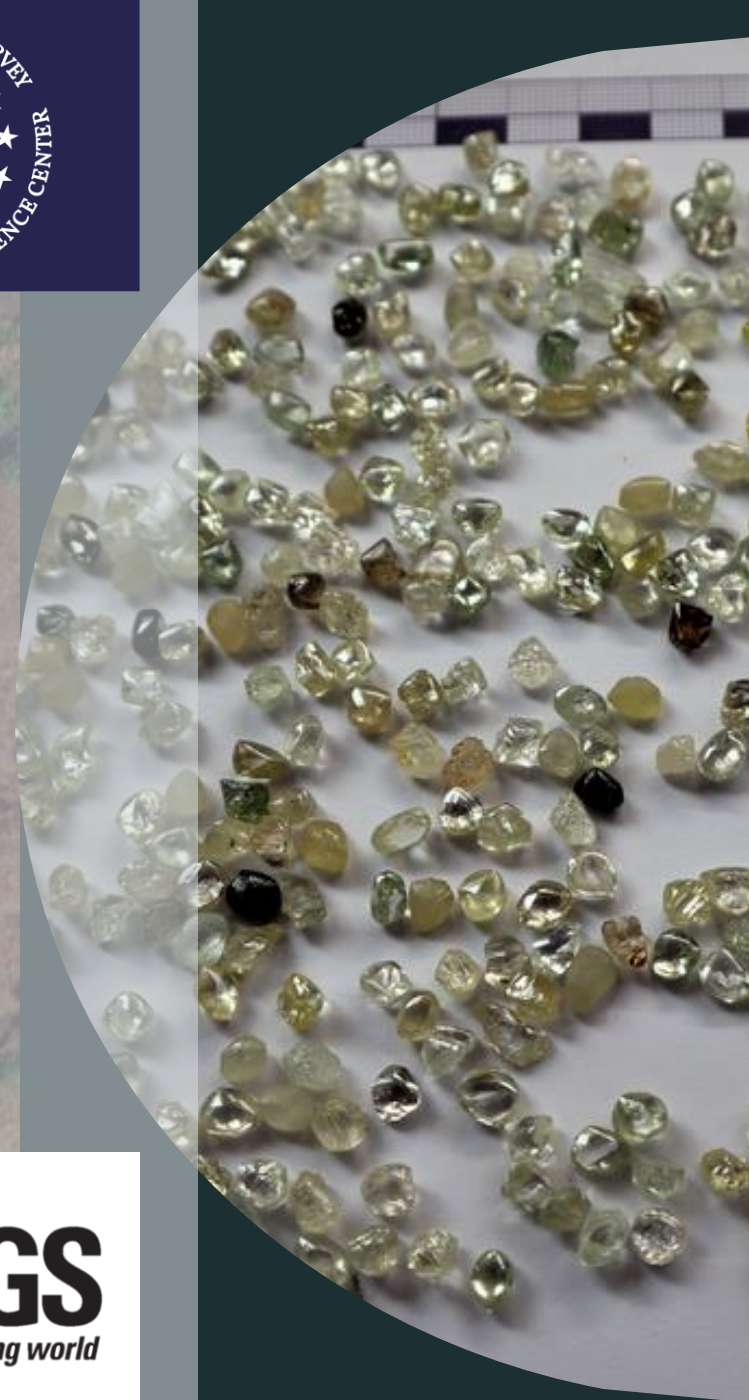


Remote sensing for monitoring artisanal and small-scale mining: the Central African Republic

Jessica D. DeWitt, Ph.D.

Florence Bascom Geoscience Center

U.S. Geological Survey



On-the-ground examples of diamond mining sites



Image Credit: Pete Chirico, USGS
ASM diamond site at Oro, Central African Republic
May, 2007



Image Credit: Pete Chirico, USGS
Barrage diamond mining site at Bada/Touya, Central African Republic - May, 2007



Image Credit: Pete Chirico, USGS
ASM diamond washing site at Wango, Central African Republic
May, 2007

ARCHIVAL GEOLOGIC DATA

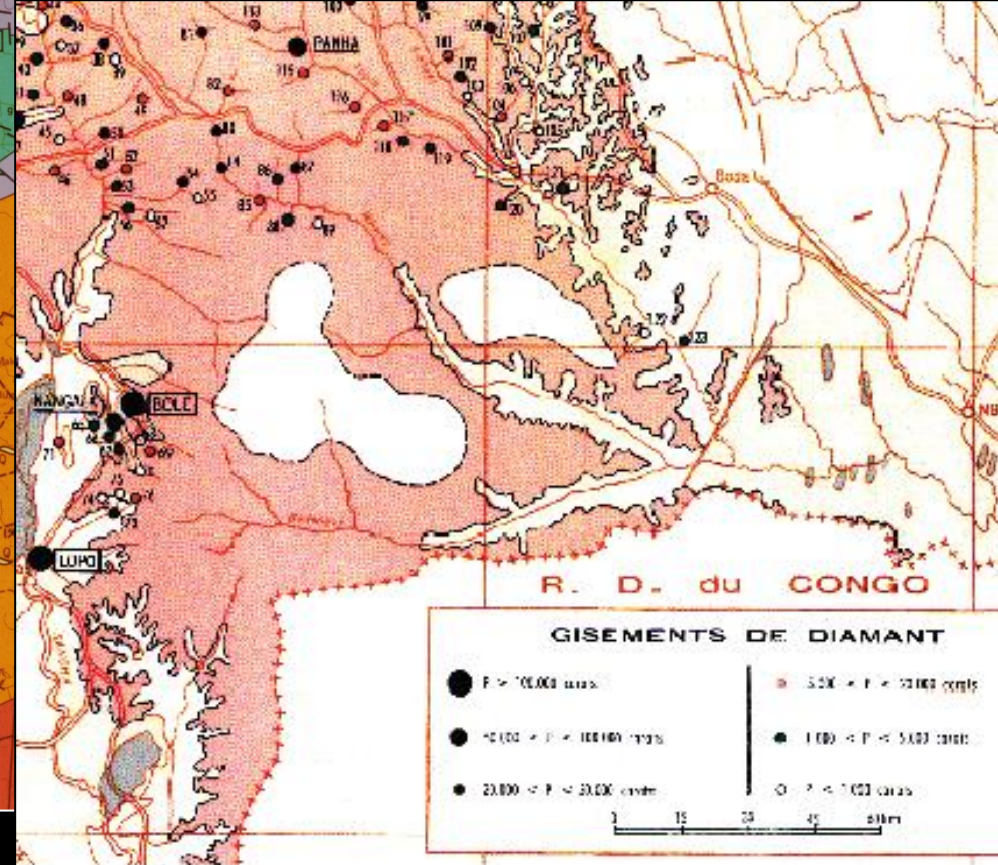
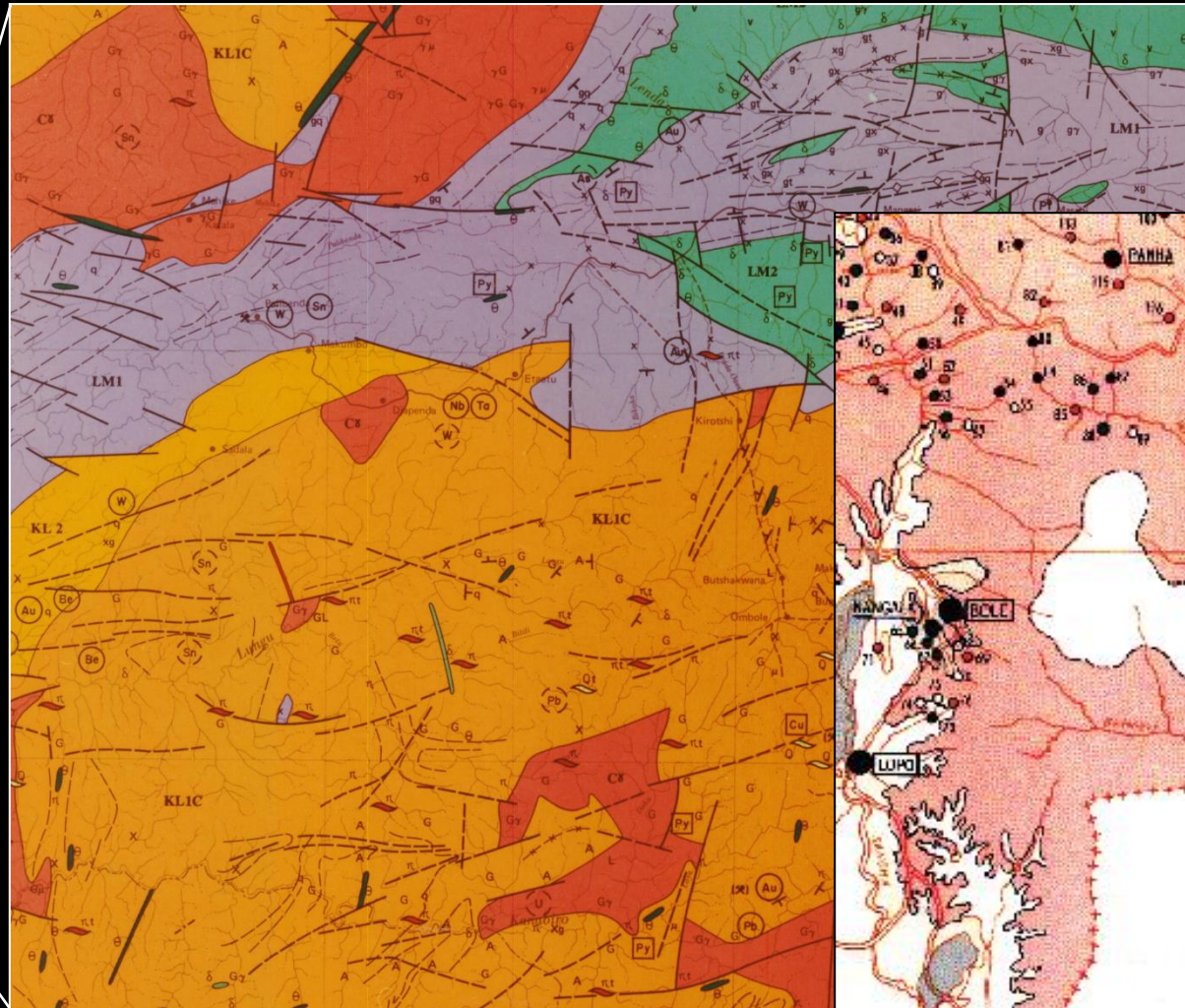
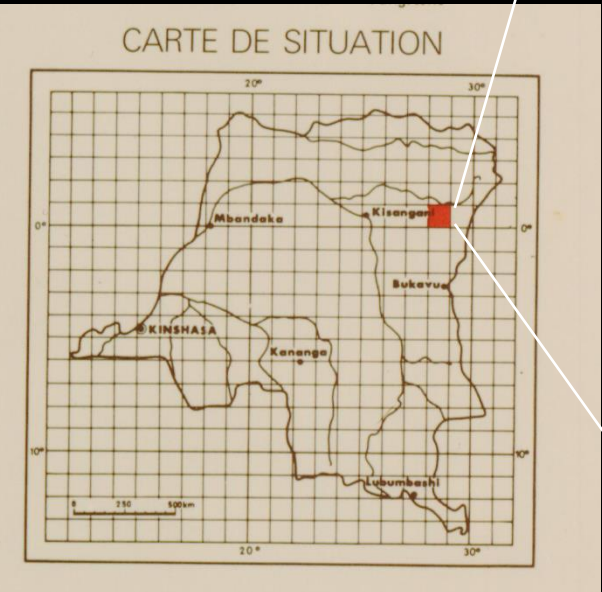
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DEPARTEMENT DES MINES
Service Géologique

CARTE GEOLOGIQUE DE RECONNAISSANCE
MANGUREDJIPA NO/28

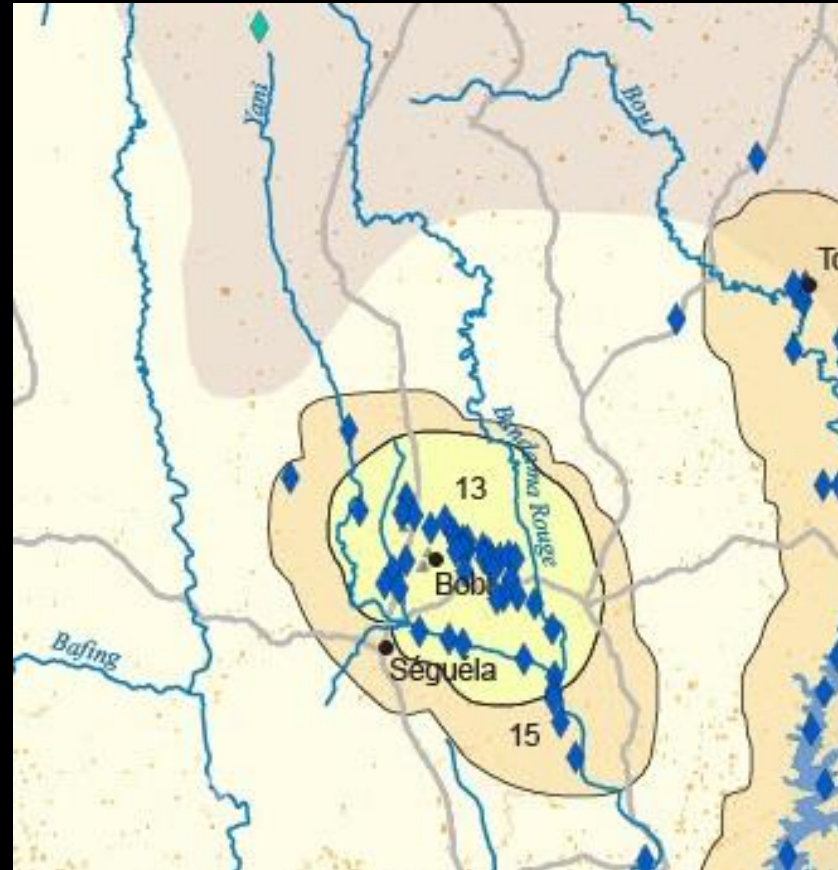
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Photogéologie établie par le Département Géologie générale du B.R.G.M.
Réalisation de la maquette par Y. NOËL (B.R.G.M.).
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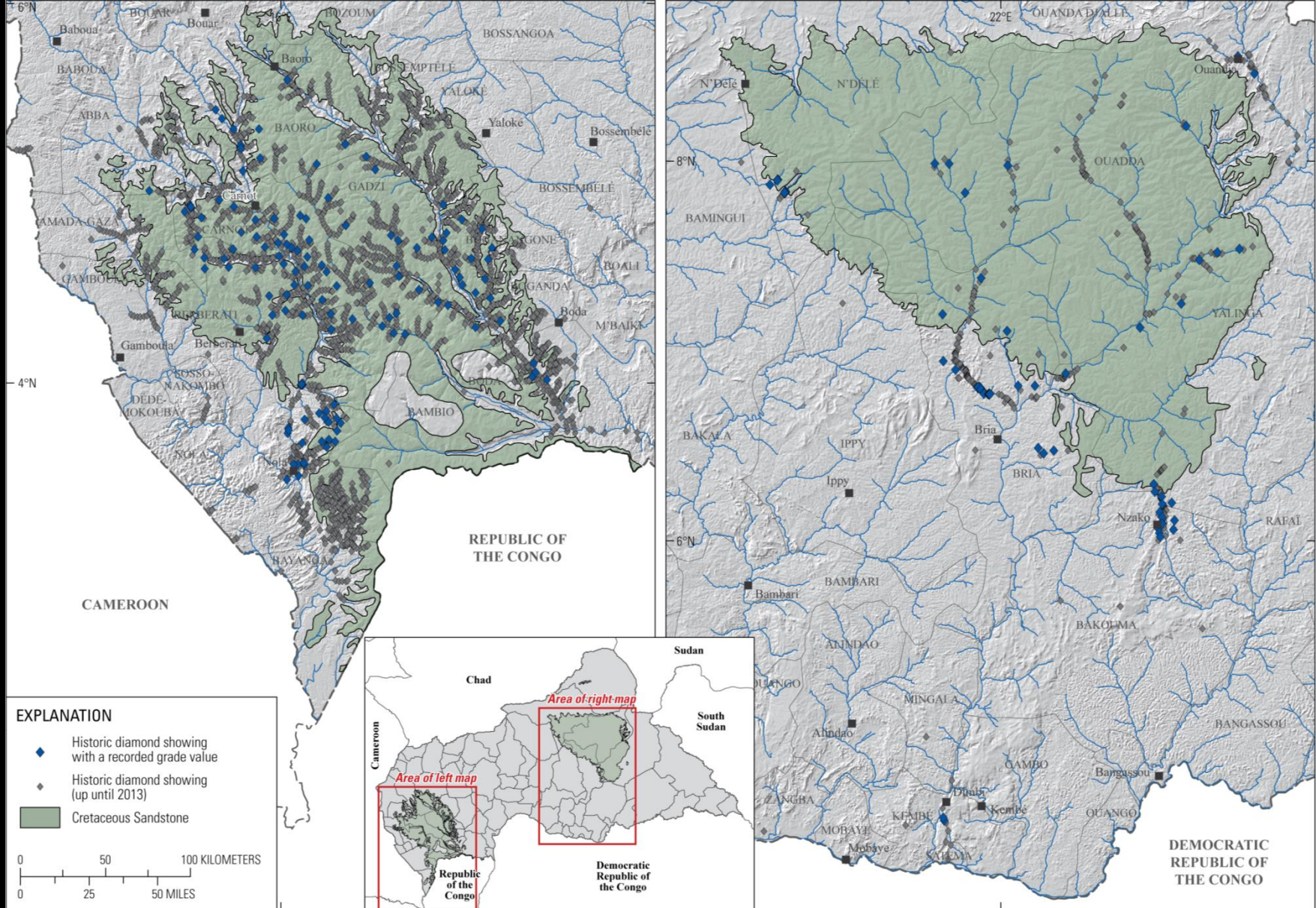
GEOSPATIAL 'DIAMOND' DATABASE

Diamond occurrences are mapped and attributed with deposit information (as available)



Num	Source	Date	Source_Category	Type	Northing (z34)	Easting (z34)	alluvium c	River	Total Cara	Avg Cts	St/Ct	Ore_Grad	Gravel_Gr	Company
11	Mestraud and Bessoles,	1982	Map and text	Occurrence	760663.4277	648700.5054	na	Douny	3956	0.34778	2.87	0.24	0.07	SMZ
12	Mestraud and Bessoles,	1982	Map and text	Occurrence	882978.1195	571869.6685	na	Zamza	9634	0.386551	2.58	0.79	na	SMZ
13	Mestraud and Bessoles,	1982	Map and text	Occurrence	816288.9536	599067.7847	na	Poulingui	4848	0.381582	2.61	0.56	na	SMZ
14	Mestraud and Bessoles,	1982	Map and text	Occurrence	795083.6426	576479.5188	na	Bohou Ng	8326		2.3	0.27	na	SMZ

Historic records of diamond mining



Mining visible in high-resolution satellite imagery

Southwest of Carnot, CAR
Image Credit:
DigitalGlobe
WorldView-2,
February 21,
2016



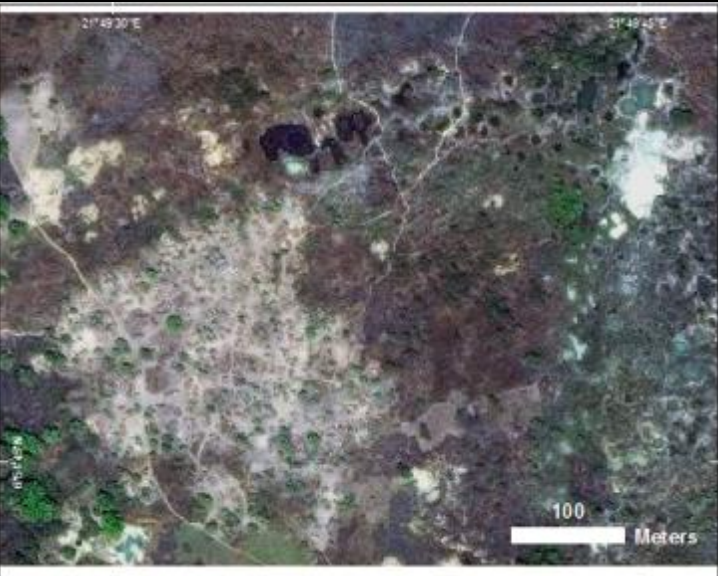
Northwest of Bria, CAR
Image Credit:
DigitalGlobe
WorldView
2015 & 2016



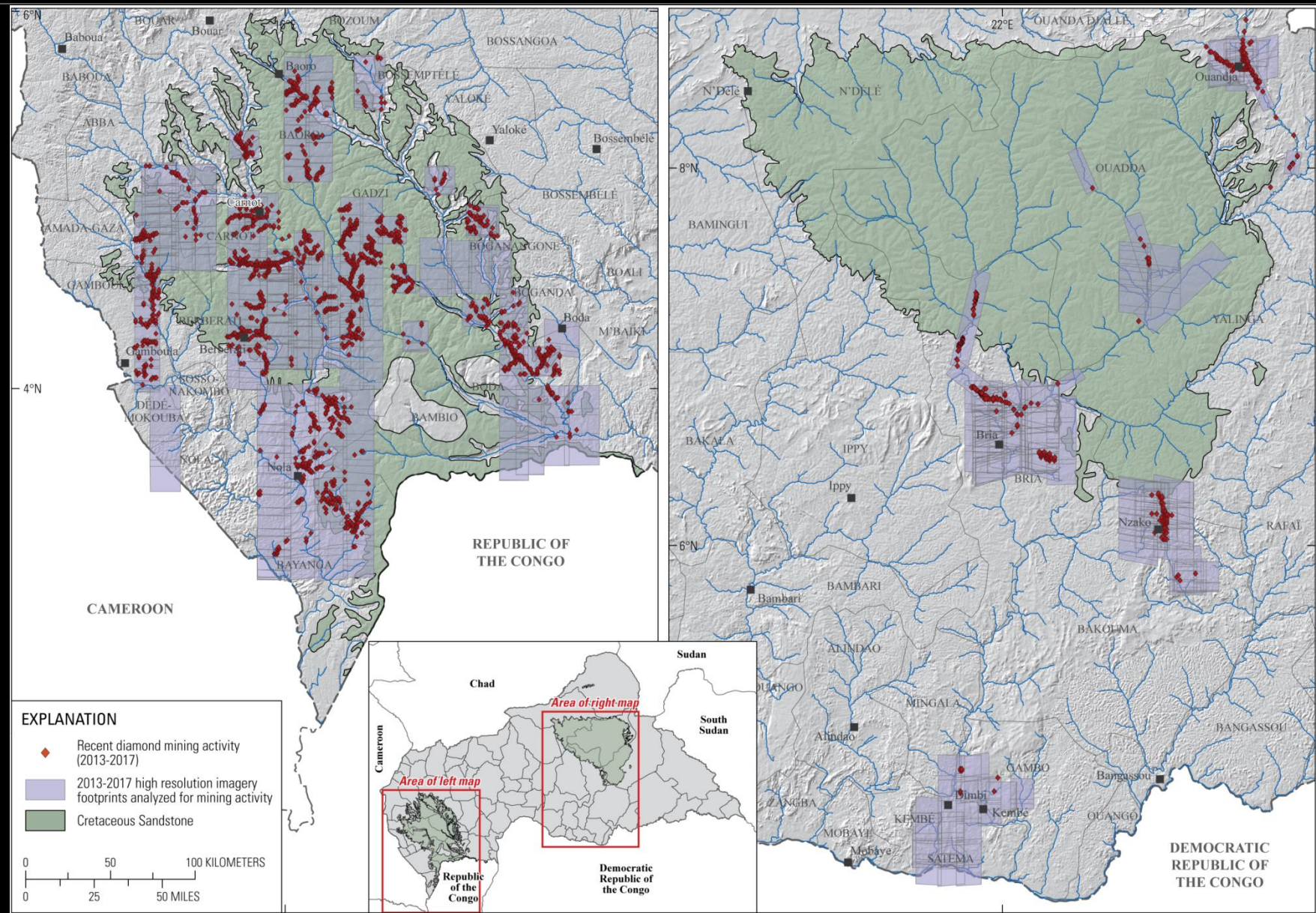
Southeast of Carnot, CAR
Image Credit:
DigitalGlobe
WorldView-2,
March 27, 2016



Northwest of Bria, CAR
Image Credit:
DigitalGlobe,
WorldView
2015 & 2016



Recent diamond mining activity



Estimating production

$$e = o + t$$

$$y = \left(\frac{g}{e}\right) \times d \times m$$

e = Median volume of excavated material in Western CAR (meters³)

o = Median volume of overburden material in Western CAR (meters³); 3.95 is the value used for the West, 3.1 for the East

t = Median volume of gravel in Western CAR (meters³); 0.46 is the value used for the West, 0.4 for the East

y = Estimated diamond production volume of the subprefecture (carats)

g = Median diamond grade mined from Western CAR (carats/meters³); 0.28 is the value used for the West, 0.17 for the East

d = Average number of days per year a miner mines for diamonds; 200 is the value used

m = Number of miners working within the subprefecture; 5 and 10 are the values used

Country-scale Resource assessments

- 1) Resource potential (resource volume estimated to be remaining in the country)
- 2) Production capacity (current volume of resource which may realistically be produced per year through artisanal mining)



Thank You



Current production range

Western region

Subprefecture	Current Annual Production Estimate Range	
	Minimum (cts)	Maximum (cts)
Abba	9,587.30	19,174.60
Amada-Gaza	4,228.23	8,456.46
Baboua	ND	ND
Bambio	406.35	812.70
Baoro	20,145.20	40,290.40
Bayanga	161.27	322.54
Berberati	26,133.36	52,266.72
Boda	10,554.77	21,109.54
Boganangone	5,189.58	10,379.16
Boganda	9,255.73	18,511.46
Bossembélé	ND	ND
Bouar	1,611.72	3,223.44
Bozoum	253.97	507.94
Carnot	27,782.59	55,565.18
Gadzi	28,302.79	56,605.57
Gamboula	4,788.77	9,577.53
M'Baiki	650.41	1,300.81
Nola	16,481.83	32,963.66
Sosso-Nakombo	ND	ND
Yalok	2,374.60	4,749.21
Totals	167,908.46	335,816.91

Eastern region

Subprefecture	Current Annual Production Estimate Range	
	Minimum (cts)	Maximum (cts)
Bakouma	2,420.38	4,840.76
Bamingui	ND	ND
Bria	8,189.14	16,378.29
Gambo	388.57	777.14
Ippy	ND	ND
Kembé	0.00	0.00
Mingala	ND	ND
Ndéié	ND	ND
Ouadda	7,527.45	15,054.90
Satema	0.00	0.00
Yalinga	2,010.52	4,021.04
Zangba	ND	ND
Totals	20,536.06	41,072.12

Subprefecture	Current Monthly Production Estimate Range	
	Minimum (cts)	Maximum (cts)
Abba	798.94	1,597.88
Amada-Gaza	352.35	704.70
Baboua	ND	ND
Bambio	33.86	67.72
Baoro	1,678.77	3,357.53
Bayanga	13.44	26.88
Berberati	2,177.78	4,355.56
Boda	879.56	1,759.13
Boganangone	432.46	864.93
Boganda	771.31	1,542.62
Bossembélé	ND	ND
Bouar	134.31	268.62
Bozoum	21.16	42.33
Carnot	2,315.22	4,630.43
Gadzi	2,358.57	4,717.13
Gamboula	399.06	798.13
M'Baiki	54.20	108.40
Nola	1,373.49	2,746.97
Sosso-Nakombo	ND	ND
Yalok	197.88	395.77

Subprefecture	Current Monthly Production Estimate Range	
	Minimum (cts)	Maximum (cts)
Bakouma	201.70	403.40
Bamingui	ND	ND
Bria	682.43	1,364.86
Gambo	32.38	64.76
Ippy	ND	ND
Kembé	0.00	0.00
Mingala	ND	ND
Ndéié	ND	ND
Ouadda	627.29	1,254.57
Satema	0.00	0.00
Yalinga	167.54	335.09
Zangba	ND	ND

Current Annual Production Estimate Range		
	Minimum (cts)	Maximum (cts)
Total CAR	188,444.52	376,889.03

Official KP Production Statistics	
Year	Total Country Volume (cts)
2003	329,643.00
2004	348,205.16
2005	382,756.00
2006	419,528.35
2007	467,710.53
2008	377,209.12
2009	311,779.42
2010	301,557.62
2011	323,575.50
2012	365,916.63
Minimum	301,557.62
Maximum	467,710.53
Mean	362,788.13
2003-2007 Minimum	329,643.00
2003-2007 Maximum	467,710.53
2003-2007 Mean	389,568.61
2008-2012 Minimum	301,557.62
2008-2012 Maximum	377,209.12
2008-2012 Mean	336,007.66

*ND in a field represents NoData, meaning that imagery was not acquired for that subprefecture.



The Central African Republic

