



Miners wash the gravel extracted from the shallow pit looking for gems. (Photo: Cynthia Unninayar)

# Sapphires & More – An Overview of Gemstone Mining in Sri Lanka

*A beautiful piece of gemstone jewellery starts in a mine somewhere in the world. And, when it comes to colourful sapphires, chances are fairly high that this starting point is in Sri Lanka.*

**By Cynthia Unninayar**



**A**fter the very successful 2015 ICA Congress in Colombo, Sri Lanka in May, more than 50 participants set off to explore some of the nation's major sapphire mining areas over the next week. But sapphires are not all that we found.

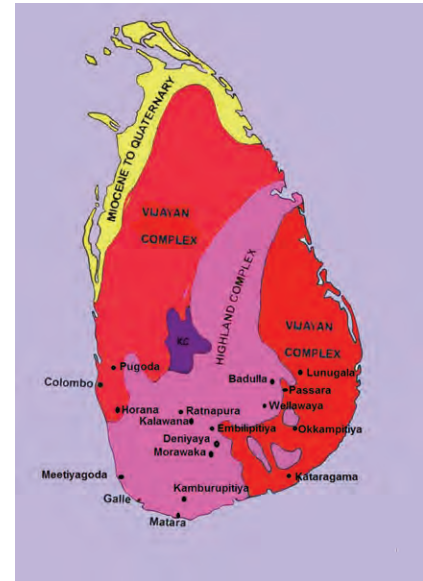
The island of Sri Lanka is oval in shape, and located to the east of the southern most point of India. It measures 402 km in length and an average of 224 km in width. Geologically, it is made up of pre-Cambrian metamorphic rock, divided into three major complexes: Highland, Eastern and Western Vijayan, and Southwest group. The majority of the gem fields are in the Highland complex, a wide belt running from the bottom left of the island through its centre to the northeast.

Most gem deposits are alluvial, meaning they are found in gravel that is washed down from the mountains and deposited in the flood plains of rivers and lakes. And, most are located in agricultural lands, mainly paddy fields. Although

more than 130 varieties of gemstones are exported from Sri Lanka, sapphires account for more than 85% of the value of these exports.

A series of government regulations ensures that food production is not hampered and the environment is not damaged, while at the same time generating a livelihood for the nation's miners. Using the land for the dual purpose of food crops and gem mining ensures that the lands are restored for agriculture after mining has been completed. All miners must obtain government licences. Some mine the land themselves or hire others to work for them. A miner's work is long and hard, with no guarantee of success. In some cases, the miners are paid only a few dollars a day, while others share in the profits when the stones are sold. Women and children are not permitted to participate in mining to avoid exploitation.

According to the National Gem and Jewellery Authority (NGJA), Sri Lanka has around 6,000 active mines, with 40,000



The major gem mining areas in Sri Lanka are in the Highland Complex. (Photo: Dr. Gamini Zoysa)



Mechanised mining is no longer allowed in Sri Lanka, but some licence holders have permits that predate the current law. Using an apparatus consisting of a washing basin, trommel, and jigs, the gems are collected in pans beneath the jigs. A scene from the Elahera gem fields. (Photo: Cynthia Unninayar)



In artisanal mining, the miners transfer the gem material in baskets from one person to another from the bottom of the wide pit to the top at the Elahera gem fields. (Photo: Erica Courtney)





A woman polishes moonstones at a workshop near the mine. (Photo: Cynthia Unninayar)



Martine Lavoie, of Montreal-based Pierres de Charme, descends more than 25 metres down a shaft in the Ratnapura area. (Photo: Nilesh Shah)

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**By law, all mining is artisanal. Mechanised mining is prohibited, even though some mines still have permits that predate the current law, and can thus continue operations until these licences expire.”**



Members of the group look into a shallow pit in the Elahera gem fields. (Photo: Shreyas V. Gotha)

men working underground daily. By law, all mining is artisanal. Mechanised mining is prohibited, even though some mines still have permits that predate the current law, and can thus continue operations until these licences expire. Regardless of the type of mine, the law also requires licence holders to restore the land back to its original state after mining has stopped. The NGJA holds their monetary deposit until this is done.

After a day's journey on small roads, we arrived at the alluvial gem fields in the Elahera region of central Sri Lanka. Although mining dates back to the 12th century, commercial operations began only in the 1960s. This area is estimated to produce up to 35% of Sri Lankan gemstone exports, and over the past 60 years, discoveries of large sapphires have been recorded.

Typical of residual types of gem beds,





The group was given a warm welcome by gem dealers in Beruwala. (Photo: Cynthia Unninayar)



Sapphire crystals from a mine in the Ratnapura area. (Photo: Erica Courtney)



Group member, Shreyas V. Cotha, executive director of Bangalore-based C. Krishniah Chetty & Sons, stands at the top of a shallow pit in the Ratnapura area. Water seepage is a constant problem and must be pumped or bailed out. (Photo: Cynthia Unninayar)

these deposits occur mainly along the Kalu Ganga and Abanganga river systems, and include blue sapphire, ruby, chrysoberyl, garnet, spinel, tourmaline, zircon, and brownish to whitish corundum, generally ranging from 1 cm to 10 cm in size.

Mining methods in this area have not changed in centuries. To find a deposit, miners drive a long pole into the ground to determine the depth of the gem gravel layer. Some mines are only a few metres

deep, while others can go down 30 metres or more. For the deeper mines, a shaft is constructed and reinforced with planks and fern leaves. Water seepage is often a problem and must be continually pumped or bailed out. Once the gem-bearing material is brought to the surface, it is washed in shallow round baskets or “watti,” to sort out the gems.

After a few days, our group headed south to Ratnapura, the gemstone centre

of Sri Lanka. Here, we were met by Dr. Gamini Zoysa, ICA director, and Altaf Iqbal, ICA ambassador to Sri Lanka, who showed us around the area. Meaning “City of Gems” in Sinhalese, Ratnapura is the nation’s main source of gemstones—including all colours of sapphire, of course, but also ruby and cat’s-eye. The town’s population has literally exploded over the years because of gem mining and the resulting cutting and subsequent trading activities. The government regulations controlling the gem trade state that foreign nationals and companies may not participate in gem trading and that rough stones may not be exported. This means that foreigners can only purchase and export stones that are cut and polished in Sri Lanka.

We visited a number of shallow and deep mines that dot the countryside, before joining local miners at the Kalu Ganga river, engaged in “river mining.” Flowing from the central hills through Ratnapura, this river is thought to have carried most of the gems from various parts of the island and deposited them on the flood plains. Using long handled “hoes” to dredge up the gem gravel, miners bring it to the surface and then into baskets for sorting. A few members of the group tried their luck, some rather successfully, in these “river mining” activities.





A miner uses a pulley system to raise the material containing moonstone crystals to the surface of a 25-metre shaft. (Photo: Cynthia Unninayar)



Some members of the group take their chances mining the Kalu Ganga river in Ratnapura with small makeshift dredges. (Photo: Cynthia Unninayar)



Using the traditional method of heating sapphires, Simon has been a “blower” for more than 40 years. He was recently featured on the cover *Gems & Gemology* magazine held up by a group member. (Photo: Nilesh Shah)

After visiting Ratnapura’s gem market, we witnessed the remarkable talents of experienced artisans who use traditional methods to heat gemstones. The stones are covered with a paste of burnt coconut husks and lime, placed in a crucible in a charcoal fire, and then a “blower” blows through a tube to increase the heat of the fire, and thus the gems. It usually takes three to six hours to reach the desired colour. It seems that these ancient techniques are as effective as modern-day ovens, if not more so.

The sixth day of our tour took us to Beruwala. While the bustling resort town is known for its pristine beaches, it is the nation’s second largest gemstone marketplace and is fast becoming a true global hub for coloured gemstone trading. Its dealers travel the world to bring back rough that is heated and cut in the area.

As our buses wound through the town’s narrow streets to the trading district, we were met by hundreds of people with signs of welcome and refreshing coconut water to quench our thirst. After a few words of greetings by local authorities and ICA officials, dealers came out in force, offering

a wide range of gems, in air-conditioned offices or right there on the street.

The last morning of the tour, we visited a moonstone mine, with a 25-metre shaft. The gem material is placed in a basket by the miner at the bottom of the pit, and then hand-winch up to the surface, where it is washed and sorted. The mine’s owner had cutting and polishing facilities nearby, along with groves of cinnamon plants, whose dried leaves were stacked up, waiting to be processed into oil.

At last, we returned to Colombo, some with packets of gems purchased or found along the way, either in the shallow pits or dredged from the river. But what we found was more than gemstones. The camaraderie that developed among members of the group, composed of 17 nationalities and speaking different languages, was truly gratifying, illustrating that it really is a small world. As we said goodbye to our newfound friends, we all left the ICA mine tour with a greater appreciation of what is behind that sparkly gemstone gracing a beautiful piece of jewellery. ■