

THE STUDY RELATED TO THE
REGIONAL DEVELOPMENT PLAN OF
THE GREATER CARAJAS PROGRAM OF
THE FEDERATIVE REPUBLIC
OF BRAZIL

(PHASE II)

Attachment
to Part IV

CARAJAS


FINAL REPORT

JULY 1985

JAPAN INTERNATIONAL COOPERATION AGENCY
AND
EXECUTIVE SECRETARIAT OF THE INTERMINISTERIAL COUNCIL
OF THE GREATER CARAJAS PROGRAM

PLC
85-8

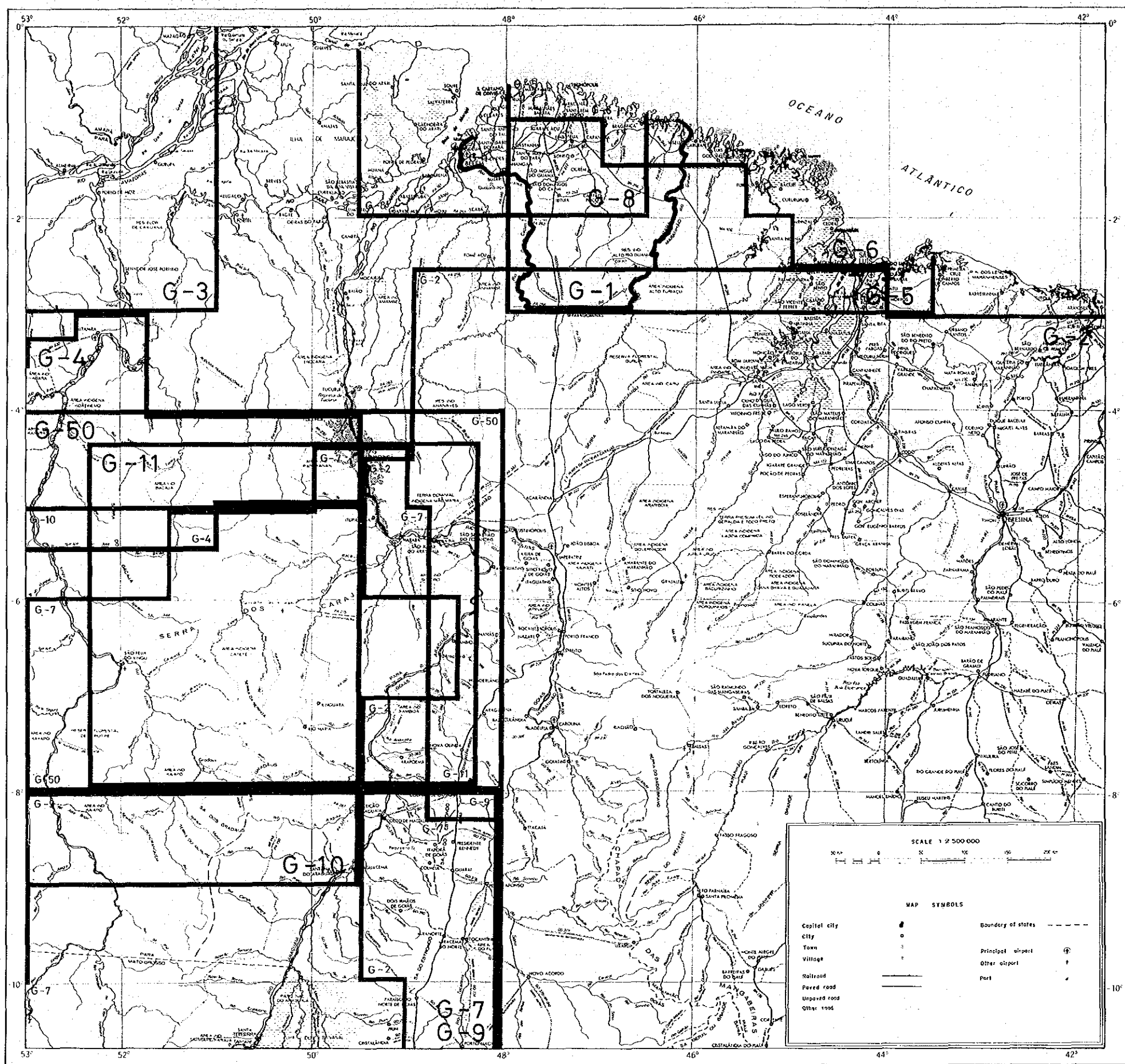
LIBRARY



100071033

Plate III-1①

国際協力事業団
12661
図書資料室蔵書



LEGEND

- G-1 Reconhecimento Geológico Preliminar da Área do Projeto Grão Pará (CRPM)
- G-2 Projeto Estudo Global dos Recursos Minerais da Bacia Sedimentar do Parará (DNPM/CPRM)
- G-3 Projeto Norte da Amazônia; Domínio Orladoque-Jari (DNPM/CPRM)
- G-4 Projeto Integração Geológica - Geofísica Sul do Pará (DNPM/CPRM)
- G-5 Projeto Gurupi (Etapa I) (DNPM/CPRM)
- G-6 Projeto Gurupi (Etapa II) (DNPM/CPRM)
- G-7 Projeto Araguaia (DNPM / PROSPEC)
- G-8 Projeto Argila-Belém (DNPM/CPRM)
- G-9 Projeto Radambrasil Levantamento de Recursos Naturais (ONPM)
- G-10 Projeto Mapa de Previsão da Província Estanífera do Sul do Pará (DNPM)
- G-11 Geologia Regional da Província Mineral de Carajás (DOCEGEO)
- G-50 Esboço Geológico 1/1,000,000 da Folha SB. 22 Araguaia (CPRM)

SCALE 1:2 500 000

MAP SYMBOLS

Capital city	●	Boundary of states	- - - - -
city	○	Principal airport	✈
Town	◐	Other airport	✈
Village	◑	Port	⚓
State road	—		
Feeder road	—		
Unpaved road	—		
Other road	—		

Index Map of Geological Surveys

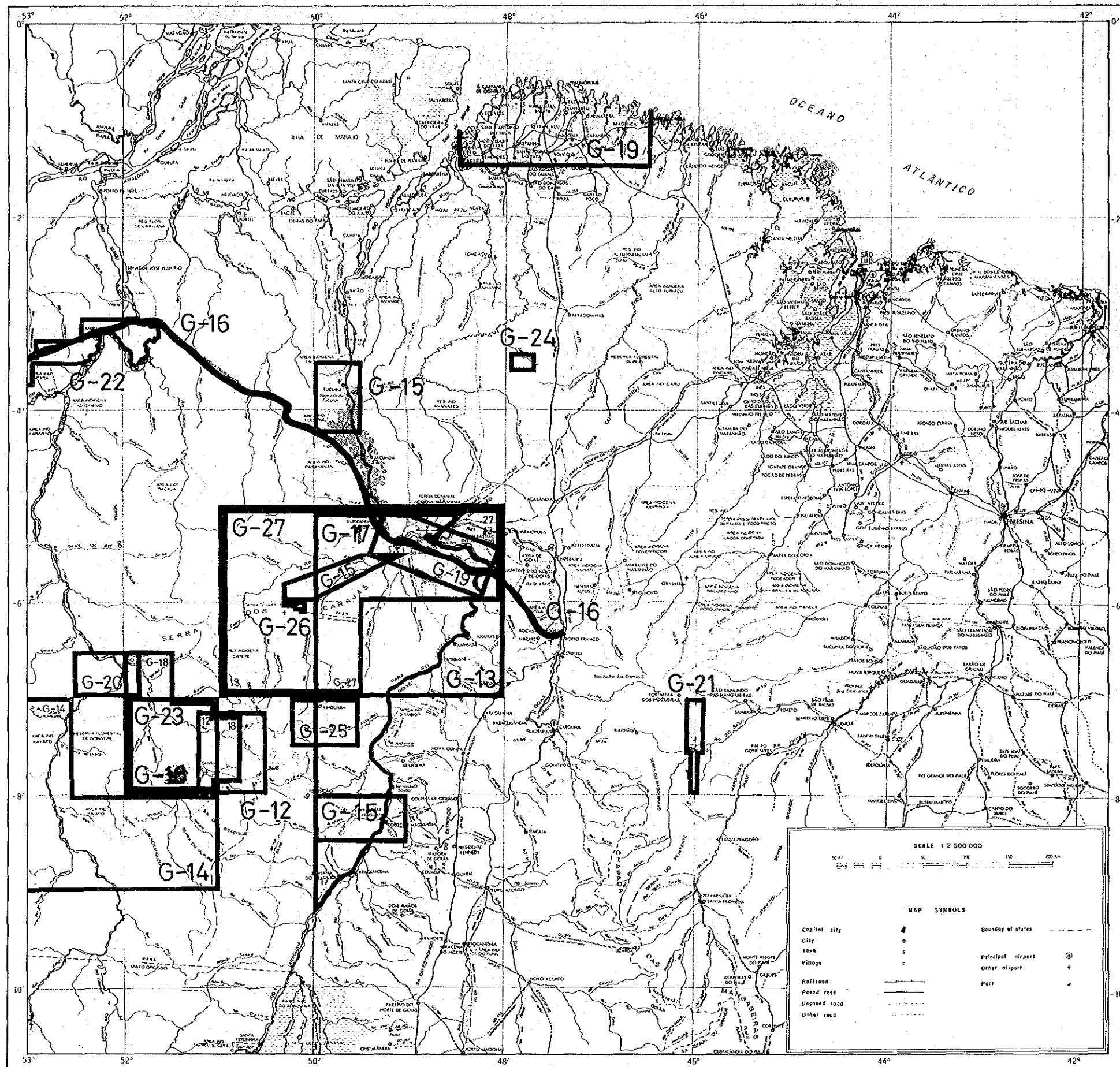


Plate III-1②

国際協力事業団
12661
調査資料室蔵書

LEGEND

- G-12 Projeto Estudo dos Garimpos Brasileiros Área Cumaru (DNPM/CPRM)
- G-13 Projeto Marabá (DNPM/CPRM)
- G-14 Projeto Rio Chiche (DNPM/CPRM)
- G-15 Projeto Materiais de Construção Tucuruí - Carajás (DNPM/CPRM)
- G-16 Projeto Transamazônica (ONPM/CPRM)
- G-17 Projeto Bacia do Araguaia Para (IDESP)
- G-18 Programa de Pesquisas de Carvão na Bacia do Rio Fresco, Afluente do Xingu, Estado do Pará (CPCAN/IDESP)
- G-19 Projeto Calcário (IDESP)
- G-20 Projeto Cobre Pará (ONPM/PROSPEC)
- G-21 Projeto Balsas (DNPM/UFPA)
- G-22 Projeto Sulfetos de Altamira - Itaituba (DNPM/CPRM)
- G-23 Projeto Xingu-Araguaia Área Gradus - Novo Olinda (SUDAM/CPRM)
- G-24 Relatório Final de Pesquisa Seta Camoói (RÍODOCE/DOCEGEO)
- G-25 Relatório Final de Pesquisa Serra das Andorinhas (CVRD/DOCEGEO)
- G-26 Relatório Final de Pesquisa Projeto Alumínio Serra dos Carajás (RÍODOCE/DOCEGEO)
- G-27 Projeto Mapas Metalogenéticos e de Previsão de Recursos Minerais (DNPM/CPRM)

SCALE 1:2 500 000

MAP SYMBOLS

Capital city	●	Boundary of states	---
City	○	Principal airport	⊕
Town	◦	Other airport	+
Village	•	Port	⚓
Railroads	—+—+—		
Paved road	—		
Unpaved road	- - - - -		
Other road	⋯		

Index Map
of
Geological Surveys

The Study Related to the Regional Development Plan of the Greater Carajás Program (Phase II), JICA, 1985

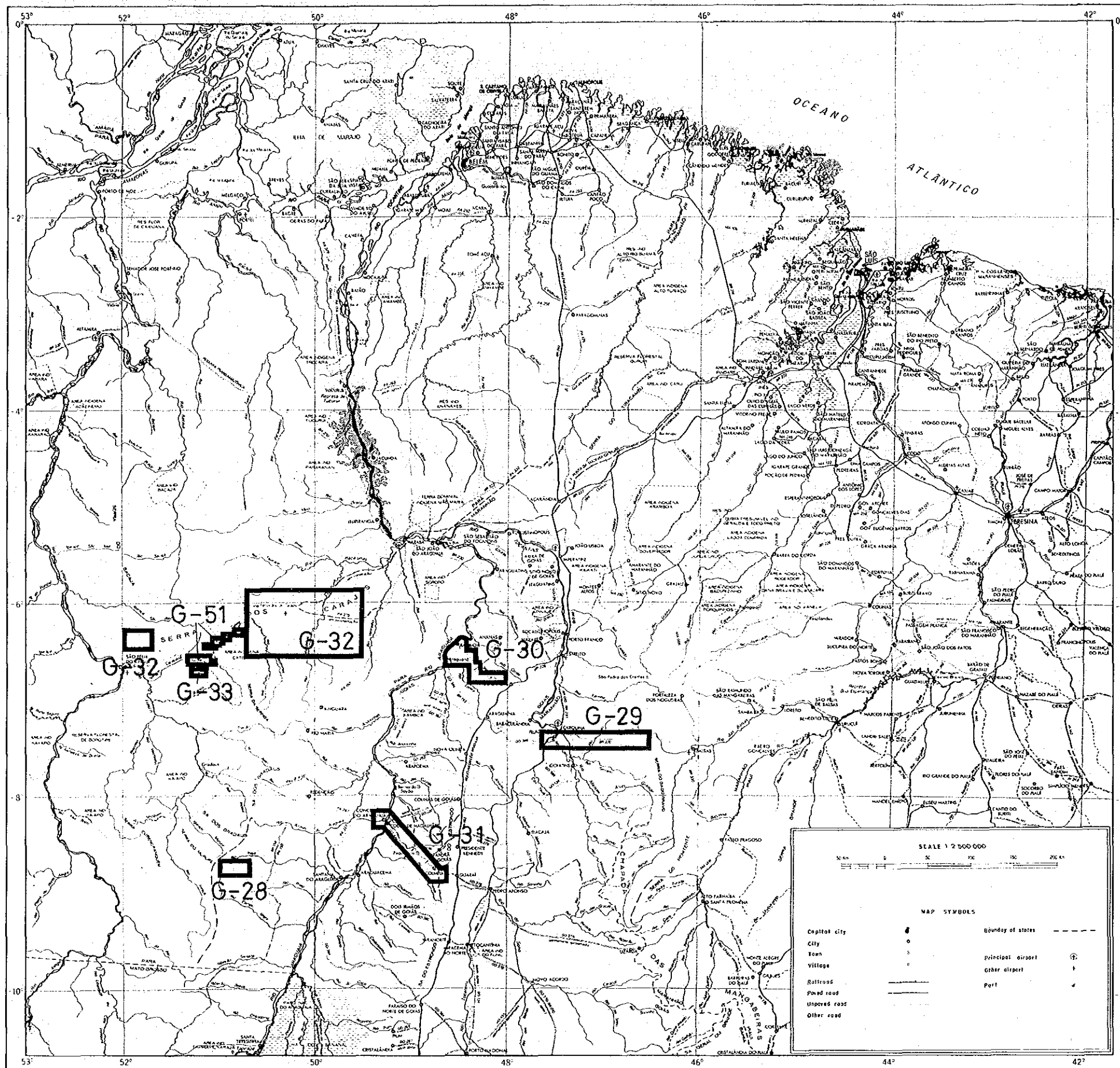


Plate III-1 ③

国际协力事业团
12661
国书资料室藏

LEGEND

- G-28 Projeto Prospecção de Carvão Energético Nas Áreas de Ocorrência de Formação Rio Fresco (DNPM/CPRM)
- G-29 Projeto Carolina (DNPM/UFPA)
- G-30 Projeto Xambioá-Vendelândia (DNPM/UFPA)
- G-31 Projeto Guarai-Conceição (DNPM/UFPA)
- G-32 Relatório de Pesquisa de Minério de Ferro 1972 Distrito Ferrífero da Serra dos Carajás (CVRD)
- G-33 Relatório de Pesquisa de Cassiterito no Alto Rio Branco (PROMIX)
- G-51 Projeto Puma-Onça Relatório Final de Pesquisa (MINERASUL)

SCALE 1:2 500 000

MAP SYMBOLS

Capital city	●	Boundary of states	- - - -
City	○	Principal airport	✈
Town	◐	Other airport	✈
Village	◑	Port	⚓
Railroad	—+—+—+—		
Paved road	—		
Unpaved road	- - -		
Other road	⋯		

Index Map
of
Geological Surveys

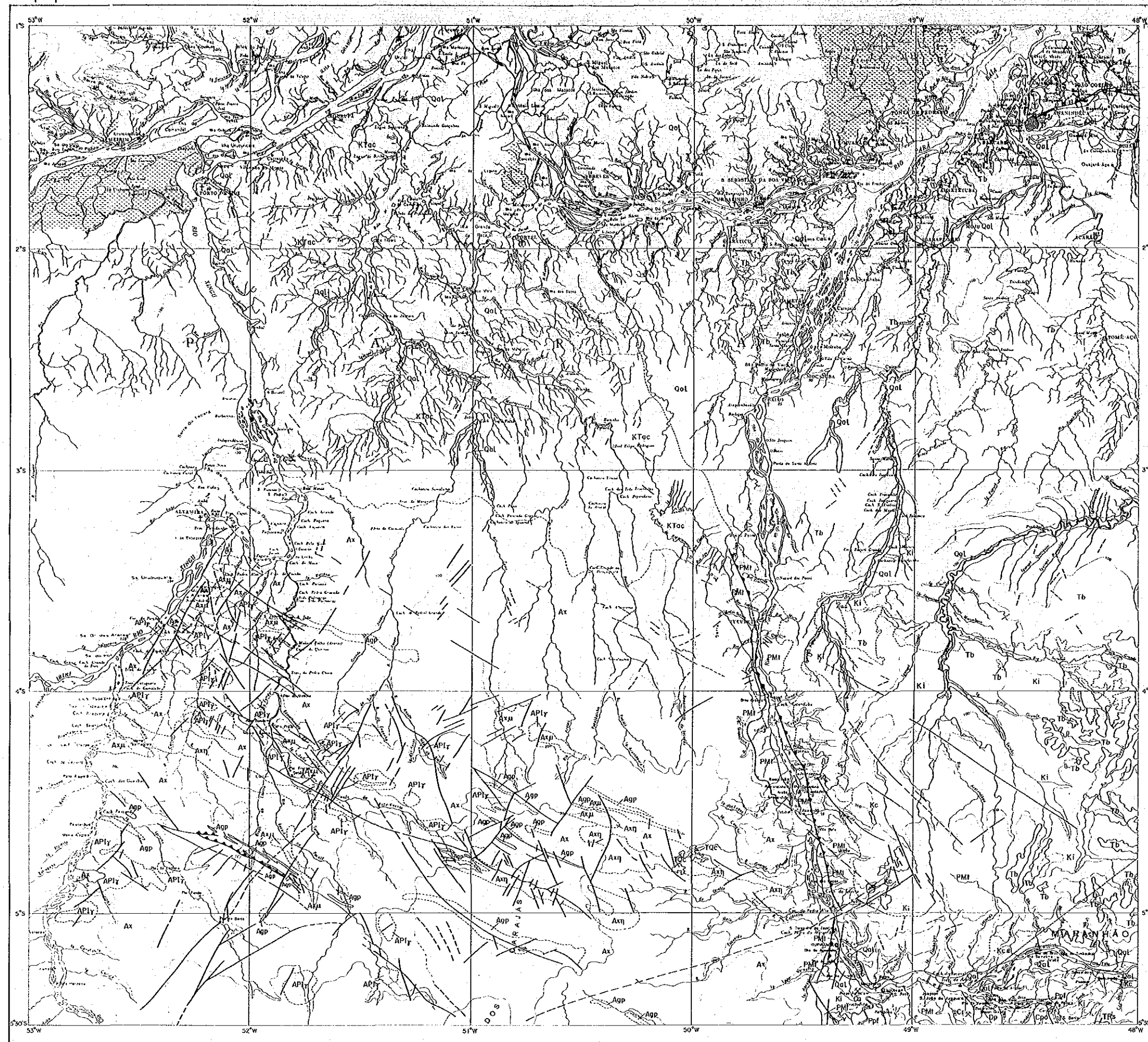
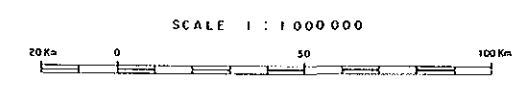


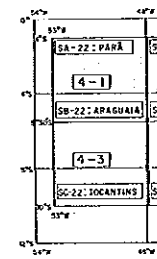
Plate III-2①

LEGEND

Era	Cráton Amazônico	Faixa Araguaia	Cráton de São	
Cenozoic	Alluvium	Qol	clay, sand, gravel	
	Denudat deposit	Tbc	denudat deposits, laterite	
	Borariás G.	Tb	fine grained sandstone, siltstone and mudstone containing lenticular conglomerate and coarse grained sandstone, graywacke, sandstone and mudstone	
	Alter do Chão F. Kfa	Kfa	red sandstone and mudstone	
Mesozoic	Itapecuru F. Ki	500-600m	red sandstone and mudstone	
	Cad.	600-650m	lc. mudstone, limestone, argillite and fine grained sandstone	
	Sardinha F. Ki	500m	red and purple sandstone (fine and medium grained) containing fossiliferous mudstone and siltstone	
	Corda F. Jc	8-25m	red and green mudstone and fine to medium grained sandstone, interbedded with gray mudstone containing fossils locally	
	Postos Bons F. Jpb	50-65m	dark grey to black spongy basalt, interbedded with whitish fine to medium grained sandstone	
	Mosquito F. Jfp	4-115m	red to whitish, fine to medium grained sandstone	
	Samboré F. Jsb	100-150m	red fine to medium grained sandstone, interbedded with siltstone and mudstone	
	Motuco F. Jtm	100-150m	red fine to medium grained sandstone, red and violet siltstone and mudstone	
	Petra de Fogo F. Jpf	50-100m	red and whitish medium grained sandstone, siltstone and red mudstone	
	Planil F. Cpl	50-300m	red and whitish fine to medium grained sandstone, siltstone and red mudstone	
Paleozoic	Poço F. Cpl	200m	red and whitish fine to medium grained sandstone, interbedded with siltstone and mudstone showing purple grey and red color	
	Lengá F. Ocl	50-200m	dark grey and purple mudstone and siltstone, and fine grained sandstone	
	Cobogós F. Dc	600-800m	whitish fine to medium grained sandstone	
	Pimenteiros F. Dp	200m	whitening base of tuffaceous and greenish fine grained sandstone, siltstone, clay and purple mudstone, containing ferruginous or calcareous siltstone	
	Proterozoic	Suite Intrusiva Redenção	RSr	topazial granite and gneophyte
		Subcraton F.	PMI	subvolcanic and volcanic sandstone, calcareous sandstone, graywacke, siltstone, mudstone, graywacke, siltstone, calcareous sandstone, calcareous siltstone, calcareous mudstone, calcareous sandstone, calcareous siltstone, calcareous mudstone, calcareous sandstone, calcareous siltstone, calcareous mudstone
		Suite Intrusiva Rio Branco	RIr	granite, gneophyte, porphyritic granite, gneissic granite
		Suite Intrusiva Urubitingá	UIr	subvolcanic andesite, porphyritic, andite - basaltic andesite
		Suite Intrusiva Iriri	IIr	diabase, trypite, trypite, granite, gneissic, trypite, trypite, granite, gneissic, trypite, trypite, granite, gneissic
		Velho Guilherme Granítica	VMG	granite, gneophyte
Serra dos Coqueiros Granítica		SCG	porphyritic granite, granodiorite	
Rio Branco F. Pif		Pif	longerite, sandstone, siltstone, mudstone, containing calcareous bed and basic volcanic bed	
Granitic rocks		APly		
Grão Pará G.		AGP	metamorphic rocks, metabasite, gneiss, schist, amphibole, garnet, magnetite - copper sulfide, quartzite, amphibole schist, metagabbro, orthopyroxene - cordierite rock	
Kingu Complex	KI	gneiss, amphibole, garnet, orthopyroxene, quartzite, orthopyroxene - cordierite rock, gneiss, amphibole, garnet, orthopyroxene - cordierite rock, basic - ultrabasic complex (U)		
Quaternary	Altoona Basal	PS1	residual	
	Granitic rocks	PS2		
	Gurugi F.	PS3	residual	
	Interbedded			



Geological Map



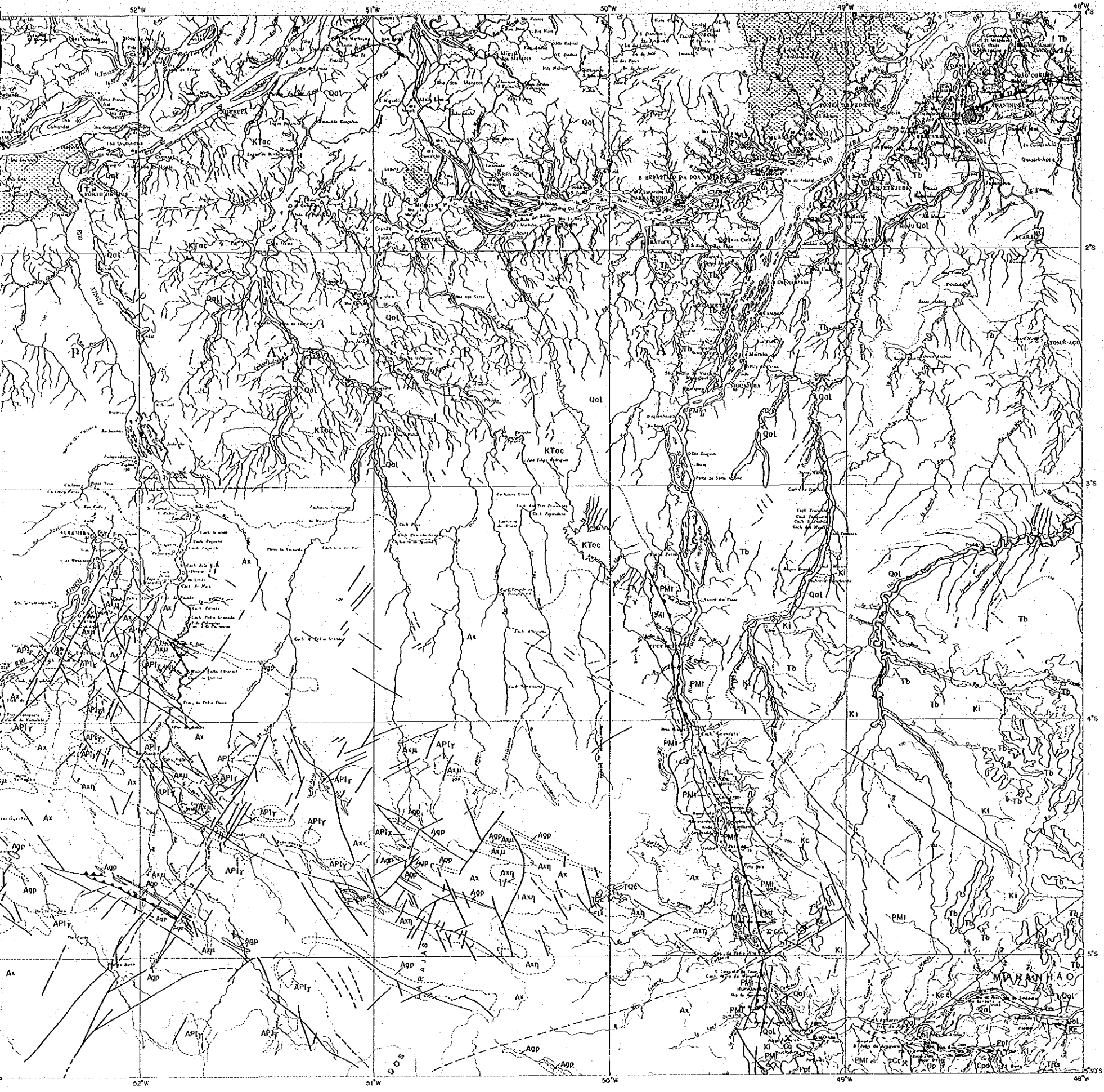
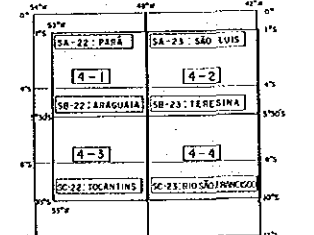
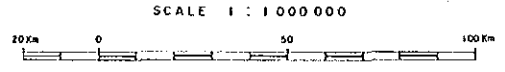


Plate II-2①

12661

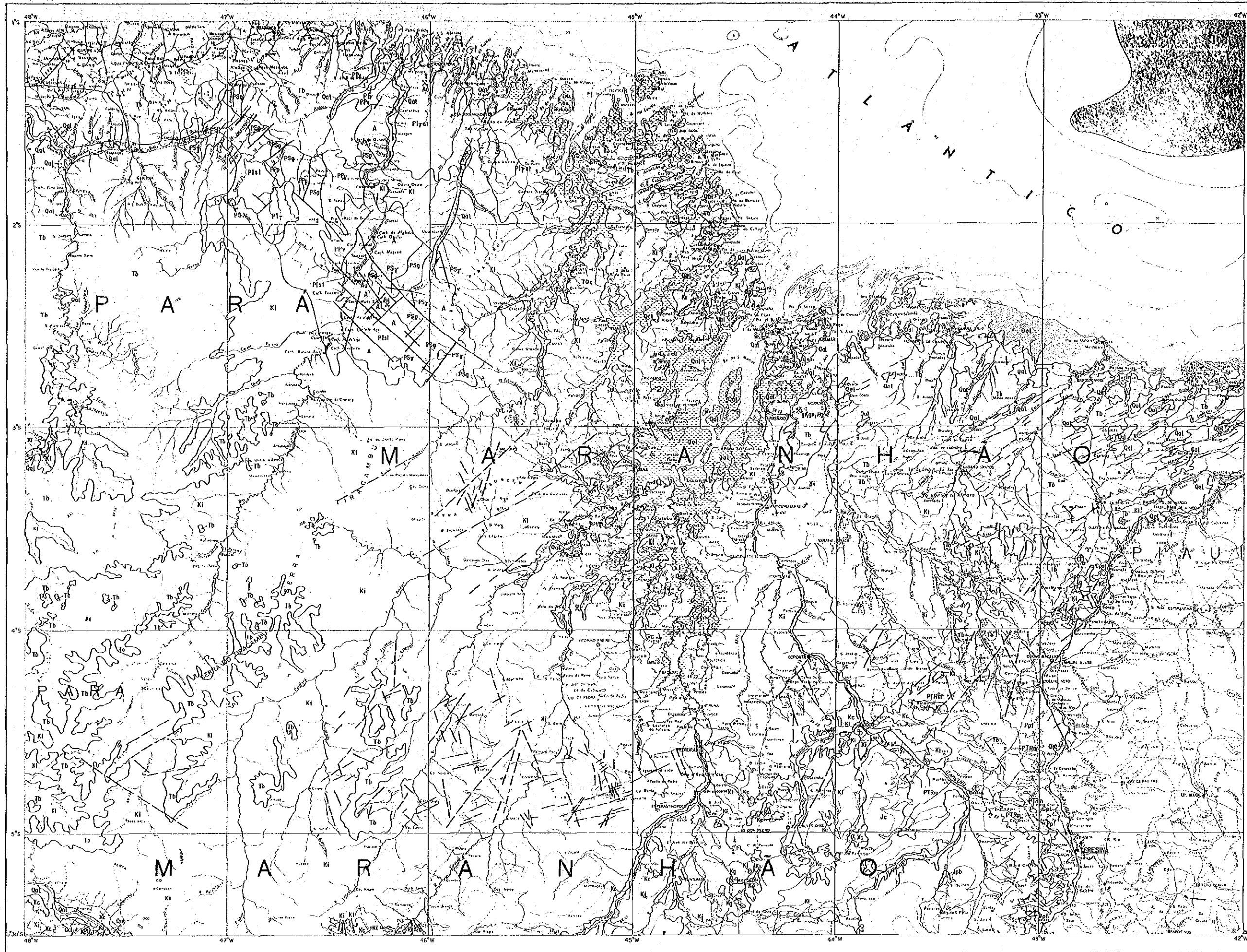
LEGEND

Erg	Cráton Amazônico	Faixa Araguaia		Cráton de São Luís
		Formation	Age	
Cenozoic	Alluvium	Qol	—	clay, sand, gravel
	Quaternary deposits	TQC	—	detrital deposits, tuffite
	Barragem G.	Tb	—	fine grained sandstone, siltstone and mudstone containing lenticular conglomerate and coarse grained sandstone
Mesozoic	Alter do Chão F.	KAc	—	graywacke, sandstone and mudstone
	Lagoa F.	KI	200-200m	red sandstone and mudstone
	COSS F.	Co	200-200m	Kc, mudstone, limestone, gypsum and fine grained siltstone
	Gralma F.	Ka	100-100m	Kg, medium grained sandstone and mudstone
	Sardinha F.	Ks	200m	dark grey amphiolitic basalt
	Corda F.	Kc	25m	red and purple sandstone (fine and medium grained) containing lenticular mudstone and basal conglomerate
	Passos Bons F.	Jpb	65m	grey and green mudstone and fire to medium grained sandstone, interbedded with grey mudstone containing fossiliferous
	Mosquito F.	TJM	125m	dark grey to black argillite basalt, interbedded with whitish fire to medium grained sandstone
	Sambaíba F.	TIS	—	grey to whitish, fire to medium grained sandstone
	Matuca F.	TIR	100-100m	red fire to medium grained sandstone, interbedded with siltstone and red mudstone
	Pedra de Fogo F.	Ppf	170m	very fine to medium grained sandstone, red and violet siltstone and mudstone
	Piau F.	Cpi	30-300m	very and whitish medium grained sandstone, siltstone and red mudstone
	Paul F.	Cpl	200m	red and whitish fire to medium grained sandstone, interbedded with siltstone and mudstone showing purple grey and red color
	Longó F.	DCl	100m	dark grey and purple mudstone and siltstone, and fine grained sandstone
	Cabeças F.	Dc	100m	whitish fire to medium grained sandstone
Paleozoic	Planaltina F.	Dp	200m	interbedded beds of silty and quartzite fire grained sandstone, siltstone, grey and purple mudstone, containing ferruginous or carbonaceous dolite bed
	Planaltina F.	Plan	—	subarkose fire grained sandstone, mudstone, argillite, siltstone, argillite
Proterozoic	Suite Intrusiva Aradengó	PSu	—	syenitic granite and granophyre
	Cabreópolis F.	Cab	—	subarkose and arkose sandstone, arkose sandstone, pyroclastic, fine sandstone, graywacke, silty tuff, clay, volcanic breccia
	Suite Intrusiva Tocantins	TSu	—	arkose granite, monzonite, oligite granite, quartzite, silty granite, granodiorite, and arkose
	Barro Preto F.	PMg	—	arkose granite, monzonite, oligite granite, quartzite, silty granite, granodiorite, and arkose
	Suite Intrusiva Rio Douro	RSu	—	granite, granophyre, orthopyroxene granite, gneiss, quartzite
	Sobralia F.	SMs	—	porphyritic andesite, porphyritic, oligite, basaltic andesite
	Itirapituba F.	ITu	—	arkose, red fire, rhyolite, andesite, pyroclastic, silty arkose sandstone, arkose, arkose
	Velho Guilherme granite	VMg	—	granite, granodiorite
	Serra da Contão granite	SCg	—	porphyritic granite, granodiorite
	Rio Preto F.	PRf	—	conglomerate, sandstone, siltstone, mudstone, containing calcareous bed and basic volcanic bed
Archaean	Granitic rocks	GR	—	granite, granodiorite
	Grão Pará G.	Agp	—	pink, orthopyroxene rocks, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite, orthopyroxene, orthoclase, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite
Archaean	Kingo Complex	KA	—	quartzite, granite, quartzite, orthopyroxene, orthoclase, perthite, orthopyroxene, orthoclase, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite
	Archaean rocks	AR	—	granite, orthopyroxene, orthoclase, perthite, orthopyroxene, orthoclase, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite
Archaean	Archaean rocks	AR	—	granite, orthopyroxene, orthoclase, perthite, orthopyroxene, orthoclase, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite
	Archaean rocks	AR	—	granite, orthopyroxene, orthoclase, perthite, orthopyroxene, orthoclase, ilmenite, garnet, zircon, corundum, spinel, quartz, orthopyroxene, orthoclase, perthite



Geological Map

The Study Related to the Regional Development Plan of the Greater Carajás Program (Phase I), JICA, 1985



LEGEND

Era	Período	Cráton Amazônico		Faixa			
		Formação	Idade (Ma)	Formação	Idade (Ma)		
Cenozoico	Terciário	Alluvium	Qal	clay	44		
		Detrital deposits	Tdc	detrital	da		
		Barrancas	Tb	low ground	sp		
		Alter do Chão F.	Atc	red sandstone	sp		
Mesozoico	Cretáceo	Itaperiva F.	Ki	red sandstone	sp		
		Cedil	Ca	red sandstone	sp		
		Sardinha F.	Sa	red sandstone	sp		
		Corde F.	Co	red sandstone	sp		
		Pedra de Fogo F.	Pf	red sandstone	sp		
		Moço F.	Mo	red sandstone	sp		
		Sombro F.	So	red sandstone	sp		
		Meuco F.	Me	red sandstone	sp		
		Pedra de Fogo F.	Pf	red sandstone	sp		
		Piçui F.	Pi	red sandstone	sp		
Paleozoico	Devoniano	Longó F.	Lo	red sandstone	sp		
		Cobegós F.	Co	red sandstone	sp		
		Pireneiros F.	Pi	red sandstone	sp		
		Pré-Cambriano	Lata	Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
				Suite Itacambú	It	granite	sp
Suite Itacambú	It			granite	sp		
Suite Itacambú	It			granite	sp		
Suite Itacambú	It			granite	sp		
Arqueano	Granite	Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		
		Grão Pará G.	Gr	granite	sp		



Geological Map

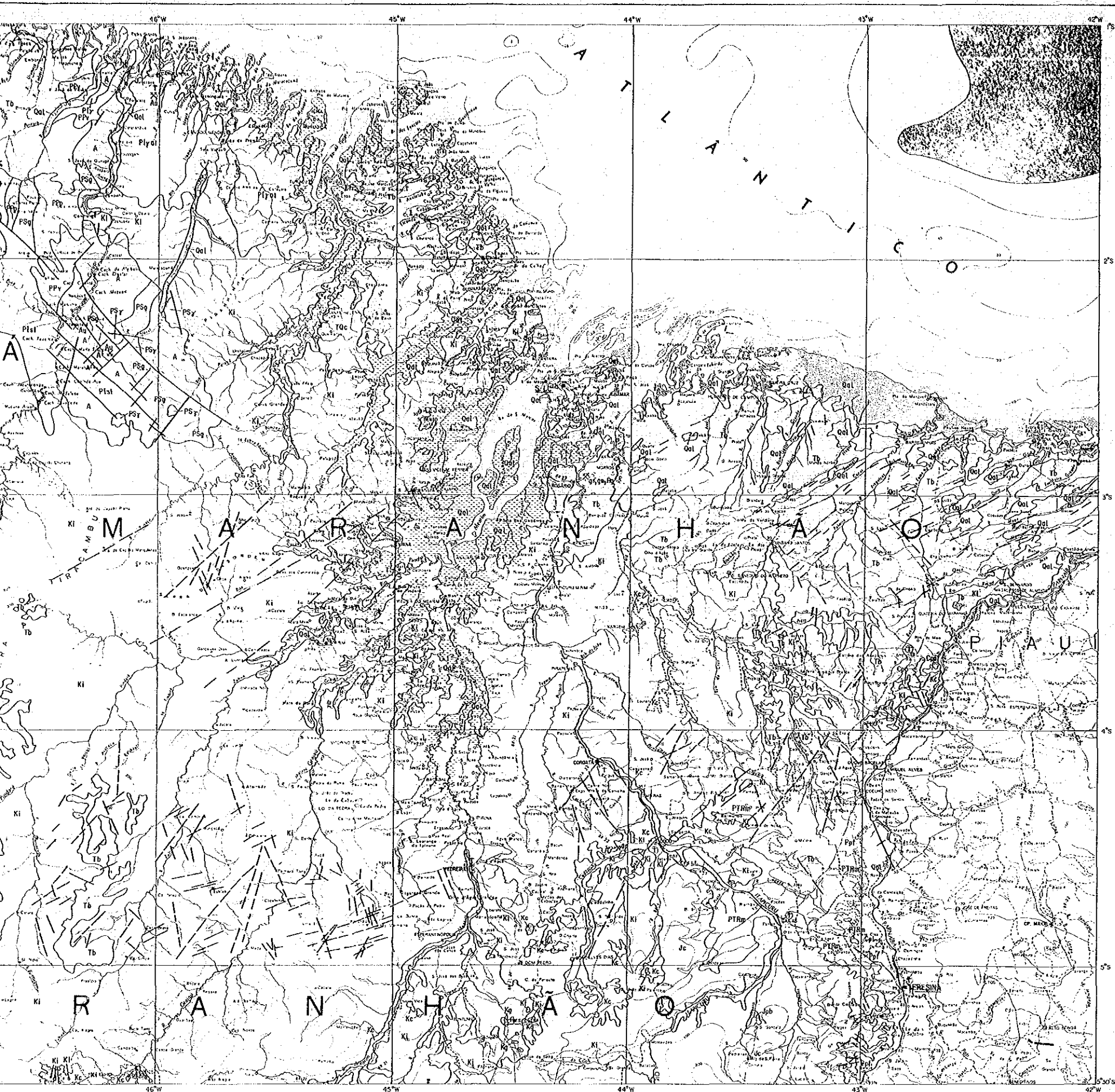
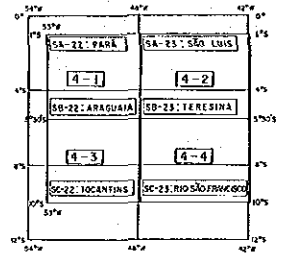
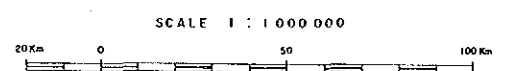


Plate III-2②

國際協力事業団
12661
圖書資料室蔵

LEGEND

Era	Cráton Amazônico	Faixa Araguaia	Cráton de São Luís	
Cenozoic Tertiary-Quaternary	Aluviões Qal	clay, sand, gravel		
	Detrital deposits TQc	detrital deposits, laterite		
	Barridos G. Tb	fine grained sandstone, siltstone and mudstone containing fossiliferous conglomerates and coarse grained sandstone		
	Alter do Chão F. xTc	graywacke, sandstone and mudstone		
Mesozoic Cretaceous	Itapicuru F. XI	red sandstone and mudstone		
	Cadô F. Xc	Kc: mudstone, laterite, quartz and fine grained sandstone Ks: medium grained sandstone and mudstone		
	Sardinha F. Ks	dark grey conglomeratic basalt		
	Corda F. Jc	red and purple sandstone (fine and medium grained) containing fossiliferous mudstone and basal conglomerate		
	Pastos Bons F. Jpb	rosy and green mudstone and fine to medium grained sandstone, interbedded with grey mudstone containing fossiliferous layers		
	Masquito F. Jmj	dark grey to black spongy basalt, interbedded with whitish fine to medium grained sandstone		
	Sambalho F. Jts	rosy and whitish medium grained sandstone		
	Motuca F. Jtm	red fine to medium grained sandstone, interbedded with siltstone and red mudstone		
	Pedra de Fogo F. Jpf	rosy fine to medium grained sandstone, red and violet siltstone and mudstone		
	Plau F. Jpl	rosy and whitish medium grained sandstone, siltstone and red mudstone		
Paleozoic Devonian	Paul F. Cpo	rosy and whitish fine to medium grained sandstone, interbedded with siltstone and mudstone showing granitic grey and red color		
	Longô F. Ocl	dark grey and purple mudstone and siltstone, and fine grained sandstone		
	Cobegas F. Oc	whitish fine to medium grained sandstone		
	Pimentas F. Op	alternating beds of coarse and quartzite fine grained sandstone, siltstone, grey and purple mudstone, containing fossiliferous or calcareous oolite bed		
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Proterozoic Médio	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone	
		Granitic rocks PSg	white sandstone, conglomerate	
		Barro F. PSb		
Alcobaça Basalt. PSa		basaltic fine grained sandstone, mudstone		
Granitic rocks PSg		white sandstone, conglomerate		
Barro F. PSb				
Alcobaça Basalt. PSa		basaltic fine grained sandstone, mudstone		
Granitic rocks PSg		white sandstone, conglomerate		
Barro F. PSb				
Alcobaça Basalt. PSa		basaltic fine grained sandstone, mudstone		
Proterozoic Early	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
Archean	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		
	Granitic rocks PSg	white sandstone, conglomerate		
	Barro F. PSb			
	Alcobaça Basalt. PSa	basaltic fine grained sandstone, mudstone		



Geological Map

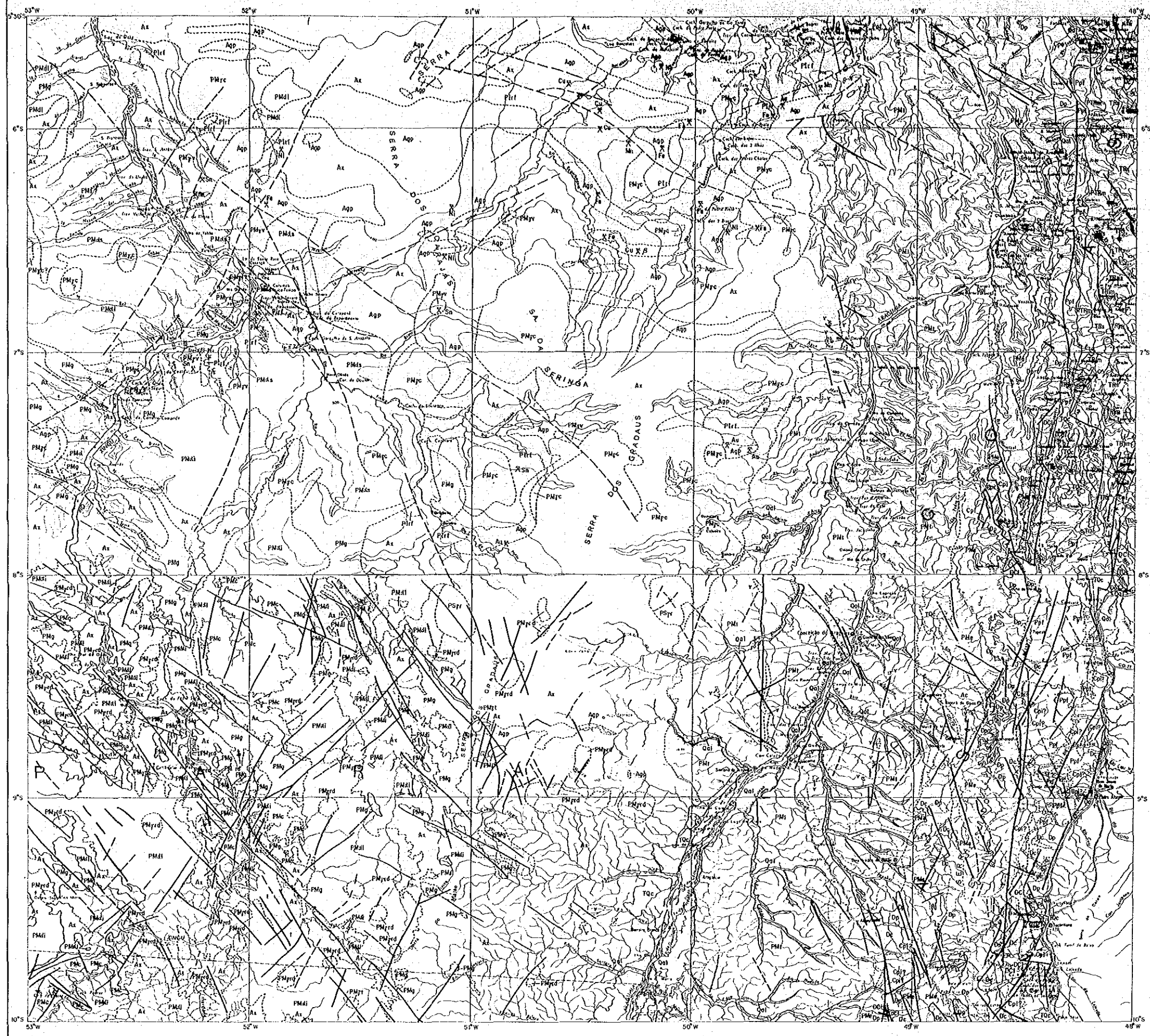
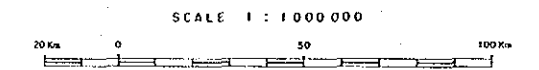


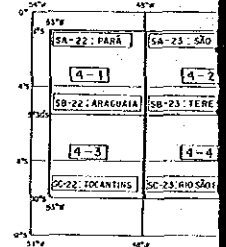
Plate III-2

LEGEND

Era	Cráton Amazônico		Faixa Araguaia		Cráton de São Luís	
	Formação	Idade (Ma)	Formação	Idade (Ma)	Formação	Idade (Ma)
Cenozoico	Altaírum	Qal	—	—	clay, sand, gravel	—
	Densal deposits	TQC	—	—	detrital deposits, laterite	—
	Barragem G.	Tb	—	—	fine grained sandstone, siltstone and mudstone containing lenticular conglomerate and coarse grained sandstone	—
	Alter do Chão F.	KTo	—	—	graywacke, sandstone and mudstone	—
	Itapeturu F.	Kl	200-150	—	red sandstone and mudstone	—
	Cossó F.	Kc	20-80	—	Kc: mudstone, limestone, gypsum and fine grained sandstone Ka: medium grained sandstone and mudstone	—
	Serdinha F.	Ks	—	—	dark grey argillaceous basalt	—
	Corado F.	Jc	8-5	—	red and purple sandstone fine and medium grained containing fossiliferous mudstone and basal conglomerate	—
	Pedras Bonas F.	Jpb	50-65	—	red and green mudstone and fine to medium grained sandstone, interbedded with gray mudstone containing fossiliferous	—
	Morquillo F.	TRM	175n	—	dark grey to black argillaceous basalt, interbedded with whitish fine to medium grained sandstone	—
Mesozoico	Stomilite F.	TRs	—	—	reddish to whitish, fine to medium grained sandstone	—
	Monaca F.	TRM	140-160	—	red fine to medium grained sandstone, interbedded with siltstone and red mudstone	—
	Pedra de Fogo F.	Ppf	170n	—	red, fine to medium grained sandstone, red and violet siltstone and mudstone	—
	Piauí F.	Cpl	300n	—	red and whitish medium grained sandstone, siltstone and red mudstone	—
	Pari F.	Cpa	300n	—	red and whitish fine to medium grained sandstone, interbedded with siltstone and mudstone showing purple, grey and red color	—
	Longá F.	OCl	120n	—	dark grey and purple mudstone and siltstone, and fine grained sandstone	—
	Cobogós F.	OC	300n	—	whitish fine to medium grained sandstone	—
	Pimenteiras F.	OP	300n	—	interbedded beds of cream and greenish fine grained sandstone, siltstone, clay and purple mudstone, containing ferruginous or carbonaceous beds	—
	—	—	—	—	—	—
	—	—	—	—	—	—
Paleozoico	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
Luzit	Serra Intensiva	SI	—	—	repeated granite and gneiss	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
Profesoico	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
Arqueon	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—
	—	—	—	—	—	—



Geological Map



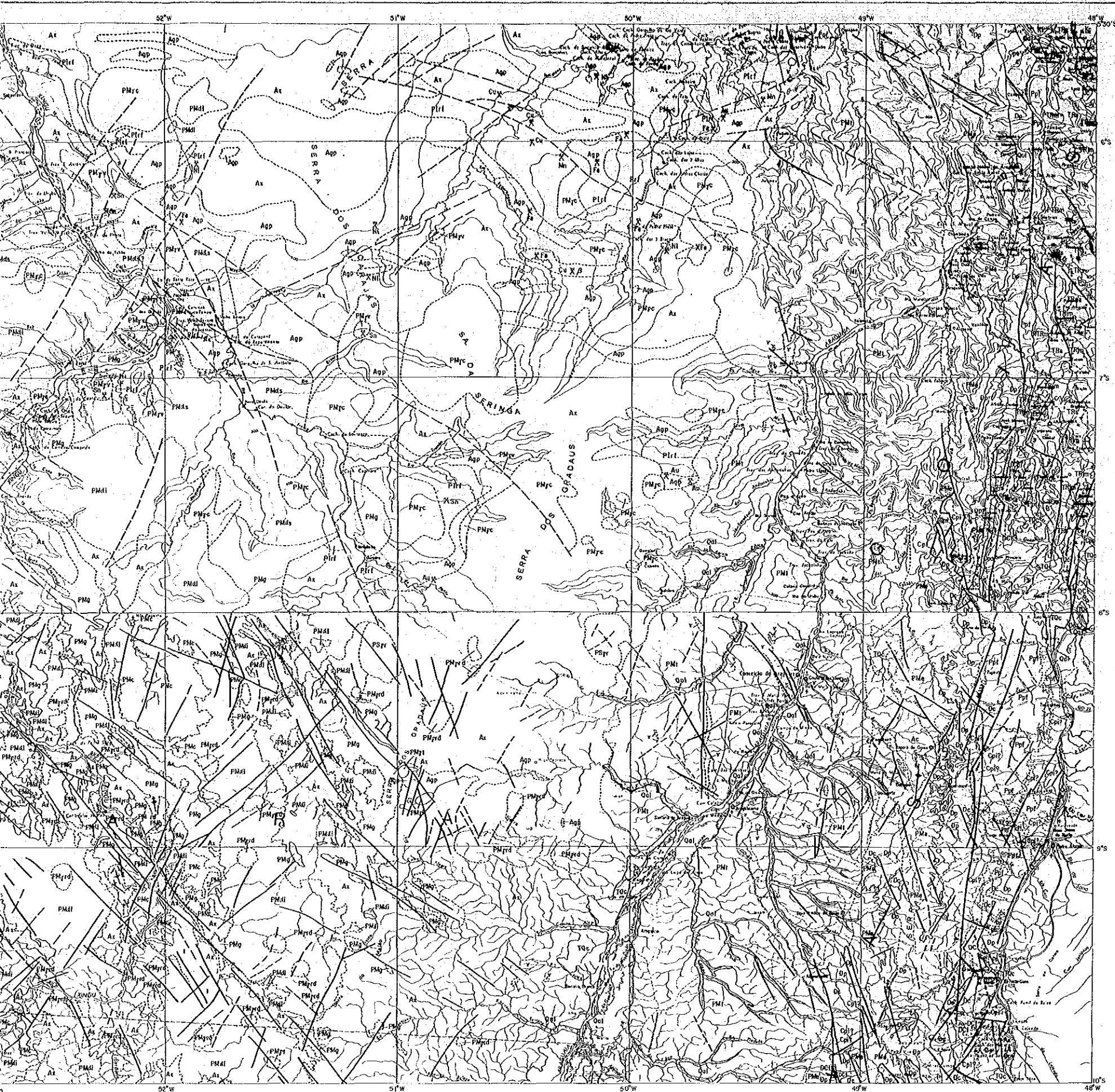
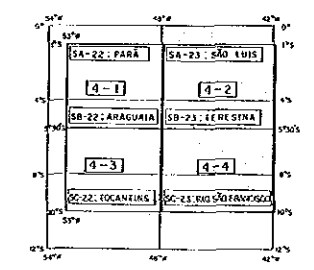
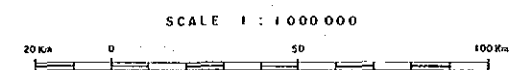


Plate III-2③

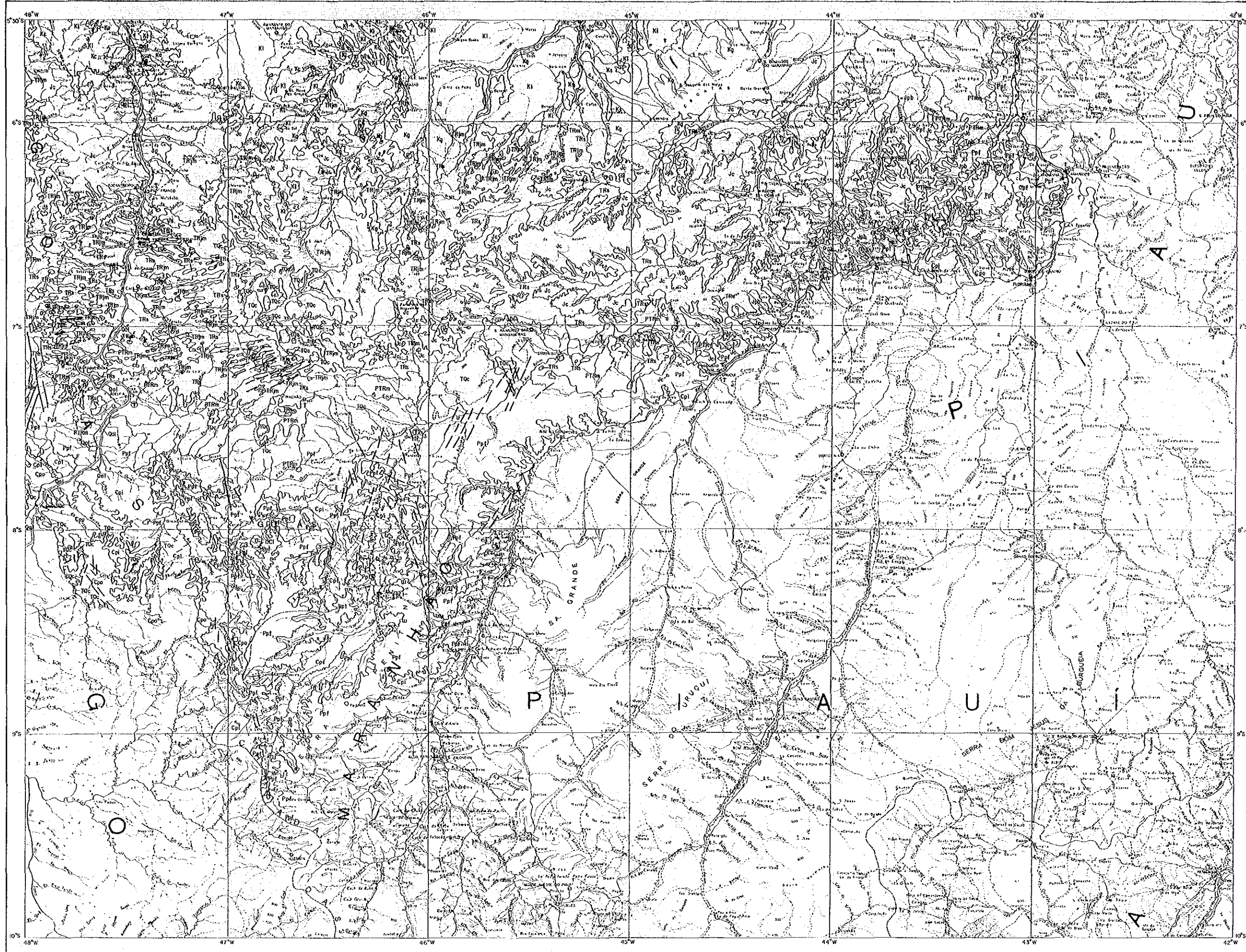
国 際 地 質 事 業 団
12661
国 立 地 質 院 編 纂

LEGEND

Geological Period	Cráton Amazônico		Faixa Araguaia		Cráton de São Luís	
	Unit Code	Description	Unit Code	Description	Unit Code	Description
Cenozoic	At	Alluvium	Ost	clay, sand, gravel		
	Atc	Recent deposits	Atc	detrital deposits, laterite		
	Tb	Borelites	Tb	fine grained sandstone, siltstone and mudstone containing lenticular conglomerate and coarse grained sandstone		
	Klc	Alter do Chão	Klc	greywacke, sandstone and mudstone		
	Ki	Itapicuru	Ki	red sandstone and mudstone		
	Kc	Castanhão	Kc	red sandstone, limestone, gypsum and fine grained sandstone		
	Kg	Grãozão	Kg	medium grained sandstone and mudstone		
	Xs	Serdinha	Xs	dark grey amphibolitic basalt		
	Jc	Carão	Jc	red and purple sandstone (fine and medium grained) containing lenticular mudstone and basal conglomerate		
	Jpb	Pastos Bons	Jpb	grey and green mudstone and fine to medium grained sandstone, interbedded with grey mudstone containing fossils locally		
Mesozoic	Ms	Mosquito	Ms	dark grey to black granitic basalt, weathered with whitish fine to medium grained sandstone		
	Sb	Sombinha	Sb	rosy to whitish, fine to medium grained sandstone		
	Mf	Mataco	Mf	red fine to medium grained sandstone, interbedded with siltstone and red mudstone		
	Pf	Padre Fogo	Pf	rosy, fine to medium grained sandstone, red and white siltstone and mudstone		
	Cp	Pirul	Cp	rosy and whitish medium grained sandstone, siltstone and red mudstone		
	Cp	Pass	Cp	rosy and whitish fine to medium grained sandstone, weathered with siltstone and mudstone showing purplish grey and red spots		
	DC	Longó	DC	dark grey and purple mudstone and siltstone, and fine grained sandstone		
	DC	Cabegas	DC	whitish fine to medium grained sandstone		
	Op	Pimenteiras	Op	alternating beds of medium and greenish fine grained sandstone, siltstone, grey and purple mudstone, containing terrigenous or calcareous oolite bed		
	Paleozoic					Pf
					Mf	purple sandstone conglomerate
Preterozoic						
Arqueon						

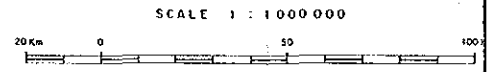


Geological Map



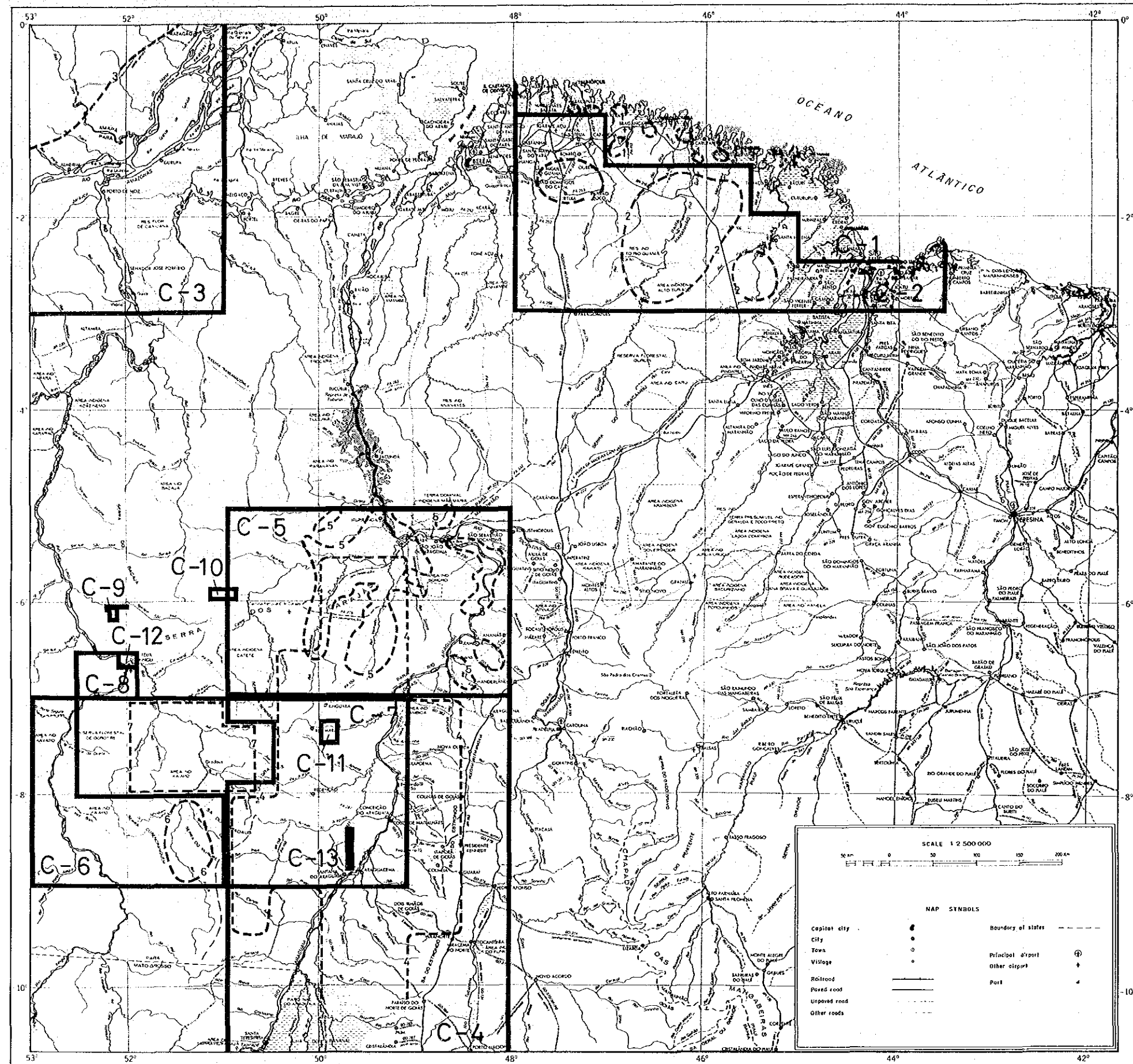
LEGEND

Ere	Cráton	Amazônico		Folha		Araguaia			
		Formação	Idade	Formação	Idade	Formação	Idade		
Cenozoico	Terciário	Aluviões	Qal			areia, sand, gravel			
		Depositos	Qdc			clayey deposits, silt			
		Basaltos	Tb			fine grained basalt, or terrestrial sandstone and siltstone			
		Alter do Chão	KAc			red sandstone and mudst			
		Itapeturu	KI	200-500m			red sandstone and mudst		
		Capão	KCa	500m			red sandstone and mudst		
		Sardinha	Ks	500m			red sandstone and mudst		
		Carão	Jc	75m			red and purple sandstone (fcl mudstone and basalt conglom)		
		Postos Boni	Jpb	15m			red and green mudstone and siltstone		
		Mosquito	JTr	4-15m			dark grey to black siltstone with green mudstone conglom		
Mesozoico	Cretáceo	Sombinho	JRv	15m		red to whitish, fine to med			
		Motuca	JRm	100m			red fine to medium grained red mudstone		
		Pedra de Fogo	JPf	50-100m			red fine to medium grained red mudstone		
		Piçá	JPi	50-100m			red and whitish medium gr		
		Passo	JPa	50-100m			red and whitish fine to med red mudstone showing purple dark grey and purple mudst		
		Longá	JLg	50-100m			whitish fine to medium gr		
		Cabeças	JCb	50-100m			whitish fine to medium gr		
		Pimenteiras	JPi	50-100m			alternating beds of cream gr red and purple mudstone, ss		
		Paleozoico	Carbonífero	Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic	
				Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic	
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Suite Infrásio	Si					subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Proterozoico	Mésio	Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
Archaico	Eócio	Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			
		Suite Infrásio	Si			subvolcanic and volcanic subvolcanic and volcanic subvolcanic and volcanic			



Geological Map

国際協力事業団
12661
図書資料室蔵書



LEGEND

- C-1 Projeto Gurupi - Final do Etapa (DNPM/CPRM)
 - C-2 Projeto Gurupi - Etapa II (DNPM/CPRM)
 - C-3 Projeto Norte da Amazônia (DNPM/CPRM)
 - C-4 Projeto Geofísica Brasil-Canadá (DNPM/GSC)
 - C-5 Projeto Marabá (DNPM/CPRM)
 - C-6 Projeto Rio Chiché (DNPM/CPRM)
 - C-7 Projeto Xingu-Araguaia (SUDAN/CPRM)
 - C-8 Projeto do Cobre Pará (DNPM/PROSPEC S.A.)
 - C-9 Area Antonio Vicente (DOCEGEO)
 - C-10 Projeto Cobre-Carajas (DOCEGEO)
 - C-11 Projeto Serra das Andorinhas (CVRD/DOCEGEO)
 - C-12 Projeto São Felix do Xingu (DNPM/CPRM)
 - C-13 Serra do Quatipuru (DOCEGEO)
- Areas in Which Geochemical Surveys were Carried Out

SCALE 1:2 500 000

0 50 100 150 200 km

NAP SYMBOLS


Capital city	●	Boundary of states	- - - -
City	○	Principal airport	⊕
Town	◦	Other airports	+
Village	•	Port	⚓
Railroad	—+—+—+—		
Paved road	—		
Unpaved road	- - - -		
Other roads	⋯		

Index Map
of
Geochemical Surveys

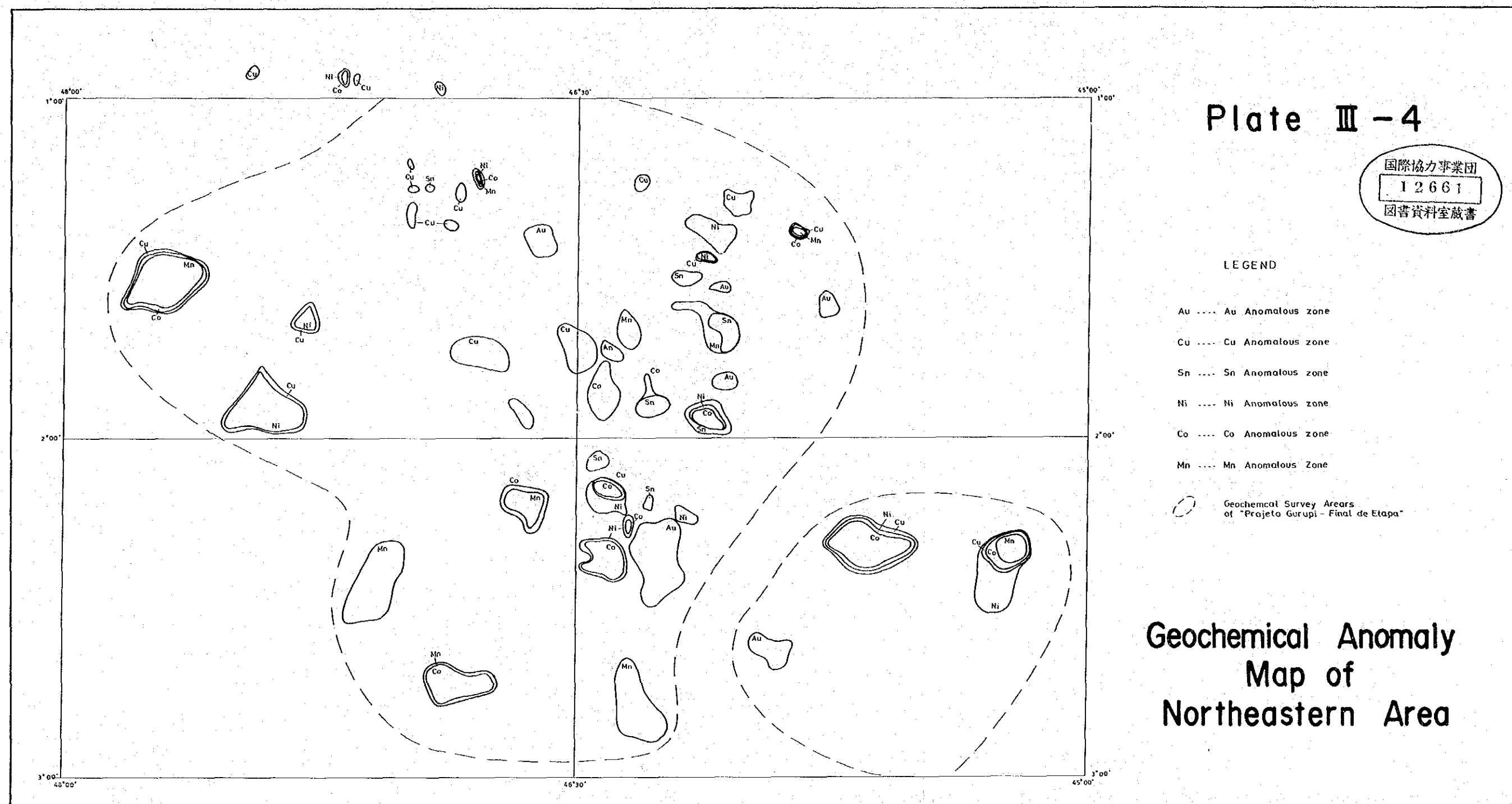
Plate III - 4

国際協力事業団
12661
図書資料室蔵書

LEGEND

- Au Au Anomalous zone
- Cu Cu Anomalous zone
- Sn Sn Anomalous zone
- Ni Ni Anomalous zone
- Co Co Anomalous zone
- Mn Mn Anomalous Zone
-  Geochemical Survey Areas of "Projeto Gurupi - Final de Etapa"

Geochemical Anomaly Map of Northeastern Area



The Study Related to the Regional Development Plan of the Greater Carajas Program (Phase II), JICA, 1985