

CONE

MINE EXPLORATION

Cavalo Morto Project

Belo Horizonte – Brazil

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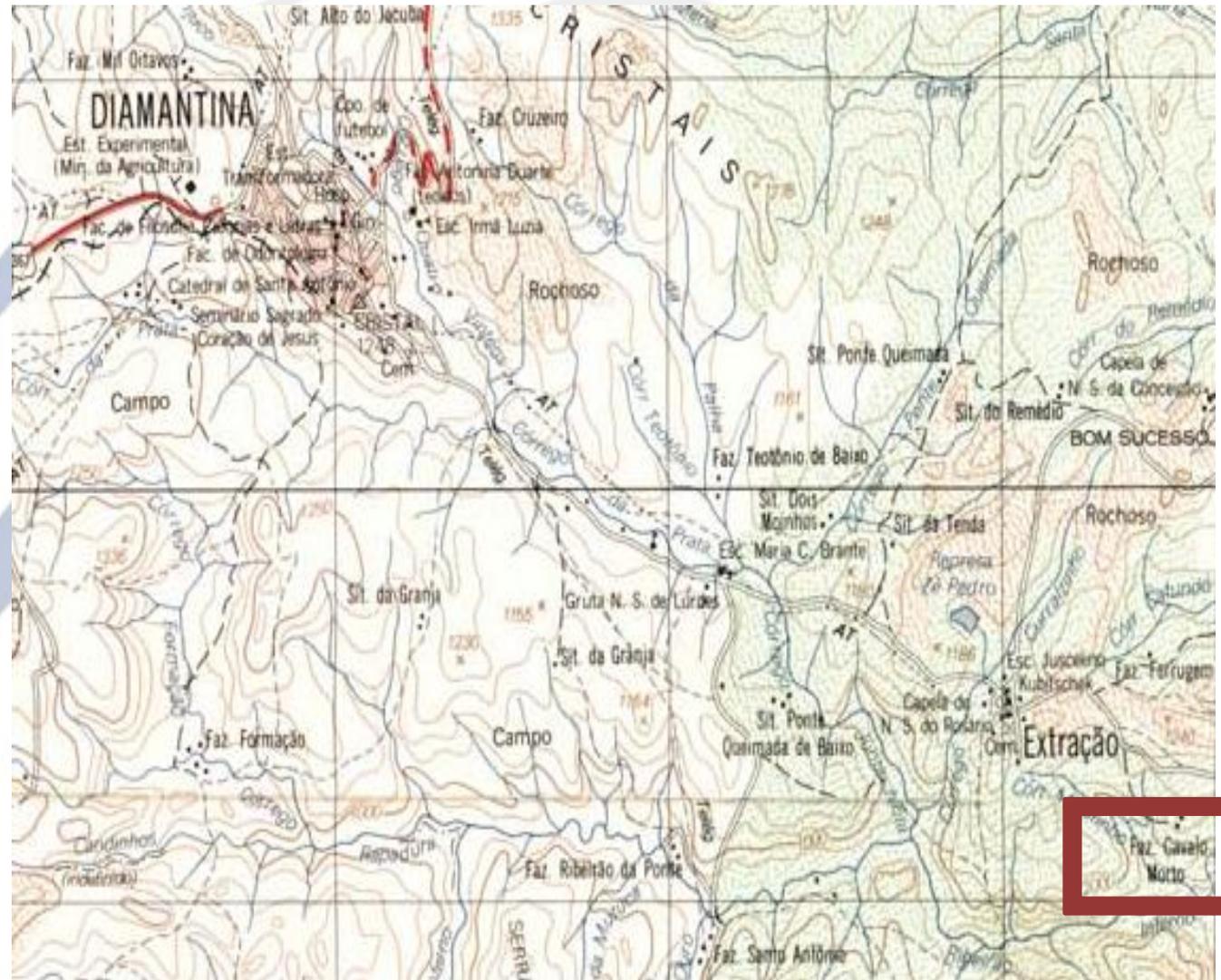
History

- Since the first deposit was discovered, the area of Diamantina have been producing diamonds continuously.
- It had been extracted 30% to 40% of all the diamonds that Brazil has produced, which means something around 30.000.000 of carats.
- Nowadays, the extraction of diamonds is an important way of subsistence for local people.



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The Diamond in the Espinhaço Range occurs in the area of Diamantina and the gemstone is recovered through recent alluvium and sopa conglomerates with mesoproterozoic age.



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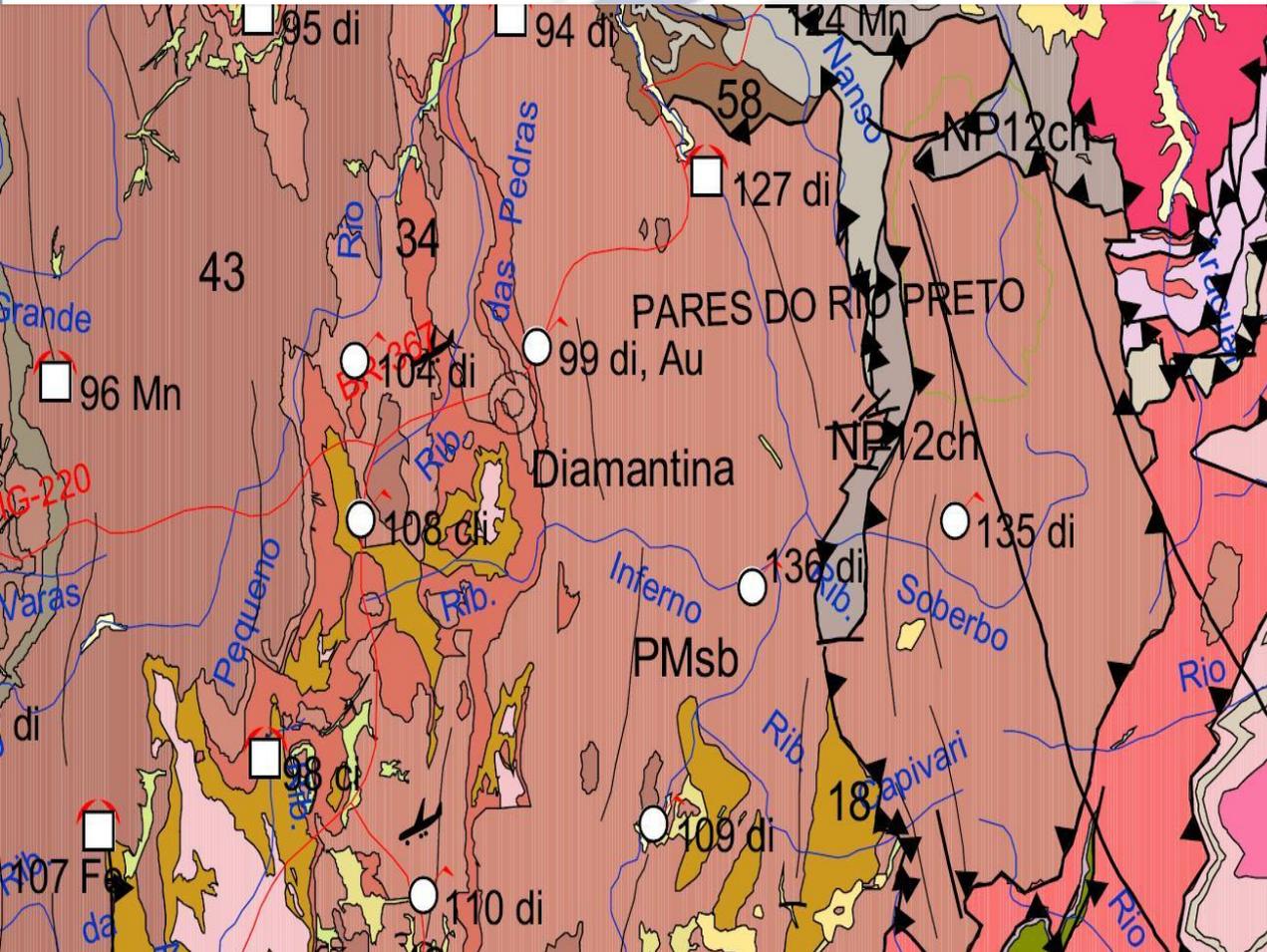
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General Information

- Gravel is the main granulometry of the rocks where we can find diamond.
- The concentration of the diamond in this rock is on the range of 0,1 to 0,01qm/m³ and the measure of the rock is around 0,1 to 0,15qm.
- The grade of diamonds in the gravel alluvium of espinhaço are on the range of 0,01 to 0,05qm/m³.
- The biggest grade, volumes of conglomeratic rocks and gem ever produced in the district of Diamantina were found on area of extration that includes Cavalo Morto Mine.

Local Geology

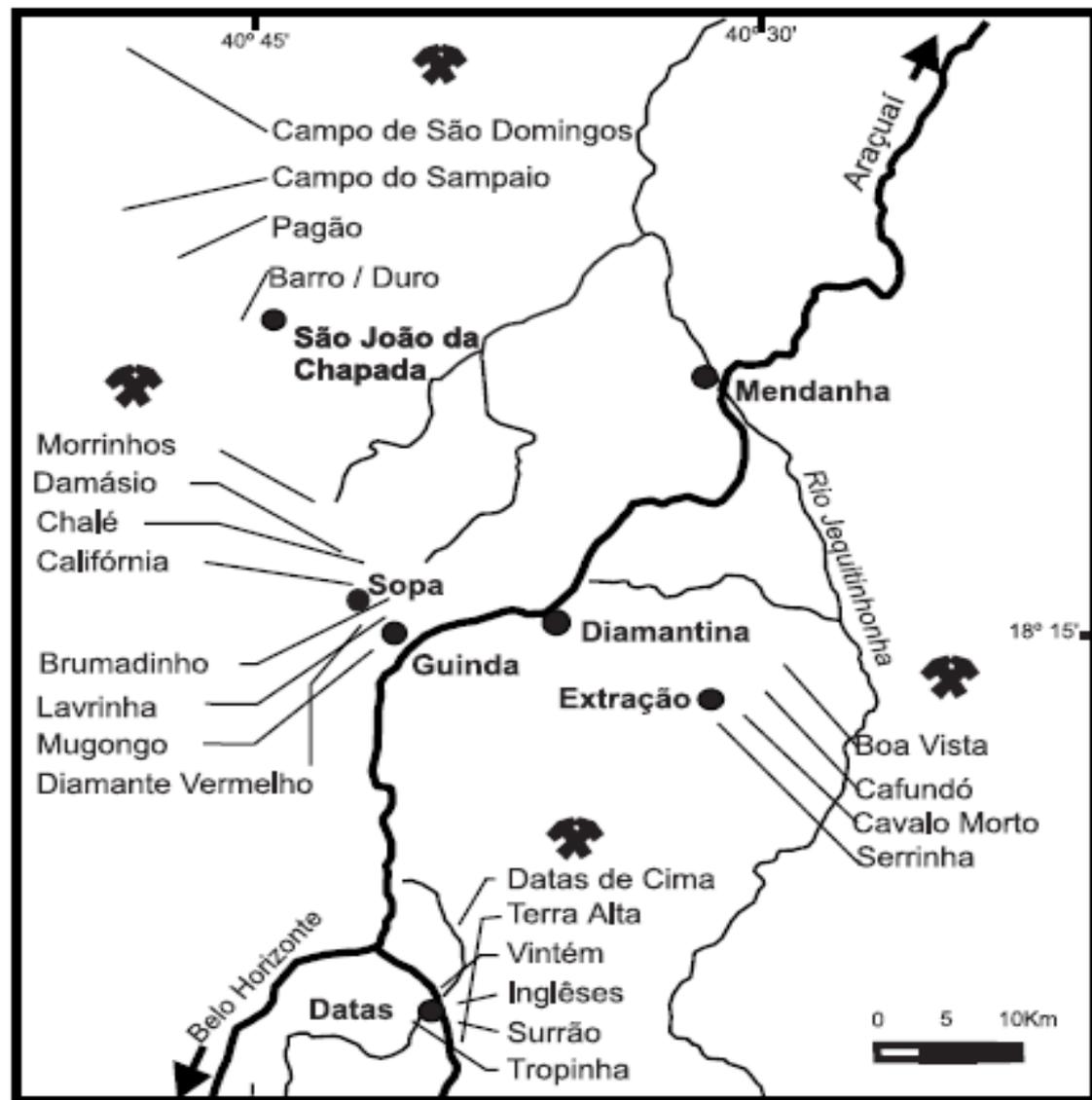


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The Espinhaço Supergroup outcropping on the area is represented by large sequences of quartzites, which are interspersed with phyllites and gravels, all of them metamorphized on green schists facies, allowing the preservation of the sedimentary structure and other sedimentary attributes of these rocks.

Rock

The rocks are from the Sopa Brumadinho formation – Supergroup Espinhaço and can be divided in four areas: Sopa-Guinada, São João da Chapada, Datas and Extração.



● Campos Diamantíferos  Estrada  Rio  Garimpo

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The gemstone is found on “Clusters” and the dispersion is heterogeneous, indicating that will be volumes where a lot of diamonds could be found, and equivalent volumes that none will be found.



A- Abandoned mine of diamonds in the Sopa Conglomerate in the diamantina district. The relict big blocks are hard portions of the rock, do not mined for the Garimpeiros.



B- Detail of the Sopa Conglomerate showing be a clast-support rock with pebbles of several sizes and types.



C- Detail of the Sopa Conglomerate showing be a clast-support rock with pebbles of several sizes and types.

Rock Aspects

ROCK ASPECTS	<i>SOPA-GUINDA</i>	<i>SOPA-GUINDA</i>	<i>SOPA-GUINDA</i>	<i>EXTRAÇÃO</i>
Body Shape	lenticular	acanalada	lenticular	lenticular e acanalada
Maximum thickness	10 m	10 m	20 m	100 m (?)
Classification	polimítico	polimítico	polimítico	polimítico
Clasts Selecting (>60%)	Porly Selected	Porly Selected	Porly Selected	Porly Selected
Maximum Diameter	0,6 m	0,4 m	0,6 m	1,0 m
Base	Clasts-Supported	Clasts-Supported	Clasts-Supported	Clasts-Supported
Rouding	subarredondados	subangulosos	subarredondados	subangulosos
Main Matrix	Sandy	Clay	Sandy-Clay	Clay

Economy

National reserves of diamond

RESERVA NACIONAL DE DIAMANTE (Mct)

UF	2.003	2.004	2.005	2.006	2.007	%
MG	16,90	15,76	26,80	10,31	63,51	61,56
MT	13,40	27,00	15,00	19,90	8,20	7,95
BA	2,50	2,50	2,50	1,30	28,10	27,24
PR	0,00	0,00	0,00	0,18	2,80	2,71
GO	0,29	0,29	0,29	0,29	0,55	0,53
Total	33,09	45,55	44,59	31,98	103,16	100

Fonte: SisMINE-AMB (DNPM)

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Brazilian Importation and Exportation related with Diamond Commodities names

IMPORTAÇÃO E EXPORTAÇÃO BRASILEIRA DE ACORDO COM A NOMENCLATURA DE *DIAMONDS COMMODITIES*

Discriminação		2001	2002	2003	2004	2005	
Produção Estimada	Diamante Nacional Bruto	(ct)	700.000	500.000	400.000	300.000	300.000
	Bens Primários						
Importação	NCM 71021000	(ct)	320	500	198	6.415	4.230
		(US\$ – FOB)	27.066,00	22.669,00	14.366,00	578.132,00	12.280,00
	NCM 71022100	(ct)	197618	292.865	27.923	3.621	10.290
		(US\$ – FOB)	228.231,00	206.182,00	69.013,00	52.713,00	79.837,00
Exportação	NCM 71023100	(ct)	0	0	0	0	1.955
		(US\$ – FOB)	0,00	0,00	0,00	0,00	197.531,00
	NCM 71023900	(ct)	7.117	5.807	4.575	5.454	0
		(US\$ – FOB)	352.372,00	348.978,00	304.943,00	285.917,00	0,00
Preço Médio	NCM 71021000	(ct)	29.787	175.395	67.444	188.329	70.811
		(US\$ – FOB)	606.711,00	15.781.819,00	10.948.835,00	14.350.562,00	15.017.677,00
	NCM 71022100	(ct)	2.567	12.754	55.227	47.835	204.777
		(US\$ – FOB)	13.600,00	80.837,00	4.030.820,00	6.490.839,00	3.356.550,00
Preço Médio	NCM 71023100	(ct)	496.723	409.211	123.254	7.135	4.932
		(US\$ – FOB)	8.465.614,00	12.909.656,00	8.440.435,00	1.007.270,00	678.541,00
	NCM 71023900	(ct)	10.672	5.204	4.657	1.724	0
		(US\$ – FOB)	1.573.287,00	1.807.400,00	702.569,00	676.762,00	0,00
Preço Médio	NCM 71021000	(US\$/ct)	20,37	86,980	162,340	76,200	212,081
	NCM 71022100	(US\$/ct)	5,3	6,340	72,990	135,690	16,391
	NCM 71023100	(US\$/ct)	17,04	31,550	68,480	141,170	137,579
	NCM 71023900	(US\$/ct)	147,42	347,310	150,860	392,550	0,000

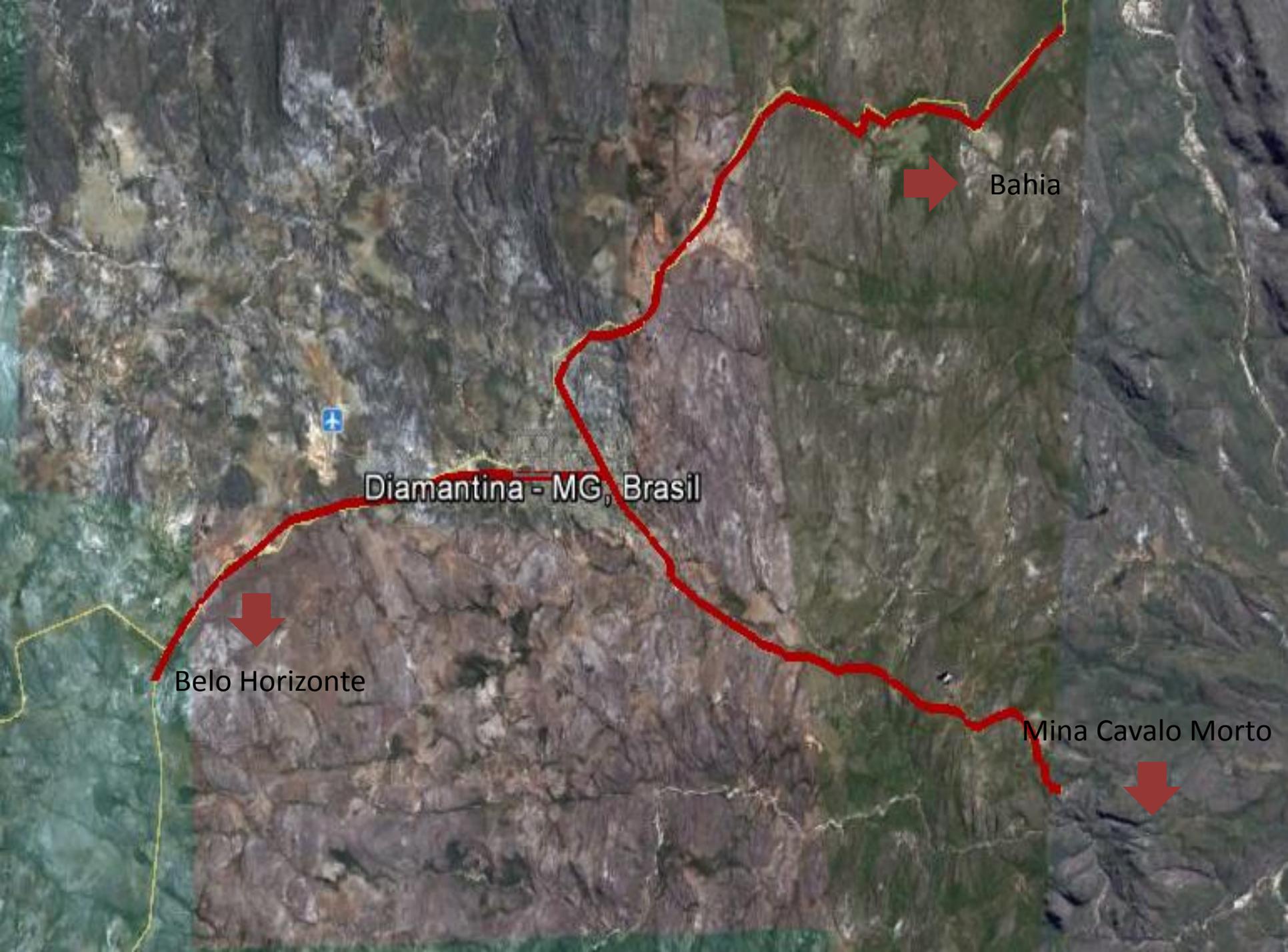
Fontes: MDIC/SECEX/DECEX and MME/DNPM (adaptado por Nahass, S.) Notas: (1) Descrição das commodities: NCM 71021000 – Diamantes não selecionados, não montados, nem engastados; NCM 71022100 – Diamantes industriais, em bruto ou serrados, clivados etc.; NCM 71023100 – Diamantes não industriais, em bruto/serrados/clivados etc.; NCM 71023900 – Outros diamantes não industriais, não montados, não engastados. Não considerado mais pelo KPCS; (2) Preço Médio Base Exportação. (ct) quilate.

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Logistic

The local road network is well spreaded and with good quality. It has main roads paved and other ones available to traffic all the year.



Bahia

Diamantina - MG, Brasil

Belo Horizonte

Mina Cavallo Morto

Mining

- Two important methods are used for the extraction of the diamond: The dredge and the hydraulic blast.
- The mining of the soga conglomerate is viable because they are weathered and easily desegregated, allowing the technology of hydraulic blast and a simple processing.
- Contrary of the dredge, the hydraulic blast allow the recovery of big diamonds.
- The old mine of Cavalo Morto has reservations of remnants conglomerates that are hard, named by the garimpeiros of “cold mass”. So, there is no garimpo on these local anymore, and the mine became subordinated to the uses of technology.
- One possible method of mining is the blast of the rock and the cominution of the ore. Examples: Kimberlites on South Africa, Australia and Siberia.
- Expressives minings on the area: Datas, Boa Vista, Serrinha, Lavrinha, Perpétua, Barro Mole, Campo Sampaio and Jobô.



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