Economic potential of Calonda Formation basal gravels: future target on diamond mining in Angola

REIS, B.[1], PEREIRA, E.[2,3], RODRIGUES, J.[2,3], GÓIS, J.[3]
[1]Geologist Consultant, Braga, Portugal. [2]IGM, Porto, Portugal.
[3]Dep. Minas Fac. Engenharia Porto, Portugal.

The study of Calonda Formation should be done parallel with the regional geology, implying a correct knowledge of lithostratigraphy and tectonics of the areas where it is represented.

Calonda Formation is considered as the first sedimentary collector of diamonds, and is correlative with the continental diastrophism and destruction of kimberlitic diamond sources. The sedimentation of Calonda materials is controlled by the fill up of big depressions originated by the fault bounded extension tectonics, coeval with the opening of South Atlantic.

The largest deposits are located in Luaco-Cossa-Malúdi area with diamonds of extreme quality. The distribution of Calonda Formation in this area is related with tectonic lineaments included in the Volcanic Belt of Angola.

In the region of Cuango, a well defined deep tectonic structure is coincident with the Cuango river bed, and corresponds to a limit of a NNW-SSE graben, where enormous thickness (20-50m) of Calonda gravels occurs, which originates, by present erosion of Cuango river, the rich diamond deposits in this river.

Calonda Formation is also present in the southern part of Cuanza river with remarkable thickness and extension. Finally another area related to a NNW-SSE structure, is the Muié region, inside the Cuando river basin with enormous potential despite the Kalahary cover.