Mineral resources of Azad Kashmir and Hazara (Pakistan): special emphasis on Bagnotar-Kala Pani (Abbottabad, Hazara) new coalfield

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Abstract

Azad Kashmir hosts graphite from Sarwali, Patlepani, Mohri Wali, Shontar Nar, Tarli Domel, Baqnuwan, Machyara, Batmag, Nauseri, Khilla, Reshian and Nikial-Mohra areas; granite from Neelam, Kundal Shahi, Jura, etc; feldspar from Kundal Shahi; dolomite, marble and limestone from Muzaffarabad, Jhugian (13mt) and Nauseri, Goi, Dhanwan, Nikial, etc; bentonite from Bhimbar-Mir Pur; gold from Shontar and Shardi Nala; pyrite from Reshian and Tatta Pani; lead-zinc-silver from Treri-Manjhotar area of Muzaffarabad and Sawar area of Kotli; lead-silver from Siliji-Reshian area; sheet mica/muscovite and lithium mica/lepidolite from Ratti Gali, Donga Nar and Janowai area (limited production due to sporadic occurrences); rare earth elements from Donga Nar and Gurais; gemstones like green tourmaline/indicolite and rubellite from Gurais, black tourmaline/Schorl, garnet and quartz from Jandran Wala, aquamarine, beryl and topaz from Gurais and Donga Nar found in pegmatites and ruby from Nangimali, Kalajandar and Naril areas found in marble; thermal hot springs from Tattapani; coal, fire clay and bauxite from Tatta Pani, Sawar, Dhanwan-Janjora, Dandili, Panag, Kamroti, Nikial, Mohra-Karela, Balmi, Bangang, Narali, Goi, Muzaffarabad, Reshian; iron (chamositic and glauconitic) from Muzaffarabad; talc/soapstone from Machyara (Muzaffarabad), Palana and Newal (Kotli) dolomites; slate from Kalamula-Reji area of Bagh; quartzite from Goi and Bangang (Kotli); Pozaloan for cement from Kalamula-Kailer-Lamnian-Nauseri belt; phosphate nodule upto 17% P_2O_5 in Sakesar Limestone of Tatta Pani, Dhanwan, Nikial and Bangang areas of Kotli; limonite from Reshian and Cham area; gypsum from Thangar, Sherwan, Shawai, Balak Bhana and Reshian areas; copper-lead-zinc from Surgan; ankerite iron-lead-zinc from Kamroti Nikial; uranium in graphitic schist of Precambrian Salkhala formation, Reshian; and micaceous hematite iron from Bala Pir-Bela Noor Shah area of Muzaffarabad. The Hazara region hosts copper from Babusar, Phalkot and Galdanian; iron from Abbottabad, Galdanian and Langrial; lead-zinc from Faqir Mohd, Hal, Kokal, Mihal, Paswal, Lahor and Pazang; manganese ore from Galdanian and Chur Gali; tungsten from Oghi; barite from Kag, Aluli, Darwaza, Kacchi, Faqir Mohd and Tipra; bentonite from Kohala; fluorite from Bicheha Kurd (Sherwan); graphite from Sherwan, Haripur and Garhi Habib Ullah; gypsum from Dowatta and Macol; kyanite quartz from Jabba, Kuza Banda (Oghi-Batgram road); talc/soapstone from Sherwan; magnesite from Kumhar; uranium from Mansehra granite of Ahl and Rajdhwari; rock phosphate from Kakul-Mirpur, Kalue-de-Bandi and Lagarban, Dalola, Minind, etc; mica/muscovite, potash and sodic feldspar from Rajdhwari pegmatite, Khaki, Doga, Trangri and Gidarpur areas; silica sand from Abbottabad; attractive granite, quartzite, schist and slatstone from different areas and peridot from Sapat (Naran). The Bagnotar-Kala Pani (Hazara) new coalfield is found on the eastern vicinity of Abbottabad town and hosted by Paleocene Hangu (Patala synonym) Formation. The coal quality (SubC-LigA) is interpolated from nearby Cherat, Salt Range and Kotli coalfields. The tentative reserves estimated are 7.5million ton/mt because no detail work is done so far. The break up of estimated coal reserves show 0.5mt measured, 1mt indicated and 6mt inferred.