

Summary of the Alluvial Diamond Resource Potential and Production Capacity Assessment of the Central African Republic

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Study Goals and Data Sources

This study models the (1) diamond bearing alluvial deposits in the Central African Republic (CAR) and (2) the country's overall production capacity. The study uses data from geographic information systems (GIS), satellite image analysis, historical documentation, and field investigations.

Source of Diamond Occurrences

The diamonds mined in the CAR are exclusively alluvial diamonds. No kimberlites, lamproites, or other primary diamondiferous source rocks have been discovered in the CAR. The diamonds are found in recent flood-plain deposits and alluvial terraces lying on top of the Cretaceous aged Mouka-Ouadda and Carnot Sandstone plateaus and in stream valleys eroding the plateaus (Figure 1).

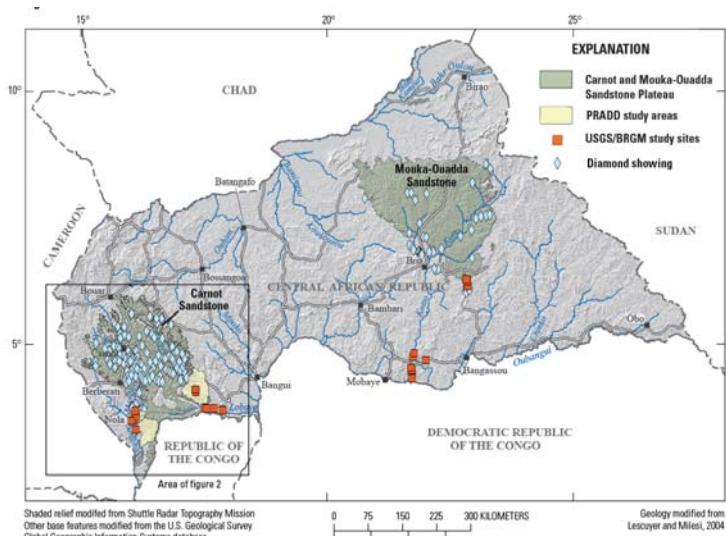


Figure 1. Map of the CAR and diamond occurrences.

Assessment Methods

Two different methodologies were used to estimate diamond resource potential. The results of these two methods were cross-checked with one another to help in error checking and validation.

The first method estimates a volume of alluvial material in diamondiferous deposit zones and assigns a diamond ore grade for each cubic meter of material. The second method assigns a diamond grade for the different lengths of streams based on how rich the material along those stream reaches may be.

The diamond-production capacity is the current volume of diamonds (total number of carats) that can be produced in CAR utilizing current human and physical resources. It measures the current state of the diamond mining sector based on recent field data collected and on previous research studies of diamond mining.

Diamond potential for PRADD study sites

The diamond potential of the PRADD project areas was modeled separately in a geographic information system (GIS) using similar methods but which also incorporate digital terrain and satellite image analysis.

Results

This study concludes that there are approximately 39,000,000 carats of alluvial diamonds remaining in the CAR. This figure is roughly twice the total amount of diamonds reported to have been exported from the CAR since mining began in 1931.

PRADD project areas are estimated to constitute 5,000,000 carats of the total alluvial diamond resources in CAR based on currently available data (Table 1).

Zone	CAR Inferred and Speculated Resources		Mean Total Estimated Resources (ct)
	Estimated Resources Volume Grade Approach (ct)	Estimated Resources Content per Kilometer Approach (ct)	
Country-Level Assessment			
Western Zone (Carnot)	29,227,742.00	36,990,718.65	33,109,230.33
Eastern Zone (Mouka-Ouadda)	27,235,608.30	26,916,727.00	27,076,167.65
	56,463,350.30	63,907,445.65	Total Resources 60,185,397.98
			Historical Production from 1931 - 2006 (21,000,000.00)
			Total Resources 39,185,397.98
PRADD Study Area			
Nola Watershed			2,772,934.27
Boda Watershed			4,359,740.24
		Sub-Total	7,132,674.51
			Estimated Past (2,000,000.00)
			Total Resources 5,132,674.51

Table 1. Summary of diamond resource assessments.

Production capacity is estimated to be up to 840,000 carats per year. This number is nearly twice the 400,000 carats per year reported annually by the CAR. The difference in these numbers reflects the lack of sufficient data on diamond resource grades, worker productivity, and the number and locations of sites currently being worked. Annual production is highly dependent on national security and stability, the numbers of seasonal workers actively mining in the sector, and environmental conditions that influence seasonal farming.