

عنوان مقاله:

Restoring the past glory of Diamond Mining in south India- A plausible case of diamondiferous Wajrakarur kimberlite pipe clusters with geochemical evidences

محل انتشار:

مجله بین المللی معدن و مهندسی زمین, دوره 53, شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 11

نویسنده:

Rameshchandra Phani Pothuri - ۱۴۰۱۱۰/۲/۳۳, ۲B, Paturi Encalve, Gandhi Nagar

خلاصه مقاله:

A plausible case of collective and economical mining of diamondiferous kimberlite deposits of Wajrakarur and adjoining places in Andhra Pradesh, southern India along with the whole-rock geochemical evidences in support of their diamond potentiality are discussed in this article. The kimberlites/lamproites are mantle-derived ultrabasic rocks which rarely carry diamonds from mantle to the earth's surface through carrot-shaped intrusions referred to as pipes. Even though few hundreds of diamondiferous kimberlite pipes were discovered in India so far, there is no other production unit than Panna diamond mine in the country where primary rock is mined. In ancient India, diamond mining in south India in the Krishna river valley was well-known to the world fascinated by famous gemstones like Koh-I-Noor, Hope, Darya-e-Noor, Noor-ul-ain etc. which were mainly extracted from alluvium or colluvium in Krishna river valley. Having bestowed with more than 45 kimberlite pipes, the Wajrakarur kimberlite field (WKF) forms a favourable region for initiating diamond mining in the country. Geochemically, majority of the WKF show low TiO₂ content and considerably high diamond grade (DG) values (> 3) except some pipes viz., P-5 (Muligiripalli), P-13 (Tummatapalli) and P-16 (Pennahobilam) are barren due to high TiO₂ and ilmenite contents. The TiO₂ content (0.66-6.62 wt%) is inversely proportional to the DG (3.33 to 22.13). The DG value of some of the WKF pipes is close to that of Panna (8.36). The cationic weight% values clearly portray the diamondiferous nature of these deposits. The WKF pipes were also proved to be diamondiferous by exploratory drilling and bulk sample processing results by the government organisations. In southern India, due to several reasons, diamond mining has not seen its initiation and impetus till now although it records a considerable number of fertile kimberlite pipes at Wajrakarur, Lattavaram, Chigicherla, Timmasamudram etc. Though the majority of WKF diamondiferous kimberlite deposits in Wajrakarur are small in their areal extent (0.06-4.48 Ha) some of them are large (> 10 Ha up to 120 ha). They occur in close proximity to each other offering feasibility for collective mining and winning the precious stone through a central processing unit by deploying the latest processing technologies. The geographic conditions of this region such as availability of human resources, water resources, vast open lands, wind power generation etc. also support to initiate mining of ... kimberlite pipes in this area. The availability of rough diamonds produced from local

کلمات کلیدی:

diamond, economic mining, southern India, WKF

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/928815>



