CHAPTER 5

FUTURE DIRECTIONS

The studies made to investigate the nano and sub-micron inclusions in natural diamond open up a large possibility of finding the genesis of various gemstones other than diamond, by looking at the nano/micron inclusions. The existence of PGE as an inclusion in diamond can give an idea about the richness of the PGE deposits and may have important implications in the mining industry. The scope of search by the Geological survey of India, in Tamil-Nadu for PGM deposits using nanoscience is brightened in Mettupalayam area of Salem district.

Economic prospects- Possible feasibility

According to a new study release in Science daily, November 5,2008, peridotites may have economic value as a low-cost, safe and permanent method to capture or sponge vast amount of atmospheric CO₂ as part of climate change related greenhouse gas sequestration and store in peridotite. It was known that peridotite reacts with CO₂ to form a solid carbonate -like limestone or impure marble mineral depending upon other geochemical conditions of such reactions. The study concludes that this process can be sped up a million times or more with simple drilling and hydraulic fracturing to allow the injection of the CO₂ into the sub surface peridotitic geological formations. But this futuristic proposition warrants a feasibility project for undertaking trial tests.

Peridotite comprises most or all of the rock in the mantle, which undergirds earth's crust. It starts some 20 kilometers or more down, but occasionally pieces are exhumed when tectonic plates collide and push the mantle rock to the surface, as in Oman. Geologists already knew that once exposed to air, the rock can react quickly with CO₂, forming a solid carbonate like limestone or marble.