

Marble deposits from Nauseri-Jhugian area of Muzaffarabad Region, Neelum valley, Azad Kashmir (Pakistan)

Zafar Mahmood¹ and M. Sadiq Malkani²

¹*Geological Survey of Pakistan, Quetta, Pakistan*

²*Geological Survey of Pakistan, Muzaffarabad, Azad Kashmir, Pakistan
zafargeologist@gmail.com*

Abstract

Marble deposits have been found in the Nauseri and Jhugian areas of Lower Neelum valley, Muzaffarabad District, Azad Kashmir, Pakistan. These Marble deposits are product of metamorphism in the dolomitic limestones of Paleozoic-Mesozoic Abbottabad-Kingriali-Samanasuk-Panjal formations. By tectonic setting these marbles are sandwiched between Main Boundary Thrust and Khairabad-Panjal Thrust. Marble deposits are found on the Eastern limb of Hazara-Kashmir syntaxis. The Nauseri marble area is located on Muzaffarabad-Neelummetalled road about 25 km east north east of Muzaffarabad city, while Jhugian Naka area is on the top of slender ridge trending towards Mahandri, Kaghan area (plunge of Hazara Kashmir syntaxis). These deposits are accessible from Muzaffarabad, while Muzaffarabad is well connected with Islamabad and Abbottabad. On reconnaissance visit to see the generalized extension, these deposits are pinching towards Mahandri, Kaghan valley and also pinching towards Lamnian, Reshian valley. The marble is white, faint little blue tinge, translucent, pearly, massive and recrystallised. Two horizons of marble deposits are found in the Nauseri-Jhugian area of Muzaffarabad. The upper horizon is relatively thin while the lower horizon is relatively thick and workable/mineable. The lower horizon is thicker and being mined on the top of Nauseri-Jhugian area and being transported from top to base camp by motor driven rope and shovel systems. From base camp it is being transported further in the trucks to the market. The chemical results show SiO₂ 10.34%, Al₂O₃ 0.34%, Fe₂O₃ 0.17%, CaO 32.54%, MgO 21.21%, Al₂O₃ 0.34%, TiO₂ 0.027%, P₂O₅ 0.001%, Loss on ignition 35%, Na₂O and K₂O are below detection limit. The chemical as well as petrographic study shows dolomitic limestone metamorphosed as marble which constitute the mineral composition as calcite 60%, dolomite 30%, Feldspar 8% and quartz 2%. This white marble gives high reflectance and has great significance as good quality. Due to small deposits of such high reflectance and good quality marbles in the country is in high demand in Pakistan and also abroad like Saudi Arabia and Arab Emirates, etc. The present findings are highly valuable in mineral wealth of Azad Kashmir and consequently for Pakistan. Its development along with other mineral commodities of Azad Kashmir is an innovation for the sustainable development of Azad Kashmir. Considering 2 kilometer length and about 10 meter thickness and 1 kilometer easily mineable depth, the total easily mineable reserves are 56 million tons. Both horizons of marble are enveloped by igneous intrusions and volcanics of Panjal Group. This magma/lava is responsible for the metamorphism and birth of high quality with good reflectance marble in this area.