

Mineral and gemstone resources of Northern Khyber Pakhtunkhwa and FATA regions, Pakistan-A good hope

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The reported area includes different tectonometallic and sedimentary basins like Chitral-Tirich Mir zones (Hindukush-Karakoram block), Kohistan magmatic arc; northern Indus Suture and NW Himalayas. The Chitral-Tirich Mir zone represents **antimony** from Krinj, Partsan and Awireth Gol; **arsenic** from Lundkhu-Mirgasht of Tirich Gol valley; **copper and gossan/red iron oxide** coloration near Drosh located in the Karakoram Suture/Shyok Suture like Gawuch Gol, Kaldam Gol, Gorin Gol and Langer; Yarkhun valley (near Kunhar); Chapali, Chapchirag, Pakhturi and Rain of Mastuj; Imirdin, Madashi, Shoghot, Prince Burhanuddin, Koghozi, Mogh and Kokil Gahirat; **gold** and associated other minerals from Kaldam Gol, Shishi, Madashil, Shoghot, Pir Burhanuddin, Kogazi, Baig and Awireth-Shogor-Sewakht-Krinj; **lead-zinc** from Parabeck, Imirdin, Muzhigram, Tashker and Pakhturi of Tirich Mir zone, and Baig, Madashil, Awireth of Chitral; **fluorite** from Mirgasht Gol and Yarkhun valley (NE part of Chitral); **graphite** from Shah Salim, Momi, Muzhigram village and Burzin valley; **mica/muscovite** from Mogh village in Latkho valley, Simik Gol, Gabar-o-Boch, Imirdin, Kesu-Shera Shing north of Drosh and Kahdujal; **potash and sodic feldspar** from pegmatites; **tungsten** from Miniki Gol area; **mercury/cinnabar** in the river sands; **sulphur** from Muzhigram; **aquamarine, tourmaline, garnet and quartz** from Gobar-o-Bakh (Hindukush) and **aquamarine and garnet** from Dao Ghari (Hindukush); **indicolite (blue tourmaline)** from pegmatite of Garam Chashma (Chitral); large reserves of recrystallised limestone, marble, quartzite, schist, slatestones and attractive granite.

The **Kohistan magmatic arc** includes the **copper** from Ashnamal, Lal Qila, Barwa Kambat, Dommel Nissar (volcanogenic magnetite deposits), Mirkhani, Pana Kot, Usheri region and Bekarai-Rokhan of Dir; **iron ores** from Ghazanosar, Shah Dheri, Mamarai-Saidu, Munda and Dammer Nissar; **gold** from shear zone/Indus Suture, from porphyry type intrusives or altered carbonates, and from Nomal, Gawuch, Drosh and Dir (Zaluka); **fluorite** from Chakdara (Dir) comprise fluorite quartz veins cutting two mica granite gneiss; **ruby /corundum** from Timurgarha (Dir); **mica/muscovite** from Khadan village north of Chakdara in Dir state; Bagarian west of Belega near Hawa Gali, Gidarapur in Indus Kohistan and Khandong Banda (near Dir); **china clay** from Shah Dheri (Swat); **nickle** from Malam Jabba; **gold-silver-copper** from Dir District; gossans along MKT; large reserves of attractive granite, marble, recrystallised limestone, quartzite, schist and slatestones.

The **northern Indus Suture** represents the **Chromite** from Kot-Pranghar (Mohmand), Bucha chromite (Mohmand Agency); Harichand-Sakhakot-Qila west of Dargai, Jijal north of Besham,

and Chilas; **iron** from Besham, Sherkot Kolai and Jijal; **nickle** from Souch (Kaghan) and Swat and Shangla-Alpurai areas; **asbestos** from Sakhakot-Qila (Malaknd); **magnesite** from Sakhakot (Malakand) and Pran Ghar (Mohmand); **manganese** (ophiolite related) mineralization in Kassai area of Lower Mohmand Agency, Sakhakot-Qila, Prang Ghar, Qila, Behram Dheri, Narai Obe, Bucha, Newe Kili and Hero Shah and Shangla area of Swat; **Lahor-Pazang** area, near Besham; **graphite** from Norang and Babusar pass; **PGE associated with gold** in the Jijal layered ultramafic complex of Besham area; **niobium and platinum** from Chilas, Jijal, Sakhakot Qila (west of Dargai); **mica/muscovite** from Bagarian west of Belega near Hawa Gali and Gidarpur in Indus Kohistan; peridot from Sapat-Kaghan-Naran; **tsavolite or green grossularite (garnet)** is associated with granitic schist in Jambil area of Swat, near Kot in Malakand and near Targhao in Bajaur agency; beautiful honey yellow euhedral **hessonite** are found in quartz-mica-schist near Targhao in Bajaur agency; **emerald** occurs in northern Indus suture like from Mingora, Gujarkili and Shamoza (Swat); other localities are Dandao, Kandao, Nawe Dand, Gandao, Kot and Mor Dara in Mohmand Agency; Mamola and Mor Dara region (Arang Barang) in Bajaur agency; Makhad and Charbagh in Swat; **schorl** (black tourmaline) and other precious gemstones; large reserves of recrystallised limestone, marble, quartzite, schist, slatestones and attractive granite, intermediate, basic and ultrabasic rocks.

The **NW Himalayas** (Khyber-Hazara/uppermost Indus basin) includes the **bismuth, cadmium and cobalt** from Lahor and Pazang (Besham nappe); **copper** from Babusar, Phalkot and Galdanian; **iron** from Besham, Abbottabad, Galdanian and Langrial; **lead-zinc** from Faqir Mohd (Hazara), Hal, Kokal, Mihal, Paswal, Lahor, Pazang; Ushu (Swat); **manganese** ore from Galdanian, Chur Gali, Shangla (Swat), Kassai (Mohmand Agency); **niobium and platinum** from Loe Shilman of Khyber Agency; **rare earth** from Koga (Swat), Sillai Patti (Dargai), Loe Shilman (Khyber Agency), Sakhakot-Qila (Malakand); **tungsten** from Oghi; **barite** from Kag, Aluli, Darwaza, Kacchi, Faqir Mohd, Tipra (near Haripur); **bentonite** from Kohala in Hazara slates; **fluorite** from Bicheha Kurd (Sherwan); Khyber-Hazara metasedimentary fold and thrust belt as disseminations; **graphite** from Sherwan, Sper Tor (Landi Kotal), Loe Agra (Malakand); Haripur and Garhi Habib Ullah of Hazara district; Shahidmena and Lowaramena of Khyber Agency, Majk to Kundi and Dheri village in Mardan; **gypsum** from Dowatta (Hazara) and Macol (Abbottabad); **kyanite quartz** veins in Jabba (Hazara), Kuza Banda at Oghi-Batgram road; Landakai at boarder of Malakand-Saidu Sharif and near Tindodog in Swat; **talc/soapstone** from Jamrud (Peshawar) and Sherwan (Hazara); **magnesite** from Kumhar (Abbottabad); **nepheline syenite** from Swat, and Mardan like Koga, Agari, Landi Patao, Miane Kadao, Shoal, and Kharkai; **uranium** from Karakar (Swat), Ahl and Rajdhwari (Mansehra granite), Loe Shilman, Silai Patti (Dargai in Malakand granite); Thakot near Besham, Bunji; **gold** from Hall; **rock phosphate** from Kakul-Mirpur, Kalue-de-Bandi and Lagarban, Dalola, Minind; **mica/muscovite** from Rajdhwari pegmatites, Tangali hill, Bagarian, Hawa Gali, Gidarpur and Koga; **lithium** from Shengus of Nanga Parbat Massif; **potash and sodic feldspar** from Mingora and Bunair in Swat, Rajdhwari pegmatite, Khaki, Doga, Trangri and Gidarpur areas of Hazara; **bituminous alum shale** from near Shahidmena in Khyber Agency; **silica sand** from Abbottabad; the unique **pink topaz** from Ghundao hillock of Katlang (Mardan); large reserves of recrystallised **limestone/marble** from Swat and Mardan districts, Bajaur and Khyber agencies,

and attractive granite from Swat and Hazara; and large reserves of quartzite, schist, slatestones, etc. In short, these areas need further exploitation of rich mineral and gemstones resources. India, Sri Lanka and Thailand having less potential of gemstones than Pakistan are contributing a lot due to facilitation from public and private sectors. The polishing facilities of gemstones in Pakistan will enhance the values of gemstones and ultimately foreign exchange. It will also promote local use in jewelry