

GEOLOGICAL AND GEOPHYSICAL FABRIC OF INDIAN CRATONS IN CONTEXT OF DIAMOND EXPLORATION

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There are four distinct cratons in India, namely Dharwar, Bastar, Singhbhum and Aravalli-Bundelkhand Cratons. In context of diamond exploration, these cratons and adjoining areas can be identified in to a number of Archons and Protons. So far about 80 kimberlites/lamproites have been located in these provinces. The eastern part of Dharwar Archon contains about 60 of these in the vicinity of intracratonic Cuddapah basin (CB) from where world famous diamonds like Koh-i-Noor, Nizam, Orloff, Great Moghul, Pitt (Regent), Darya-i-Noor, etc. were won in the past. While major kimberlite clusters occur in Wajrakarur kimberlite field in south and Narayanpet kimberlite field in north, a few lamproites are located in the Eastern Ghats Proton (EGP) along the eastern margin of CB. Two kimberlite fields have been discovered recently in Bastar Archon with 9 kimberlites located so far. However some of these, lying close to EGP, could be classified as lamproites. Bundelkhand Archon comprises 8 known kimberlites/lamproites located along the margin of Central Indian Proton (CIP). India's only diamond producing mine at Panna (Majhgawan Pipe) is also located in Bundelkhand Archon. Three lamprophyres, recently identified as orangeites, are located in Singhbhum Archon close to the margin of CIP. Significance of geological, geochemical, geochronological, geophysical, tectono-magmatic and super plume studies in understanding the nature of cratonic root zones and the factors influencing the diamond fertility within various Archons and Protons are emphasised.