

Gemstone resource potential: A key component in rebuilding the Pakistan natural resource sector

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Abstract

Gemstones exploration, mining, cutting, testing and marketing make the building block of the gemstone potential, the back bone of a country's natural resource. The Himalayan and Karakoram mountain ranges in North Pakistan are known to host emeralds, peridots, rubies, tourmalines, topazes and aquamarines. These gemstones are formed by metamorphic processes and hydrothermal activity. Emeralds occur in talc-carbonate schists in Swat valley and peridots in the Sapat valley of District Kohistan. Rubies occur in calc-silicate marbles in the Nangimali of Neelum valley in Azad Jammu and Kashmir and Naran area of KPK, and at Hunza and Nagar valleys of the Gilgit-Baltistan province.

It is quite known that every naturally occurring gemstone has its own signatures. For example the presence of Cr, V, Be, Li, Sr and La in talc-carbonate schists lead to explore emerald mineralization. Magnetite may be taken as pathfinding mineral for peridots. Phlogopite, fuchsite and pyrite minerals may indicate ruby mineralization. Tourmalines, topazes and aquamarines occur in complex pegmatites. The criteria to explore gemstones in complex pegmatites include the study of Rb, Ba, Nb, Ta, Sn, Li, Cs, Mn and Mg concentrations in muscovite.

The gemstone mining in Pakistan has been remained slow and steady. To date mining is done in a primitive manner. Gemstones are extracted using hand picks, crow bars, shovels, drilling machines and dynamite. These techniques usually damage the gemstones and yield low production. Crude techniques and remoteness make the mining very hard. Because of these difficulties the private sector in Pakistan is facing problems for extracting enough quantity of gemstones. Pakistan is also a source of good quality gemstone specimens. Many specimens from Pakistan can be found at gems and mineral shows and for sale on the Internet. Pakistan has a great opportunity to increase its share of this market and to meet the increasing demand for higher quality gems worldwide. The gemstones need to be cut and polished to excel their beauties before trading in the market. In Pakistan cutting and polishing industry is based mainly on entrepreneurship. The quality of cutting and polishing always remained hardly meet the international standard due to lack of state of the art equipment resulting in less export in cut and polished gems and the gemstones studded jewelry.

In the present gemstone scenario, a significant quantity of cut and polished gems in the markets are synthetic and fake. Proper laboratory tests separate the real gems from synthetic and fake gems. In the international markets, the availability of the data about the size and scope of gemstones is very limited, because of less sharing of the data due to private business. There is constant shift in the global trade of gemstones due to rapid change in the demand for shapes, cuts, colours and type of gemstones. Asia still being the centre of gemstones has strong influence on the world trade. At present the world trade for coloured gemstones is dominated by Thailand, Switzerland and India.

To come up at the international level, there is an utmost need to up-grade this sector so that a sustainable growth can be achieved in the economic development of Pakistan's natural resource potential. This economic rebuilding will provide a new hope to the national and international business and mining communities to invest more and to serve as a foundation for future work on areas of gemstone resource potential and to attract Foreign Direct Investment (FDI) in the Gemstone Sector of Pakistan.