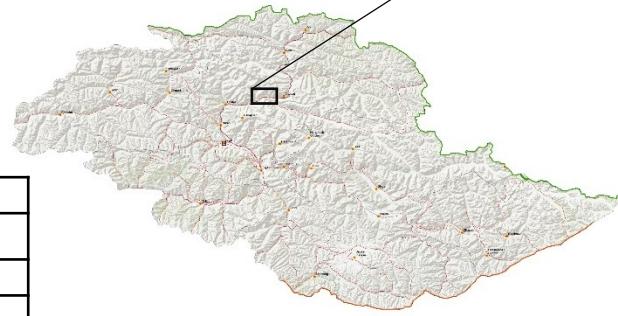




Government of Pakistan
Ministry of Energy (Petroleum Division)
Geological Survey of Pakistan

GRADE	%
Top	2-5
Medium	5-30
Low	65

SIZE (Carats)	%
2.5 mm upto 1 carat	95
1-4	2-5
4-10	2
10-40	0.5



GEOLOGY

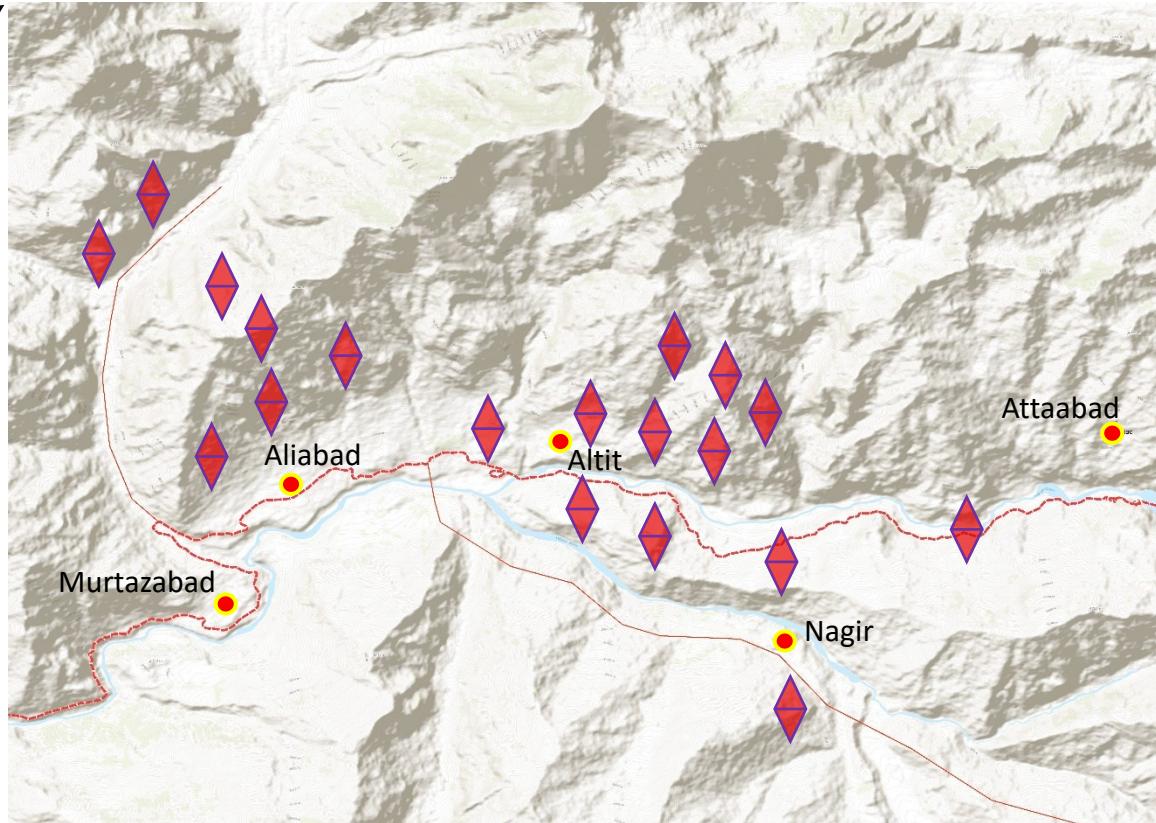
Ruby, pink sapphire, spinel and pargasite are found in the mountains outcropping along the flanks of the Karakoram mountain range whose peaks tower above the Hunza Valley. These are developed in metamorphosed, recrystallized marble beds, which form part of thick sequence of metasedimentary and metavolcanic rocks of the Karakoram Metamorphic Complex that covers the entire zone between the central granitic belt to the north and the contact with the Kohistan-Ladakh formations to the south. The gem-bearing marbles extend over 100 km between the Hunza Valley in the east and the Ishkoman Valley to the west. The bulk of the metasediments is made up of aluminous schists and rather monotonous terrigenous formation of dominant sandy and pelitic alternation. Both the metasedimentary formations show metamorphism up to amphibolite grade. Rarely amphibolite horizons of basaltic composition are also present in them. The marble horizons exposed in the area can be grouped into four broad geographical groups from south to north.

In the past, the gem-bearing marbles readily visible from the valley floor were mined in its primitive fashion: the rock was broken up with hammers, hand picks, pneumatic drills and dynamiting. In a few sites branching adits were driven into the rock. The marble was then broken up into smaller pieces and the gemmy crystals separated, whereas those unfit for cutting were often left in matrix and sold as mineral specimens. The smaller ruby crystals tended to the sharper and multifaceted, whereas the larger displayed fewer faces and were generally less well formed. Currently (as of 2010) most of the mining is confined to about 20 mining centres spread over the length of 15 km in Hunza and Nagar Valleys. All these ruby-bearing bodies show identical structural and petrographical characterises. Some of the ruby crystals found in Hunza were of the classical 'Pigeon's Blood' colour, resembling the Myanmar (Burmese) ruby.

PRODUCTION AND QUALITY

Pakistan Mineral Development Corporation (PMDC) operated Hunza ruby mines for 7 years from 1972 to 1979. Later on Gemstone Corporation of Pakistan (GEMCP) ran the mines operations from 1979 to 1994. GEMCP data shows about 0.1 million carats rough ruby production from 1979 up to 1994. During the PMDC and GEMCP tenure, the average size and grade distribution of ruby is shown in Tables.

HUNZA RUBY, GILGIT-BALTISTAN



LEGEND

- Ruby Mines
- Roads/ Tracks
- Districts
- LoC (Disputed)
- Int. Boundary
- Localities
- Borders/ Roads/ Tracks approximated

Compiled by Naghma Haider
Awais Ahmed
Naseem BiBi
Rashid Haider

Maps developed at the request of Planning Commission of Pakistan

REMARKS

The local craftsmen are unaware of latest technologies and internationally accepted quality-based calibrated standards. The younger generation, seeing no future in this trade, has started opting for other profitable professions. Those who are still associated with this trade are neither aware of international markets, nor have the capacity to produce quality products to compete in the international markets. This has resulted in low productivity and monotonous designs having no demand in the world market. Consequently ninety percent of Pakistani rough gemstones and gemstone-bearing rock specimen are exported at very low prices thereby causing significant loss to the exchequer.

In 2007, USA based family of Pakistani origin provided technical and financial support to initiate gems cutting and polishing programs in the region in collaboration with AKRSP. The initiative later won the support of donor agencies including, Competitive Support Fund (CSF), European Commission (EC), GIZ and USAID. Initially, RF worked with AKRSP to establish seven gems cutting and polishing centres in Gilgit-Baltistan and Chitral. Afterwards, three more centres were added with support from CSF and USAID. In the course of time, four centres were handed over to local communities after completing the initial phase of training. Currently, five gems centres are functioning in Gilgit-Baltistan and one in Chitral. These centres have gradually become training hubs and have produced a cadre of 730 trained men and women.

According to Federal Bureau of Statistics 2017-18, estimated exports of Pearls & precious & semiprecious stones, unworked or worked remain at 445 million rupees.



Ruby from Hunza



Dongat Ruby Mine of Hunza