

**SITUATION OF THE MINERAL ACTIVITIES IN THE PARAIBA VALLEY
(SÃO PAULO STATE, BRAZIL) SHOWED ON THE TM-LANDSAT.**

Tomoyuki Ohara
Juércio Tavares de Mattos
Instituto Nacional de Pesquisas Espaciais - INPE
Av. dos Astronautas, 1.758 - Caixa postal 515
12.201 - São José dos Campos - SP - Brasil

ABSTRACT

This survey presents the situation of the mineral activities in the Paraíba Valley (eastern São Paulo State, Brazil), during the 1939-1989 period. In this study were analyzed 609 mineral informations, distributed in 44 municipal districts, equivalent in a surface of 18,000 km² and showed on the TM-Landsat photographic image. The principal explorations of mineral deposits are the one classified of industrial use and direct use in the civil building.

KEY WORDS: Mineral activities; Paraíba Valley; Remote Sensing.

1. INTRODUCTION

This work is coming from the elaboration of the regional study for the knowledge of the economic-social and physical environment dates.

The Paraíba Valley corresponds a surface of 18,000 km², including 44 municipal districts of the eastern São Paulo State, Brazil.

The principal objective of this work were to realize the survey of mineral activities in search or exploration situations, connected with possible impact caused to physical environment.

2. DESCRIPTION AND ANALYSIS OF RESULTS

In this study were analyzed 609 mineral informations, obtained from the National Department of Mineral Production (DNPM), in a period since 1939 as far as 1989.

Everyone the mineral information were cartographed on the planimetric map in the scale of 1:250,000 and its areas are proportional with this thematic map, where were does distinction of the mineral activities in search or exploration situations.

In this period of 50 years ago, verified itself as the 128 mineral exploration activities were amount nearly 12,000 hectares, equivalent a 0.67% of the studied area, and the 481 mineral search activities totalizes nearly 316,000 hectares.

These dates indicates one future of mineral development enough expressive on the Paraíba Valley region, inclusively concerning the possible ambiental impact of theses mineral activities.

How means to be examined in the Table 1 and Figure 1, verified itself which:

- the bauxite is the principal mineral activitie in 11 explorations, which total one surface of 4,206 hectares, equivalent a 35% of the total exploration activities, concentrated in the northeast region of studied area;

- the second mineral substance is the clay with 26 mining, corresponding 4,130 hectares or 34% of total exploration activities, concentrated on the southwest and central regions of studied area;

- others mineral substances in exploration activities are:- quartzite, sand, granite, gneiss, kaolin, calcareous/dolomite, mineral water, feldspar and gravel.

The first mineral activitie is the mineral water exploration, since 1939, at an area of 25 hectares on the central region of studied area.

The older mineral activities take places on the southwest and central regions, with explorations of mineral water and mineral substances utilized in the ceramic manufactures, as day, quartzite, kaolin and feldspar.

The possible ambiental impact is enough preoccupying for large quantity of mineral search activities, totalizing about 316,000 hectares in 481 possible mineral mining.

The principal mineral search activitie is leaded by gneiss/granite for ornamental use, accompanied by clay, bentonite and kaolin, for use in ceramic manufactures (Table 1 and Figure 2).

MINERAL SUBSTANCE	SEARCH ACTIVITIES		MINERAL EXPLORATIONS	
	NUMBER	HECTARES	NUMBER	HECTARES
Apatite (ap)	4	6,636.08	-	-
Argillite (agl)	4	2,952.76	-	-
Bauxite (bx)	21	12,132.41	9	3,271.37
Bauxite + industrial clay + kaolin (bx,ag,ki)	1	164.75	-	-
Bauxite + kaolin (bx,ki)	-	-	1	40.00
Bauxite + quartzite (bx,qzt)	-	-	1	895.50
Bentonite (bt)	35	26,342.66	-	-
Bentonitic clay (agb)	3	2,081.60	3	704.39
Calcareous (cal)	11	8,897.82	1	52.00
Calcareous + dolomite (cal,do)	-	-	2	70.44
Charnockite (ch)	20	7,267.43	-	-
Clay (aga)	4	19.34	5	73.22
Clay + sand (aga,aa)	1	29.75	-	-
Columbite (Nb)	2	1,875.00	-	-
Dolomite (do)	5	3,207.57	5	132.35
Dolomite + quartzite (do,qzt)	2	563.23	-	-
Feldspar (fd)	10	5,370.15	-	-
Feldspar + industrial granite + quartz (fd,gri,qz)	1	87.63	-	-
Feldspar + mica (fd,mi)	2	1,425.00	-	-
Feldspar + mica + quartz (fd,mi,qz)	3	2,117.79	-	-
Feldspar + quartz (fd,qz)	1	10.00	-	-
Feldspar + quartz + granite + kaolin (fd,qz,gr,ki)	-	-	1	68.76
Feldspar + quartzite (fd,qzt)	2	100.00	-	-
Fire clay (agr)	19	10,974.48	4	528.64
Gneiss (gn)	12	5,211.19	10	494.96
Gneiss + granite (gn,gr)	-	-	1	40.60
Gold (Au)	4	2,915.07	-	-
Granite (gr)	61	31,719.57	18	548.27
Granite + gravel (gr,c)	1	1,000.00	-	-
Granodiorite (gd)	1	892.53	-	-
Granulite (gl)	1	46.69	-	-
Graphite (C)	2	1,999.82	-	-
Gravel + sand (c,aa)	-	-	1	50.00
Hydrargillite (hl)	10	6,806.91	-	-
Industrial charnockite (chi)	1	312.00	-	-
Industrial clay (ag)	45	29,136.53	9	1,600.28
Industrial clay + charnockite (ag,ch)	1	185.60	-	-
Industrial clay + kaolin (ag,ki)	2	544.20	3	517.60
Industrial clay + quartzite (ag,qzt)	-	-	2	706.75
Industrial clay + quartzite + industrial sand (ag,qzt,a)	1	290.50	-	-
Industrial granite (gri)	6	3,325.78	-	-
Industrial granodiorite (gdi)	1	100.00	-	-
Industrial sand (ai)	11	6,980.78	1	292.37
Kaolin (ki)	30	23,908.75	3	367.94
Kaolin + dolomite (ki,do)	1	750.00	-	-
Kaolin + feldspar (ki,fd)	1	71.85	-	-
Kaolin + quartzite (ki,qzt)	1	232.45	-	-
Lead + copper + zinc (Pb,Cu,Zn)	1	1,000.00	-	-
Leucite (lc)	5	4,973.00	-	-
Lignite (lt)	7	10,314.84	-	-
Melting sand (af)	8	6,821.20	-	-
Melting sand + clay (af,ag)	1	761.23	-	-
Mica + quartz + feldspar (mi,qz,fd)	1	1,000.00	-	-
Migmatite (mig)	3	2,048.38	-	-
Mineral water (A)	11	303.10	10	115.77
Mineral water + graphite (A,C)	1	1,000.00	-	-
Mineral water + kaolin + granite (A,ki,gr)	1	989.50	-	-
Mineral water + refractory clay (A,agr)	1	1,000.00	-	-
Montmorillonite (mt)	2	883.43	-	-
Ore of chromium (Cr)	1	1,000.00	-	-
Ore of tantalum (Ta)	5	3,112.75	-	-
Ornamental granite (gro)	18	4,852.45	-	-
Peat (tf)	29	33,320.59	-	-
Phillite (fi)	1	148.63	-	-
Phosphate (fo)	1	1,950.00	-	-
Pyrophyllite (pf)	1	999.75	-	-
Quartz (qz)	1	1,000.00	-	-
Quartzite (qzt)	15	5,840.44	8	903.19
Quartzose sand (aq)	3	145.07	2	11.92

Quartzose sand + clay + granite (aq,ag,gr)	1	218.63	-	-
Quartzose sand + feldspar + argillaceous shale (aq,fd,fl)	1	228.81	-	-
Sand (aa)	2	10.80	23	543.68
Sand + gravel (a,c)	-	-	1	11.88
Sand for glass (av)	1	37.50	3	17.32
Sapropel (sp)	12	21,438.53	-	-
Slate (ad)	2	955.23	-	-
Slate + gold + zinc + copper (ad,Au,Zn,Cu)	1	760.82	-	-
Stone (pedra)	-	-	1	31.41
TOTAL OF MINERAL SUBSTANCES	481	315,800.35	128	12,090.61

Table 1 - The mineral substances in search activities or in mineral explorations in the Paraíba Valley.

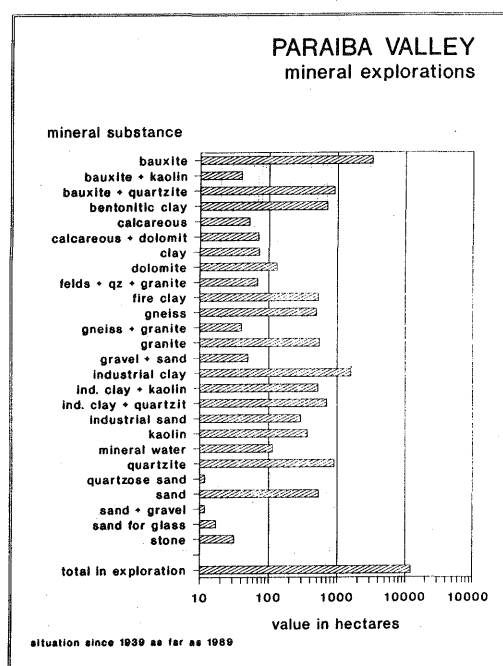
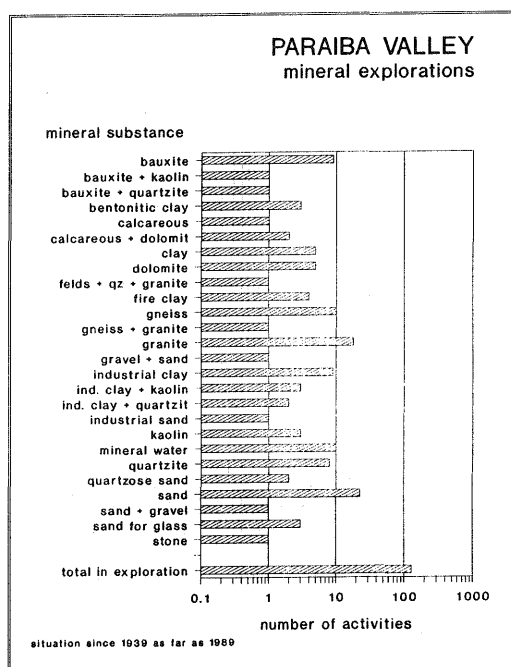


Figure 1 - Distribution of the mineral substances in explorations related to the number of activities and value in hectares.

One other mineral substance enough searched in the Paraíba Valley, is the sand for the high quality by absent of ferruginous impurity. The sand search activities, mainly in the western portion of the studied area, is function of the proximity of São Paulo city, principal consumer center.

The relation of almost 4 mineral search activities for each mining today existent, its enough preoccupying, principally on the region constitute by sedimentary rocks of the Tertiary Taubaté Basin, coincidentally with the region highly inhabited and the most advanced region of studied area.

Its permitted to comment wich currently the exploration activities, in relation of land use is controllable with the use of control actions for the attendance of the recovery plan of the possible impact caused to physical environment.

An ancient problem of the sand exploration through the dredging of the watercourse, because of the revolution of inconsolidated sediments, inclusive the one past deposition of chemical insoluble products launched for the industries. These problems are larger in that regions where are does capitation of water for the public provision: its the case of the Paraíba do Sul River.

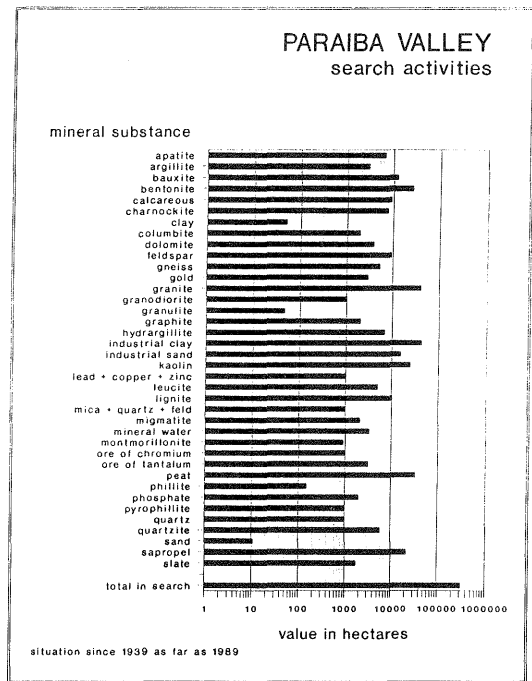
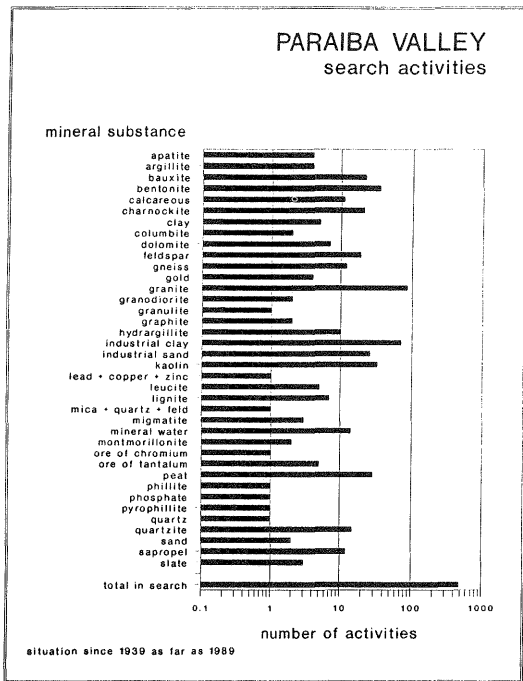


Figure 2 - Distribution of the mineral substances in search situation related to the number of activities and value in hectares.

3. REFERENCES

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