These last years, **import flows have been diminishing** following Afghanistan’s economic opening to other international markets. But Afghan gemstones are still accounting for 50 to 80% of the stones traded in Peshawar.
- **80% to 90% of stones exported from Pakistan are rough stones.**

■ Stones worked in Peshawar can be **sold locally for jewelry or be sold on international markets** where they will most probably be re-cut and re-polished up to international standards.



Gemstones International Markets (1/3)

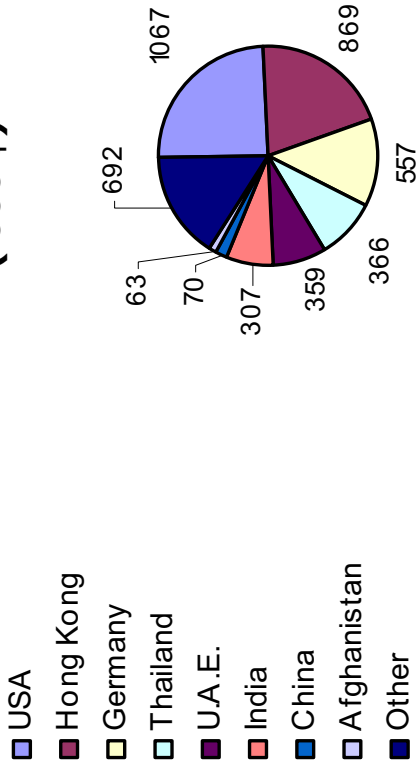
Common cutting centers for Afghan gemstones:



■ Most of Pakistan’s gemstones exports are Afghan stones.

Pakistani Exports of Precious and Semi Precious Stones

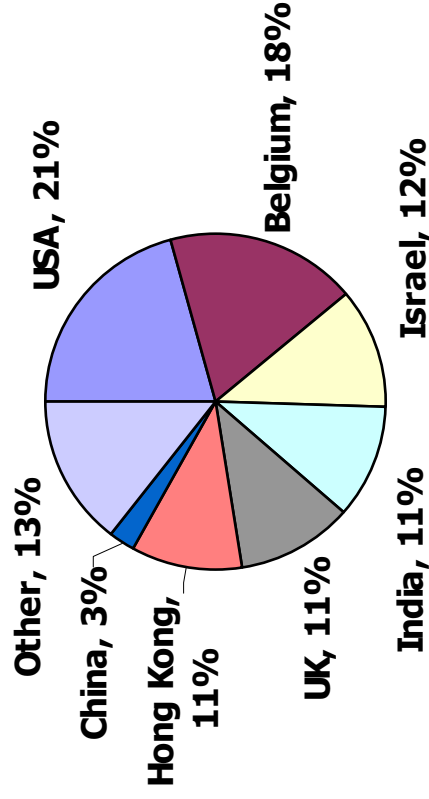
in 2005-6
(‘000 \$)



■ Emerald	■ USA, South East Asia and Japan.
■ Ruby	■ USA, Hong Kong, Canada, Singapore, Japan, Korea and the European Union.
■ Tourmaline	■ USA, Switzerland, Germany, Spain, France, Italy, UK.
■ Aquamarine	■ Japan, medium to high quality in Germany, Italy, Taiwan and USA.

- The world market for pearls, precious and semi-precious stones (un-worked and worked) represented \$83.5 Bn in 2005¹.
- United States is the largest importer with a 21% share of imports (\$17.5 Bn).
- Colored stones represent a significant share of this market since conservative estimates place the **world market for emeralds, rubies and sapphires at approximately \$5 Bn per year²**. Rubies are the most valued, followed by emeralds.

World shares of pearls, precious and semi-precious stones, unworked or worked (2005)

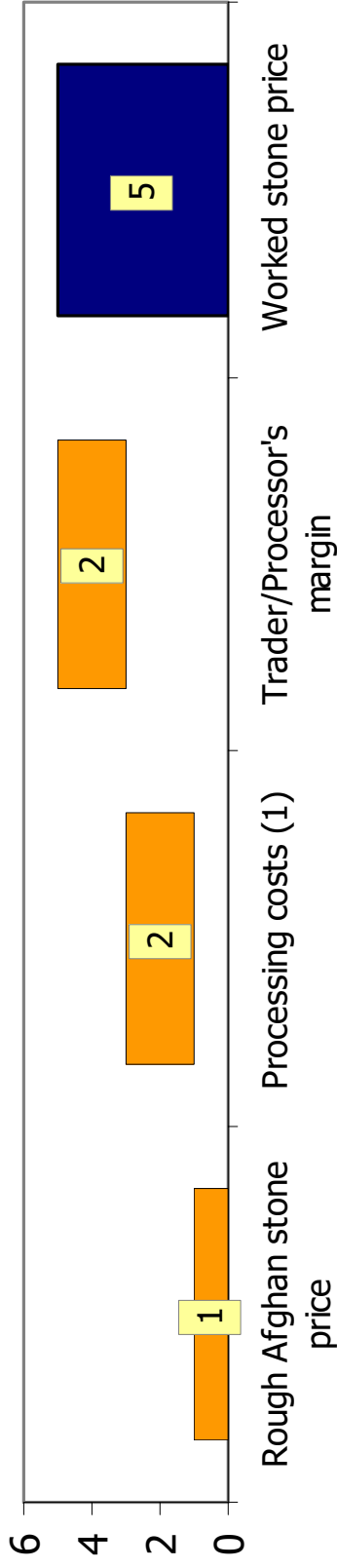


¹: Source: ITC based on Comtrade Statistics.

²: Source: True North Gems Co., colored stone mining company, Canada.

- This value chain serves as an illustration since all stones have their own value.
- **Rough stone price** is the price of the **stone sold to a local trader in Peshawar** and not at the mine site.
- Hypothesis is made that the **stone is processed and sold by the same person**.
- Worked stone price is the price offered in the Peshawar market to local and international traders.

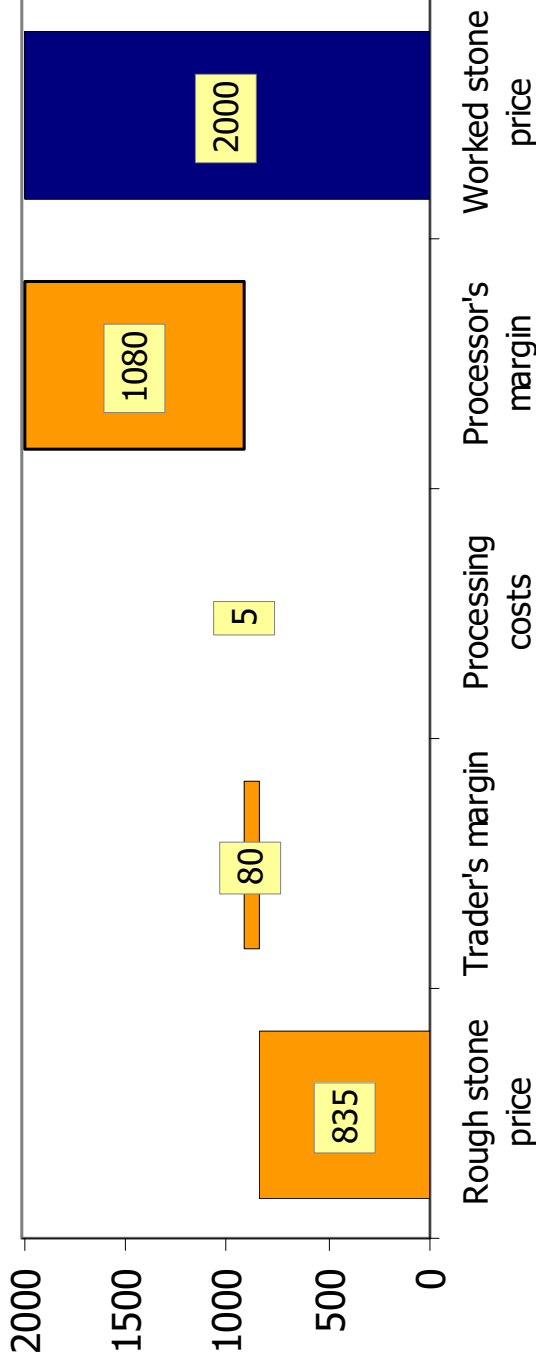
E.g.: Value Chain for one Kunzite Stone (\$/carat)



1: Processing costs are mainly electricity and labor costs.

- In some cases, processing the stone can increase its value ten times or it can as well break the stone.
- **Processing costs are based on Peshawar costs** which are supposedly well below international costs since the technology used there is very basic and not compliant with international standards.
- The same stone processed with modern techniques and machinery could sell at a much higher price. Rough stone price is the price in Peshawar market; final price is Peshawar market price for local and international traders, received by the processor/trader.

E.g.: Value Chain for a High Value Ruby Stone (\$/carat)

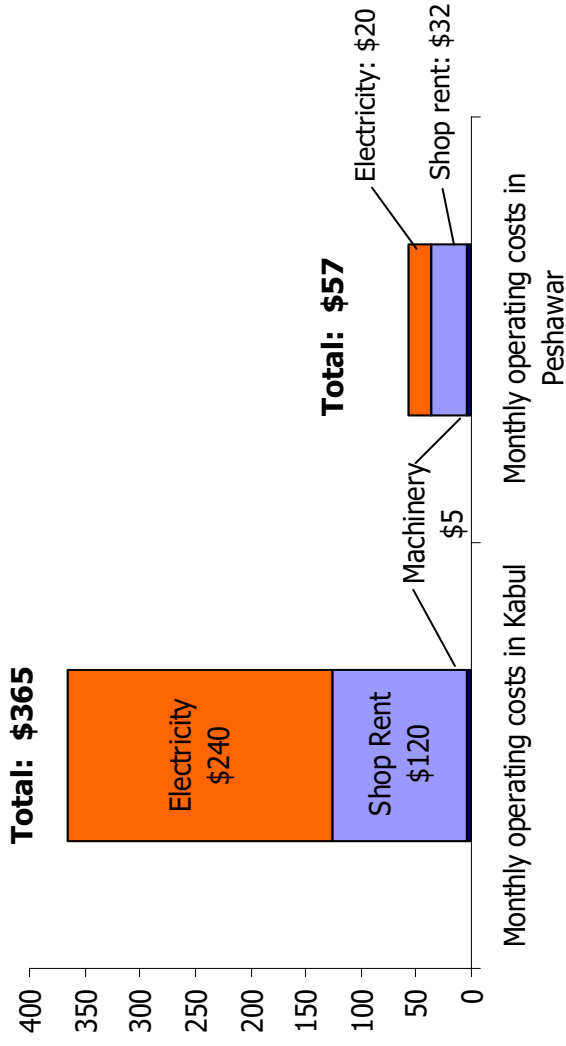


Example: Trader bought 200 carats of rubies for 10 Mn Rps (\$167,000). Trader's commission is ~10% of the buying price. Processing costs are 300 Rps per carat based on the rough stone's weight. After processing, only 120 carats remain which are sold 120,000 Rps/carat.

Gemstones Processing Costs

- The comparison of two gemstone processors based in Kabul and Peshawar illustrates the competitive advantages of Pakistan versus Afghanistan.
- **Labour costs** have not been included here since most of the interviewees were running family businesses with no fixed labour costs as such. It should be noted though that labour costs are ~50% higher in Afghanistan than in Pakistan for such activities.
- **Machinery used is the same** in both places.
- **Electricity (city power in Peshawar vs. individual generator in Kabul) and shop rent costs are the key elements of Pakistan’s competitiveness in processing activities.**

Operating Costs of Processing Workshops (\$/Month)



Market Dynamics

- Traditionally, **USA, Europe, Israel, India** and most recently Thailand are the main international markets for gemstones.
- **Dubai is emerging as a major trading center** for the Middle-Eastern markets but more so for selling rather than for processing.
- Although some final consumers will always demand products cut in locations known for their technological sophistication such as Israel or Germany, labour is scarce and expensive in these places and **more competitive places have a strong growth potential.**
- There is a recent public awareness on conflict-free stones in Western Countries, as consumers are trying to buy stones of which the trade has not supported civil war, terrorism or brutality against local populations (e.g. Kimberley process to track origin of all rough diamonds entering a participating country).

Competition Level

- **Afghanistan produces among the most valuable stones in the world.**
- Pakistan is developing its gem mining activities and has good quality emeralds.
- **Competition lies mostly in the processing phases.** Currently Afghanistan has very little processing expertise. USA, Europe, Bangkok, Sri Lanka, India and Pakistan are in decreasing order the places that have the most developed stone processing industry.
- Trade centers which can **certify stone value and origin** manage to attract international buyers making the **transactions more secure.**
- **Existence of a centralized market in Peshawar** where processing facilities are available facilitates trade.

Regulations

- A new **Minerals Law** was adopted in Afghanistan in **July 2005**.
- Work is due to start soon on the **preparation of the regulations**, which will provide more detail about the processes to apply for mineral rights.
- Mineral rights are divided into (i) licenses issued for minerals, industrial minerals, ornamental stones and gems and (ii) authorizations issued for quarry and construction minerals.
 - **Exploration licenses** can extend for up to 250 km² and are issued for an initial period of 3 years with two renewals of three years. Holders of exploration rights have the automatic right to apply for an exploitation license if they discover an economically viable deposit.
 - **Small-scale exploitation licenses** can also be granted for small mines using semi-industrial methods. Prospecting, which is defined as surface geological exploration and aerial or remote sensing, does not need a mineral right but must be registered with the Ministry.
 - **Authorizations are also issued for artisanal exploitation** which may cover mineral substances including metals and gems. Trading and exporting minerals, when not carried out by the producer, also requires authorization from the Ministry of Mines.
 - The rate of mineral **royalties** determined by the law is **15% for gemstones**.

Support Agencies

The World Bank:

- The World Bank study on “Mining as a Source of Growth” in 2004 resulted in technical assistance on the new mining law which sets up a regulatory framework in favor of private sector investments and conforms international mining law standards.

British Geological Survey (BGS):

- BGS along with the US Geological Survey started a collaborative project with the Afghan Geological Survey.
- Capacity building, geological mapping and evaluation of mineral resources services are provided.
- Creation of a geological and mineral database as well as a geographical information system.
- A mining cadastre should also be established.
- Throughout these programs, training will be provided to Afghan geologists.



*Traders in Namak
Mandi Market,
Peshawar*



Gemstones Corporate Environment (1/2)

Labour

- **Expertise is needed to mine** the deposits without damaging the stones and the environment.
- **Small-scale mining activities are relatively labour-intensive** activities.
- **Specific skills are required to be able to cut and polish** the stones, especially high value ones.
- Know-how to develop a jewelry industry using stones is important to develop the full range of products related to gemstones.

Raw Materials

- High quality stones are available in Afghanistan.
- **Good care during exploitation phase is needed** in order to conserve all the stone quality and get as much value from it.
- Important volumes of stones can be extracted with only one piece being worth a large amount of money.

Gemstones Corporate Environment (2/2)

Machinery

- **Machinery to exploit mines in Afghanistan is very basic.** Blasting techniques are used to open new mining sites which can harm the deposit quality and the environment.
- **Machinery used for cutting and polishing is not very sophisticated** and is produced in Pakistan.
- Machinery used to work the stones according to international standards are also easy to access but require larger investments and expertise from the workers.

Capital

- **Current mining activities are not capital-intensive** since machinery used is traditional. Explosives represent the highest costs.
- Groups of miners are formed to finance mining costs.
- Processing machinery similar to that used in Pakistan costs between \$150 and \$1,000.

Strengths

- Variety of precious and semi-precious stones available in Afghanistan.
- High quality of certain varieties, including among high value stones.
- Many Afghans are already active in this industry and interested in legalizing their venture.

Weaknesses

- Lack of basic expertise in mining techniques.
- Mining regions are remote and often located in insecure areas and lack basic infrastructure.
- Some areas may still be contaminated with mines and unexploded ordinances.
- Local cutting and processing skills are not developed and remain well below international standards.

Opportunities

- Efforts towards formalization of mining and trading activities are positive and should be accelerated.
- Invest in basic training, technology and surveying of gem extraction.
- Participate in trade fairs and organize one in Afghanistan.
- Opportunities for new market positioning as some foreign mines are decreasing production.
- Create a gem institute to provide certification services and cutting and polishing training.

Threats

- Resistance to legalization efforts from local political players.
- Competition from Pakistan which is also developing its own gemstone industry, including processing, while it already captures a significant portion of Afghan gemstone trading.
- Labor safety on the mine sites.
- Environmental impacts of the mining activities.
- Degradation of security conditions in the mine areas could stop mining activities.

- The strategy proposed to develop the gemstones industry in Afghanistan is based on 4 main strategic objectives:

- 1. Foster an enabling environment.**
- 2. Improve mining methods and conditions.**
- 3. Support processing activities of gemstones.**
- 4. Promote Afghan gemstones' quality and origin.**

Gemstones

Strategic Objective 1 (1/3)

- **Strategic Objective 1: Foster an enabling environment.**
 - **Formalization of existing mining activities:**
 - The **design of clear exploration and exploitation rights and titles** should be supported through the new regulations which are currently being drafted. They should include **specific provisions for small-scale and artisanal mining activities**.
 - Technical assistance to the Ministry of Mines is funded through the **Sustainable Development of Natural Resources Project of the World Bank**. This includes support to set up a new mining regulation system.
 - **Mine resources are still a source of funds for local commanders** (E.g.: Mudjahidin resistance movement used to be partly funded by the 10% tax on extracted emeralds in Panjshir mines). With the formalization of the trade, royalty revenues should be redirected towards the Central Government which can create a conflict of interest with local commanders.

Snapshot: Small Scale Mining Regulations In Madagascar

- The **Mining Code** has recently taken into account the requirements of **small-scale miners**.
- Madagascar had a system in which mineral rights were allocated in squares of 2.5 km by 2.5 km, but someone mining gemstones with a pick and shovel usually does not need or desire that size of a claim. Also, the **costs to hold those rights are significant for a small-scale miner**.
- The **legislation in Madagascar was adapted and now allows smaller blocks** of 625 m by 625 m within larger blocks so that large-scale explorers and small-scale gemstone miners may coexist.

Gemstones

Strategic Objective 1 (2/3)

- **Creation of a Gemstone Trading Centre including a Gemstone Laboratory**, which would assess the authenticity, quality and value of the stones. The Trading Centre should also host a representative office of the Ministry of Mines to collect taxes and provide administrative assistance to foreign buyers.
 - Centralizing gemstone trade in a dedicated **Gemstone Trading Centre** would give more transparency to the trade.
 - This Centre could be developed from the existing **Afghan Emerald Company** which has experience in the sector and is willing to develop transparency in the gemstone trade. **Technical assistance to develop this centre and manage it will be needed.** *Estimated cost of a technical expert per year: \$200,000 – 250,000.*
 - The **Sustainable Development of Natural Resources Project of the World Bank** has some funds for a **small-scale mining expert** who could work on the formalization of trade as it has been identified as a key need for the development of the sector in Afghanistan.
- Valuation and certification services provided by a **Gemstone Laboratory** to traders and buyers would serve as an incentive to formalize the trade.
 - It would give sellers a fair value for their goods and provide assurance to foreign buyers. The **Gemstone Laboratory** could be financed through a service charge on royalties. (E.g.: A 0.25% voluntary service charge is collected from Sri Lankan gemstone exports to finance the creation of a Gem Laboratory). *Estimated cost: \$500,000-1 Mn¹.*

¹: Estimate based on the world class laboratory set up in Sri Lanka.

- **Promote a new licensing mechanism for traders**, regulated by the Gemstone Trading Centre, in order to certify traders' expertise in Gemology and enhance transparency in their activity.
 - Traders would follow a training program at the Gemology Institute (see Objective 3) which should be made compulsory to obtain a trading license giving access to the Trading Centre facilities.
- **Foster the creation of incentives to trade formalization** by reforming the export procedures and tax regulations. Afghanistan will have to set up conditions that are at least equivalent to Pakistan's to attract traders. They should include:
 - **Revision of the royalty tax level currently set at 15%:** lower level of tax should be implemented for the semi-precious stones (E.g.: In Pakistan, royalty taxes are of 10% on precious stones but only 3% on semi-precious stones).
 - **Tax holidays on export duties** to promote exports. Pakistan's export tax on gemstones is 2% which is very attractive compared to the 16% duty on Afghan gemstone exports.
 - **Simplify export procedures** to shorten the process which can currently take up to three weeks whereas it takes only a few days in Pakistan.
 - **Provide letters of credit to exporters.** Transparency of the trade system and value certificate from the Gemstone Laboratory on the gemstones traded should serve as an element of comfort for the banks to grant letters of credit.

■ **Strategic Objective 2: Improve mining methods and conditions** in order to develop larger scale mines and preserve gemstone quality through proper extraction techniques. Investments to upgrade the mines could **improve production** value **but also working and safety conditions** in the mines.

- One of the main improvements could happen in the **extraction techniques**:
 - Miners currently use dynamite to excavate the mountain which can damage the structure of the gemstones due to the violence of the blasts. Using **other kinds of explosives** (grenades, explosive fertilizers) or drilling machines could do less harm to the minerals.
 - A **Gemology Institute** (see Objective 3) should provide **technical assistance** on extracting techniques which protect the gemstones' quality. This could be done through workshops at the mine locations in Konar, Nuristan, Badakhshan, Panjshir, etc.

Snapshot: Institute of Gemologies of Madagascar

- A **Gemology training centre**, licensed by the Gemology Association of Great Britain, began teaching courses in **October 2004**.
- One-day **workshops are organized throughout the country for people who are mining gemstones**, in order to teach them what to look for and how to gain more value from their mining activities.
- There are also two different curricula:
 - 8-month residence course aimed at **training gemology specialists** who will train others.
 - 2-week intermediate classes aimed at **production gemologists and people who trade gemstones**, to give them the basic information necessary to run their businesses.

Gemstones

Strategic Objective 2 (2/4)

- Potential partners for the implementation of these recommendations:
 - **Gary Bowersox**, under the name of his company GeoVision Inc., has worked on a proposal to create an NGO in Afghanistan for the exploitation of the country's gemstone deposits. One aspect of his **proposal is to set up a scientific and educational institute** to help Afghans exploit these resources. Activities of this Institute would cover among other subjects how to operate mines, especially in a safer manner, and equipment needed.
 - The **British Geological Survey** is providing capacity building services to the Afghan Geological Society. Their aim is to build information on Afghanistan's mineral deposits providing technical assistance to develop laboratories, archives, libraries and museums. Information on deposit locations will also help the development of mining activities.
 - Such international experts **will need to build local support** to ensure the success of their project. The key success of a technical partnership will lie in the **participation of the local communities** doing on-site trainings and educating miners on the benefits of improved mining methods.
 - There could be a **strong reluctance from local miners to see foreigners investing in this industry**, and close attention will have to be brought on this issue.



*Ruby Mining in Jegdalek,
Sorobi District, Kabul*

- **Equipment up-grading** would also be needed. **Coloured gemstone mining does not typically require important capital investment in equipment**, relative to diamonds.
 - **The gemstone sector is a niche industry run by small groups and families.** Large international mining companies are interested in large scale mining projects in other commodities (metallic, industrial minerals, etc). Numerous listed groups (De Beers, BHP Billiton, etc.) are exploring for a range of minerals globally, but none of them are prospecting for gemstones in Afghanistan.
 - Small investments such as replacing wheelbarrows by **conveyor belts** to clear the tunnels after the blasting would ease the work (small-scale mines can have 100 meter long tunnels). Working conditions are extremely hard due to the dust, given that small pneumatic drills with compressors are used to work the gemstones out of the rock once the tunnels have been cleared after the blasting. **Provision of masks**, which can be found on the market, would **improve health conditions at the mine sites.**
 - **Support for investments** in new machinery should be implemented. The **Ministry of Finance** could enforce tax holidays on mining investments to promote the development of exploitation with higher standard equipment.



Emerald Miners, Khenj Valley, Panjshir



Team of miners interviewed

- **Captive power sources** to supply the largest mines with high energy needs should be developed, as well as the use of locally available energy sources for smaller mines (E.g.: look into feasibility of setting up small hydro power units, solar panels, etc.).
 - **Lack of reliable infrastructure:** road, energy, water systems, etc. remain weakly developed whereas mining activities are **energy intensive** especially if more sophisticated machinery is introduced. (E.g.: Emerald mines in Khenj in the Panjshir Valley are accessible after a three hour walk several thousand feet straight up in the mountain; the miners use small generators for their electricity supplies and water sources are down in the valley).



Trail to Badakhshan Lapis Mine

■ **Strategic Objective 3: Support processing activities** of gemstones to keep value-adding activities in the country and develop a gemstone processing expertise.

- Create a **Gemology Institute** to provide training on **cutting and polishing** methods:
 - This centre would, in a first stage, provide training on basic methods using machinery not involving any high technology. The evolution towards **more sophisticated technologies** will have to be reached in several steps since this **requires much higher investments and expertise**.
 - The gemstones processed would first be lower-end quality gemstones while the higher-end will be sent to places mastering the newest technologies (Thailand, Israel, European countries).
 - The training could be integrated in the traditional public education system (Polytechnic University of Kabul). The Government would in the end handle the entry level training and **the Gemology Institute would focus on high-end vocational training**.
 - The main challenge for the Afghan processing industry will be to **improve its standards** in order to be able to attract rough stones from other countries to be processed in Afghanistan (E.g.: Tajikistan) and **increase its industry base**.
 - **Partnerships with other training centres** should be set up to benefit from their experience and trainers (E.g.: Sri Lanka, Pakistan, etc.).
 - The **Gemology Institute** could be set up as a **non-profit organization** with representation from the Ministry of Mines, the Export Promotion Agency of the Ministry of Commerce and Industries and the Gemstones Business Association (see Objective 4) which could invest in this facility.

- Set up a **facility, within the Gemology Institute, to host small scale gemstone workshops** and provide them with direct access to technical assistance and create economies of scale on operating costs, especially electricity supply.
 - The gemstone processing industry has **high energy requirements**. Given the weakness of Afghanistan’s electrical infrastructure, the Afghan industry’s competitiveness is severely impacted.
 - **Gemstone workers** could fund part of the Institute costs paying a minimum rent for the workshop at their disposal in that Institute.

- Cost assessment based on the **construction of a training centre (100 trainees per year) and 30 workshops in Kabul: \$310,000-350,000.**

Investment needs for a Training Centre

- **Land and Building:** \$200,000
- **Equipment (30 machines):** \$70,000-\$100,000
- **Operating costs including electricity:** \$40,000-\$50,000

- **Promote the implementation of tax incentives to stimulate cut and polished stone exports** as soon as the processing industry is mature enough.

Gemstones

Strategic Objective 3 (3/3)

Snapshot: Gem and Gemology Institute of Peshawar, Pakistan (GGIP)

- Initial investment of \$830,000 to set up the Gem and Gemology Institute of Peshawar which owns around 80 machines to train processors.
- The GGIP is supported by the Ministry of Commerce of Pakistan which subsidizes the \$20,000 - 25,000 yearly budget (16 people working permanently and occasional trainers coming from different countries).
- 1,354 people have been trained since the opening of the GGIP in October 2001.
- The GGIP is working on a partnership with AIGS (Asian Institute of Gemological Sciences) of Bangkok to increase the processing level up to international standards.
- Training fee is minimal: \$10 per month per trainee.



*Gemology Training
Centre operated by the
World Bank in
Madagascar*



*Gemstone processing
machinery in Peshawar's
Gem and Gemology
Institute*

- **Strategic Objective 4: Promote Afghan gemstone quality and origin** since a large majority of the stones are now smuggled into Pakistan and exported as Pakistani stones.
 - Build an “**Afghan Brand**” for gemstones. Even though the quality of the stones is more important than its origin, gems from highly regarded mines have strong “brand names” (E.g.: Rubies from Mogok in Myanmar, Emeralds from Muzo in Columbia, etc.).
 - Afghanistan has to differentiate its gemstones through a **product positioning strategy based on quality standards following the CIBJO¹ international standards** for grading of coloured stones, and create Afghan brands for the main gemstones: “Afghan Lapis”, “Afghan Emeralds”, etc.
 - **Lapis Lazuli from Afghanistan already have an international reputation** since the country hosts one of the world’s largest and highest quality deposits in Badakhshan.
 - **Marketing strategies** will have to be differentiated according to the different gemstone types and qualities. The lowest quality of stones could be marketed in lower-end markets (India) while the best specimen and highest quality stones could be promoted in higher-end markets such as Europe.
 - Promotion of an **Intellectual Property Law which would protect indications of geographic origin** (E.g.: “Afghan gemstones”) could be initiated.

¹: *International Confederation of National Jewelry Trade Organization.*

Snapshot: Ceylon Sapphires' Marketing Strategy in Sri Lanka

- Sri Lanka has always promoted the fact that it is a source country for gemstones.
- Further strategic thinking on branding and value addition through the use of the “**Ceylon Sapphire**” brand was heavily promoted.
- Industry representatives have also carried the message of origin and country branding in trade fairs through presentations at the **International Colored Gemstone Association Conference** in Jaipur, in 2003 and Bangkok in 2005.



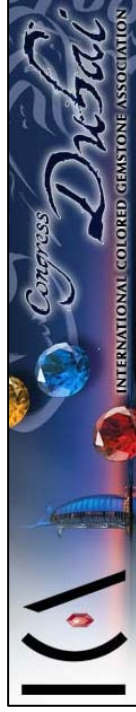
Ceylon Sapphire

- In 2004, Sri Lanka passed an **improved Intellectual Property Law** which **protects indications of geographic origin**, such as Ceylon Tea, Ceylon Sapphire, etc.

Gemstones

Strategic Objective 4 (3/4)

- Promote Afghan gemstones through **Gemstones Trade Fairs**:
 - **Afghanistan should be represented at the main international trade fairs and exhibitions** (Bangkok, Dubai, Europe, US) to present Afghanistan’s most valuable gemstones. This would be an opportunity to further develop direct contacts between Afghanistan and international buyers since so far, most of the international trade for Afghan gemstones is done from Pakistan.
 - **A yearly International Trade Fair should also be organized in Kabul** to promote Afghanistan as a producing and trading centre.
 - Commercial and investment promotion agencies like the **Export Promotion Agency, Afghan Chamber of Commerce or AISA** should partner to organize a Gemstone Trade Fair in Kabul and support the participation of Afghan traders in international fairs and exhibitions.



*International Colored Gemstone Association (ICA)
Congress in Dubai*



Bangkok Trade Fair

- Creation of a **National Gemstone Trader Association** to promote Afghan gemstone brands and exports:
 - Traders should join efforts to **promote the specificities of Afghan gemstones**.
 - This would also increase their **lobbying power to stimulate the creation of a more favourable environment**.
 - **A common strategy will need to be agreed upon between the Government and the National Gemstone Trader Association** to promote gemstone exports through coherent **export policies** (export duty reductions) and **trade promotion efforts** (fast track export procedures).



Lapis Lazuli



Emeralds



Rubies

Gemstones Potential Impact (1/2)

Economic	Institutional
<ul style="list-style-type: none">■ Gemstone production could amount to \$160 Mn if properly exploited¹.■ The gemstone mining industry could then represent as much as 2% of the country's current GDP.■ The development of gemstone sales to international markets will be a source of hard currency for the country's economy.	<ul style="list-style-type: none">■ Formalization of gemstone mining and trading activities will promote transparency and good governance within the sector.■ Royalties and taxes could generate between \$5 Mn-60 Mn² to the Government based on the current taxation regime.■ Capacity building at the Ministry of Mines level to monitor mining and trading activities.

¹: Source: Gary Bowersox, 2002.

²: Based on \$20-160Mn production with 15% royalties and 16% export tax.

Gemstones Potential Impact (2/2)

Social

- The industry could generate as much as **30,000-50,000 employments¹**, miners, processors and traders included.
- **Capacity building and human resources development** building up expertise on gemstones from mines to markets.
- Implementation of new regulations on small-scale mining will **improve governance at the local level.**

Environmental

- Improved mining techniques will mitigate the impact of mining activities on the environment. (E.g.: softer extraction techniques).



¹: The industry could generate as much as 30,000-50,000 employments, miners, processors and traders included. This estimate is based on the current number of miners and the number of employments generated by the trading and processing activities of Afghan stones in Pakistan.