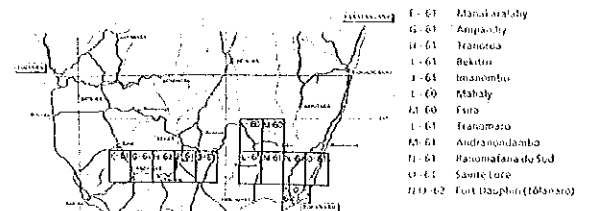


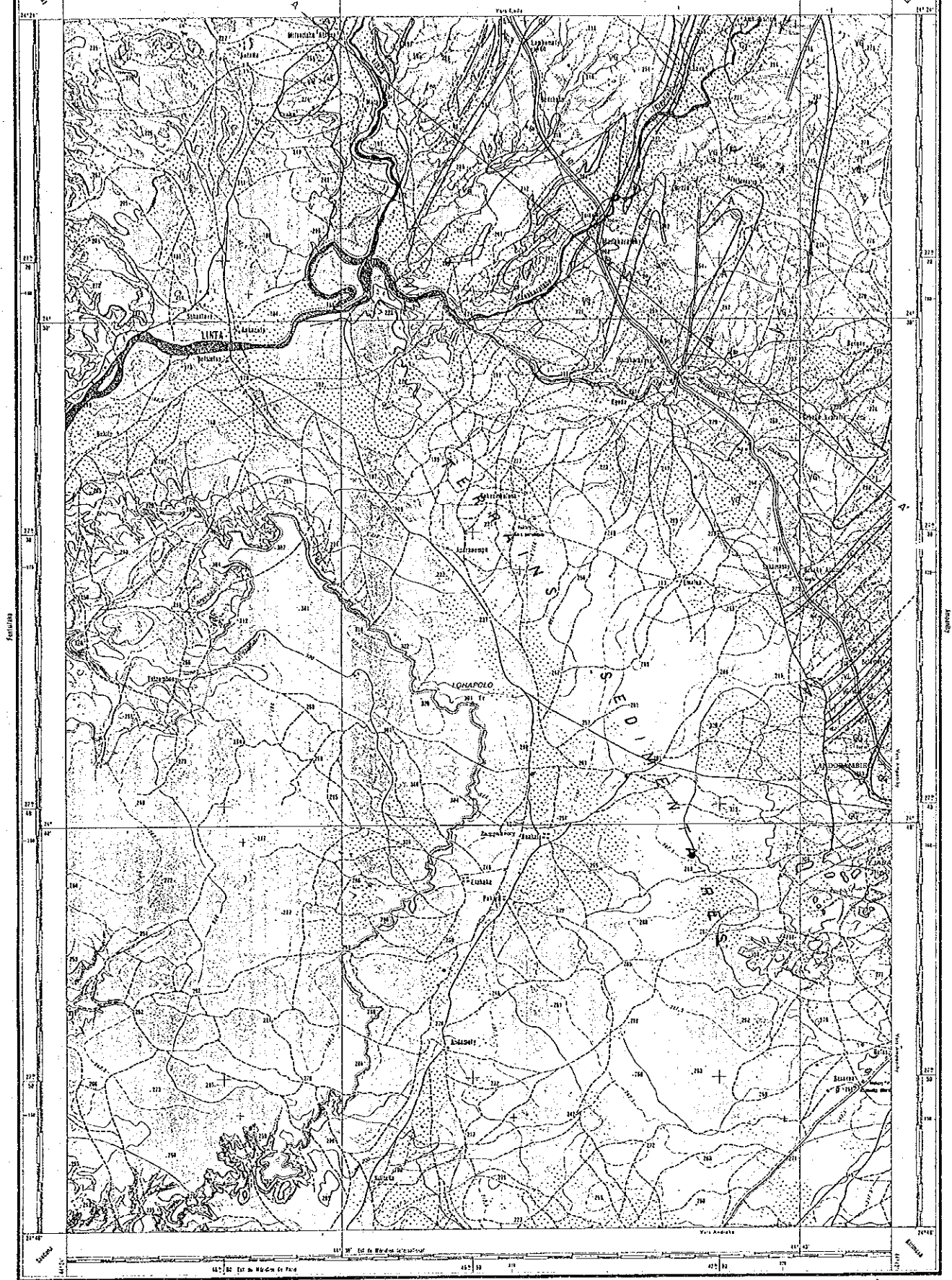
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
GEOLOGICAL MAP AND PROFILE
OF THE MANAKARALAHY DISTRICT (1)



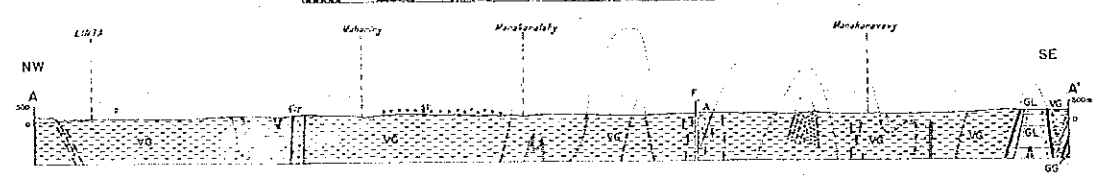
- E-G1 Manakarahy
- G-G1 Ampahy
- H-G1 Tanosoa
- I-G1 Bekito
- J-G1 Imankou
- K-G1 Mahaly
- L-G1 Furo
- M-G1 Tsalamaro
- N-G1 Andronandamba
- O-G1 Rajomalala de Sud
- P-G1 Sainte Luce
- Q-G1 Fort Dauphin (10/10/10)

JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale 1:100,000

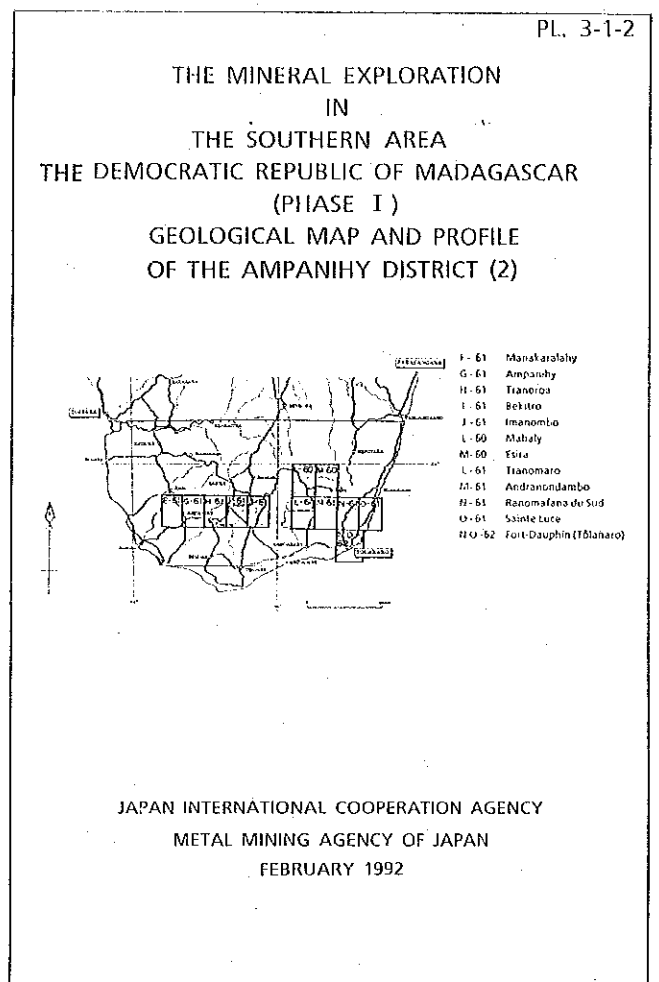
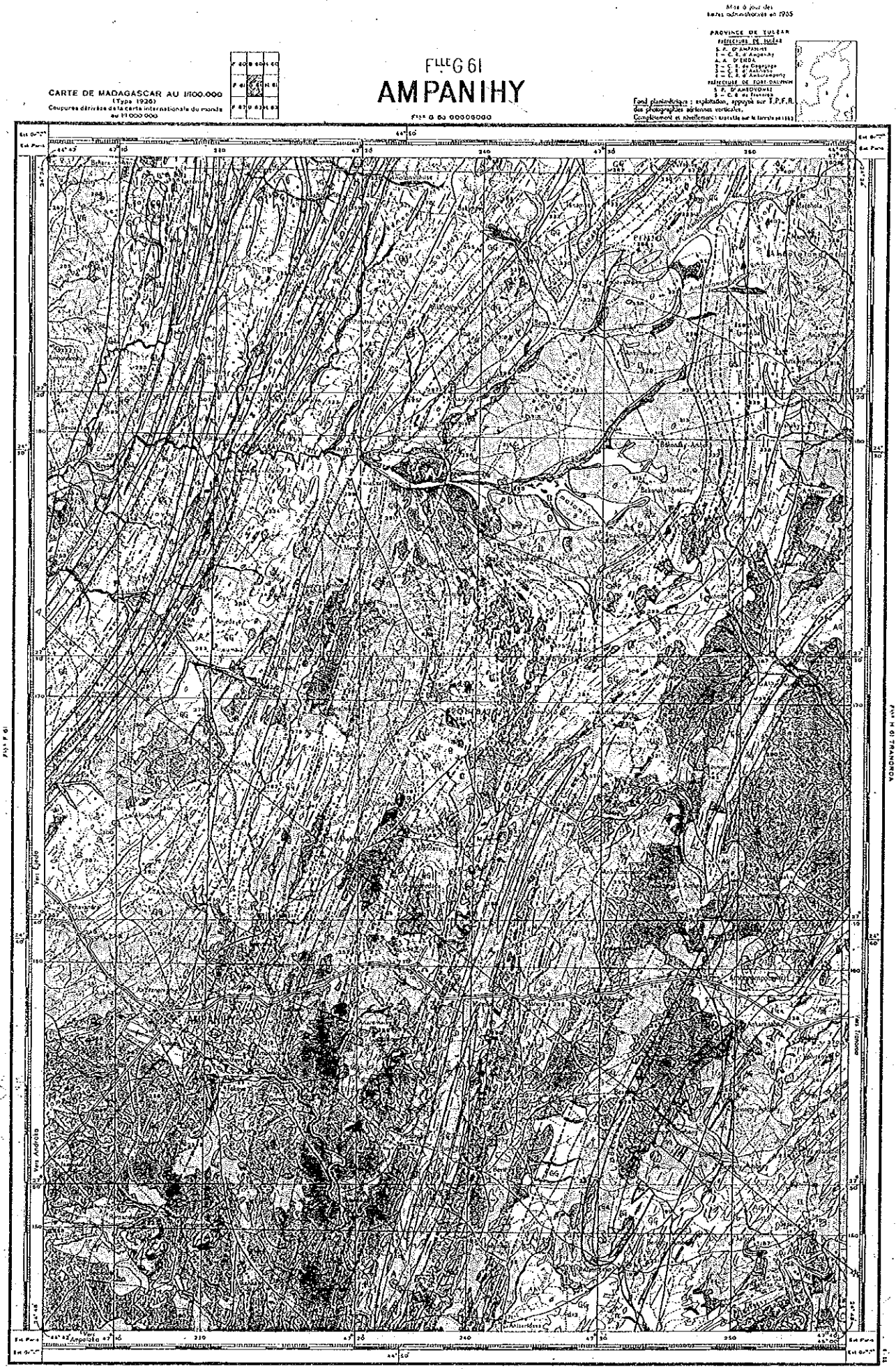


Échelle 1:100 000



LEGEND

Holocene	Alluvium	Androsyenite	Androsyenite
Recent	Androsyenite Series, Mudstone, sandstone	Basalt-Dolomite dike	Basalt-Dolomite dike
Recent igneous Rocks	Rhyolite dike	Achromite	Achromite
Old igneous Rocks	Granite dike	Granite	Granite
	Labradorite	Serpentine	Serpentine
	Augen gneiss	Granite gneiss	Granite gneiss
	Concordant granite	Granite complex	Granite complex
	Amphibole granite	Strophiform granite, migmatite granite	Strophiform granite, migmatite granite
	Pyroxenite	Charnockite	Charnockite
Preambrian Crystalline Schists		Dunite	Dunite
Common facies in different formations	Graphite	Quartzite	Quartzite
Vegetary System (Vegetary Group)	Gneiss	Leptinite	Leptinite
Graphitic System (Graphitic Group)	Gneiss	Leptinite	Leptinite
Androsyen System	AG Gneiss	MG Amphibole Bed, Gneiss, marble	Amphibole Bed, Gneiss, marble
Ampandrandava Group	LL Laminar Bed, Leptinite	AmG Amphibole Bed, Gneiss, quartzite	Amphibole Bed, Gneiss, quartzite
Tranomaro Group	TL Tsalamaha Bed, Leptinite	TG Tsalamaha Bed, Gneiss, marble, pyroxenite	Tsalamaha Bed, Gneiss, marble, pyroxenite
Fort-Dauphin Group	AL/GC Antsahnamary Bed, Leptinite, quartzite, gneiss, pyroxenite		
	L Leptinite, granite, gneiss	Lgc Leptinite	Leptinite
		Lgg Granite rock	Granite rock
Signs	Dip < 45°	Dip > 45°	Vertical
	Overturned anticline	Overturned syncline	Schistosity
	Mylonite	X Pegmatite	Quartz vein
	Mine	Tunnel	Oxyapatite
	Philoposite	Muscovite	Quartz
	Cu	Mn	Beryl
	Chrysolite	Xadon	Jasper
	Corundum	Allanite	Sapphire
	Baustite	Cassiterite	Pyrite
	Zircon	Monazite	Ilmenite
	Limestone	Quarry	Hot spring
			Graphite
			Euverite
			Fluorite
			Thonante
			Tantiste
			Magnetite
			Ilmenite

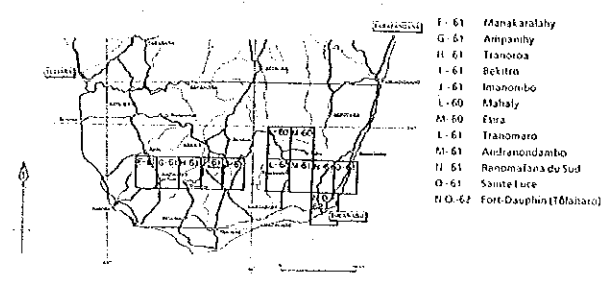


LEGEND

Tertiary	Alfuerum	Recent igneous rocks	Basalt-Dolerite dike	Rhyolite dike	Misogranite	Microsyenite
Quaternary rocks	Granite dike	Granite	Gabbro	Labradorite	Serpentine	Orthogneiss
	Augen gneiss	Granitic gneiss	Porphyritic granite	Concordant granite	Granite complex	Alkaline granite
	Amogynes Granite	Stratiform granite, migmatitic granite	Charnockite	Pyroxenite	Charnockite	Dunite
Pre-Cambrian Crystalline Schist	Graphite	Quartzite	Marble	Amphibolite	Graphite	Amphibolite
Common facies in different formations	Gneiss	Leptinite				
Vohibory System (Vohibory Group)	Gneiss	Leptinite				
Graphite System (Ampanihy Group)	Gneiss	Leptinite				
Ampandrandava Group	Gneiss	Marble bed, Gneiss, marble				
	Lanthana Bed, Leptinite	Amie Bed, Gneiss, quartzite				
Andriogen System	Sulamaha Bed, Leptinite	Tranomaro Bed, Gneiss, marble, pyroxenite				
	Antsakoamary Bed, Leptinite, quartzite, gneiss, pyroxenite					
Fort-Dauphin Group	Leptinite, granulate, gneiss	Leptinite	Granitic rock			
Signs	Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline	Syncline
	Overtured anticline	Schistosity	Plunging axis	Visible fault	Presumed fault	
	Mylonite	Pegmatite	Quartz vein			
	Mine	Tunnel	Open pit			
	Philopopite	Muscovite	Quartz	Rose quartz	Graphite	Graphite vein
	Cu	Mn	Beryl	Tourmaline	Euvente	Amethyst
	Chrysole	Kaolin	Jasper	Apatite	Fluorite	Thorianite
	Corundum	Allanite	Sapphire	Sheelite	Tantalite	Magnetite
	Fluorite	Causticite	Pyrite	Pyrite, molybdenite	Uly	Ilmenite
	Zircon	Monazite	Ilmenite-Zircon-Monazite sand			



IN
 THE SOUTHERN AREA
 THE DEMOCRATIC REPUBLIC OF MADAGASCAR
 (PHASE I)
 GEOLOGICAL MAP AND PROFILE
 OF THE AMPANIHY DISTRICT (2)

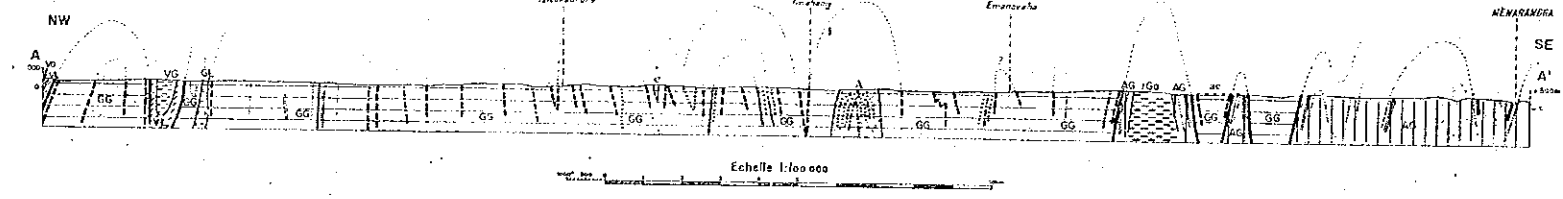


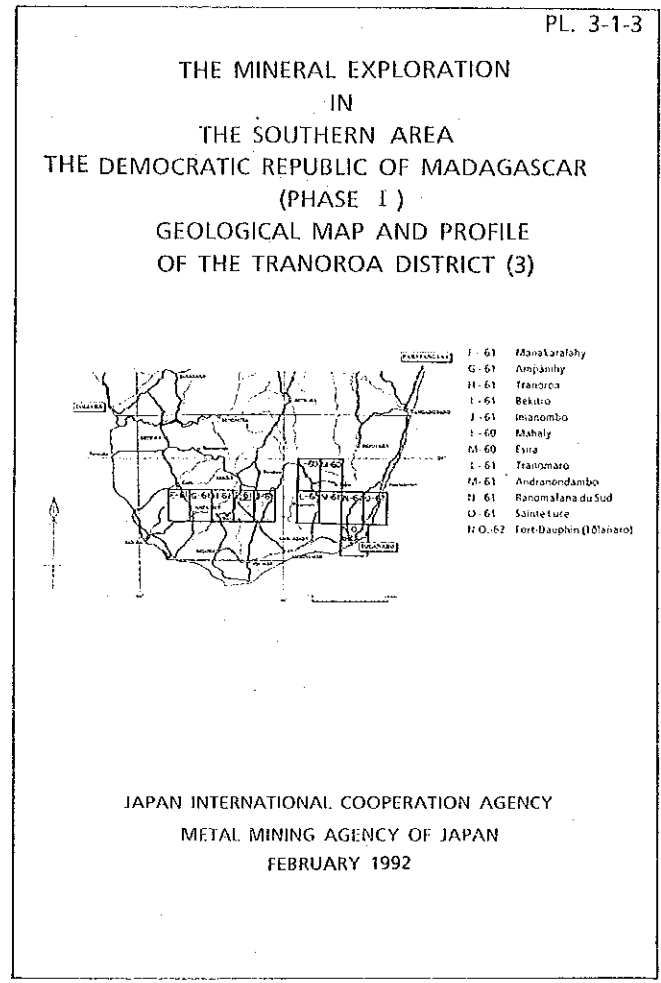
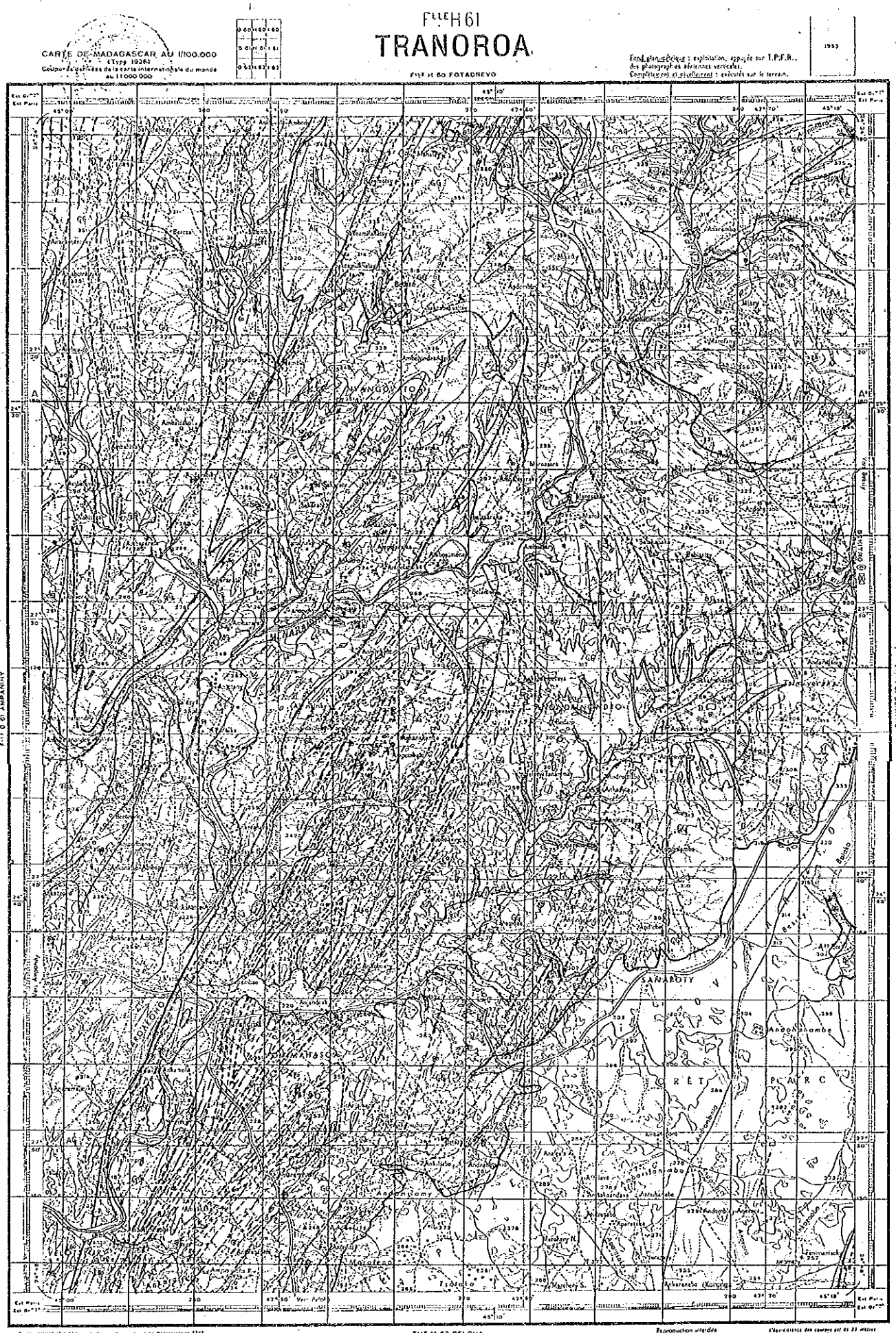
JAPAN INTERNATIONAL COOPERATION AGENCY
 METAL MINING AGENCY OF JAPAN
 FEBRUARY 1992

Scale 1 : 100,000

LEGEND

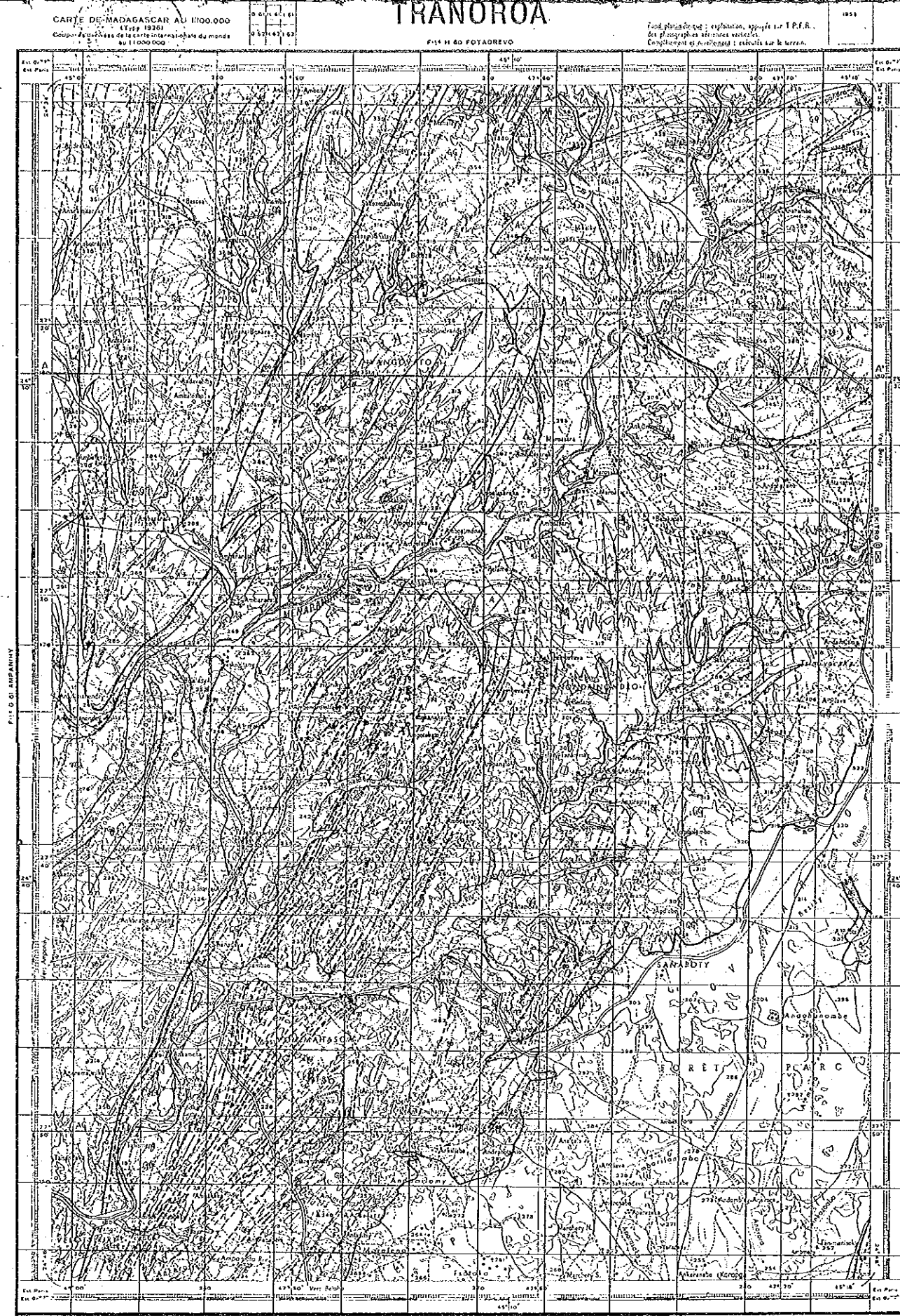
Mesozoic	□ Alluvium	□ Rhyolite dike	□ Microgranite	□ Microsyenite
Cenozoic	□ Andranombo Series, Mudstone, sandstone	□ Basalt-Dolerite dike	□ Granite	□ Gabbro
Recent igneous rocks	□ Granite dike	□ Labradorite	□ Serpentinite	□ Orthogneiss
Old igneous rocks	□ Pyroxenite	□ Amphibolite	□ Granitic gneiss	□ Porphyritic granite
		□ Amphibolite	□ Concordant granite	□ Alkali granite
		□ Amphibolite	□ Anorthosite	□ Stratiform granite, migmatitic granite
		□ Amphibolite	□ Pyroxenite	□ Charnockite
PreCambrian Crystalline Schist		□ Amphibolite		□ Dunite
Common facies in different formations		□ Amphibolite		
Vohibory System (Vohibory Group)	□ Graphite	□ Quartzite	□ Marble	□ Amphibolite
Graphite System (Ampanihy Group)	□ Gneiss	□ Leptinite		
	□ Gneiss	□ Leptinite		
Ampandrandava Group	□ Gneiss	□ Marble	□ Marble	
Transomaro Group	□ Leptinite	□ Marble	□ Marble	
Fort Dauphin Group	□ Leptinite, granite, gneiss	□ Marble	□ Marble	
	□ Leptinite, granite, gneiss	□ Leptinite	□ Leptinite	
	□ Leptinite, granite, gneiss	□ Leptinite	□ Leptinite	
	□ Leptinite, granite, gneiss	□ Leptinite	□ Leptinite	
Structures	□ Dip < 45°	□ Dip > 45°	□ Vertical	□ Horizontal
	□ Overturned anticline	□ Overturned syncline	□ Schistosity	□ Plunging axis
	□ Mylonite	□ Pegmatite	□ Quartz vein	□ Anticline
	□ None	□ Tunnel	□ Open pit	□ Syncline
	□ Phlogopite	□ Muscovite	□ Quartz	□ Rose quartz
	□ Cu	□ Mn	□ Beryl	□ Tourmaline
	□ Chrysothite	□ Kaolin	□ Jasper	□ Apatite
	□ Corundum	□ Allanite	□ Sapphire	□ Sheelite
	□ Bauxite	□ Cassiterite	□ Pyrite	□ Pyrite, molybdenite
	□ Zircon	□ Monazite	□ Ilmenite-Zircon-Monazite sand	□ Ilmenite
	□ Limestone	□ Quarry	□ Hot spring	



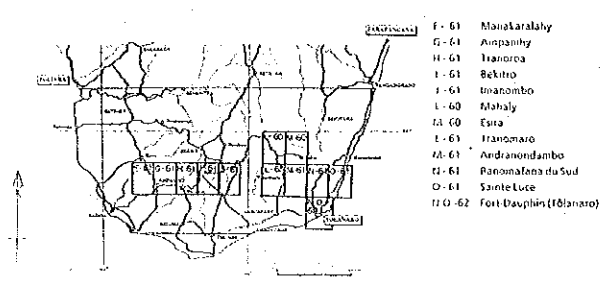


LEGEND

Hoocene	Alteuvum	Andranondambo Series, Murchison, sandstone	Basalt-Dolomite dike	rhyolite dike	Microgranite	Microsyenite
Recent igneous Rocks	Granite dike	Granite	Gabbro	Labradorite	Serpentine	Orthogneiss
Old igneous Rocks	Augen gneiss	Granitic gneiss	Porphyritic granite	Concordant granite	Granite complex	Alite granite
	Anosyennes Granite	Stratiform granite, migmatitic granite	Dunite	Pyroxenite	Charnockite	
Pre-Cambrian Crystalline Schist	Common fac. as in different Formations	Graphite	Quartzite	Marble	Amphibolite	
Vohibory System (Vohibory Group)	Gneiss	Leptinite				
Graphite System (Ampamihy Group)	Gneiss	Leptinite				
Androyen System	Ampandrandava Group	Gneiss	Maficly Bed; Gneiss, marble			
	Tranomaro Group	Lantsitra Bed; Leptinite	Ambic Bed; Gneiss, quartzite			
	Fore-Dauphin Group	Telamahoa Bed; Leptinite	Tranomaro Bed; Gneiss, marble, pyroxenite			
		Antakoaomy Bed; Leptinite, quartzite, gneiss, pyroxenite				
		Leptinite, granuic gneiss	Leptinite			Granitic rock
Structures	Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline	Syncline
	Overturned anticline	Overturned syncline	Schistosity	Plunging axis	Visible fault	Presumed fault
	Mylonite	Pegmatite	Quartz vein			
	Mine	Tunnel	Open pit			
	Muscovite	Quartz	Rose quartz	Graphite	Graphite vein	
	Cu	Mn	Beryl	Tourmaline	Euxenite	Amethyst
	Chrysothite	Kaolin	Jasper	Apatite	Fluorite	Thorianite
	Corundum	Albite	Sapphire	Sheelite	Tantalite	Magnetite
	Bauxite	Cassiterite	Pyrite	Pyrite, molybdenite	Uraninite	



THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
GEOLOGICAL MAP AND PROFILE
OF THE TRANOROA DISTRICT (3)



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale 1:100,000

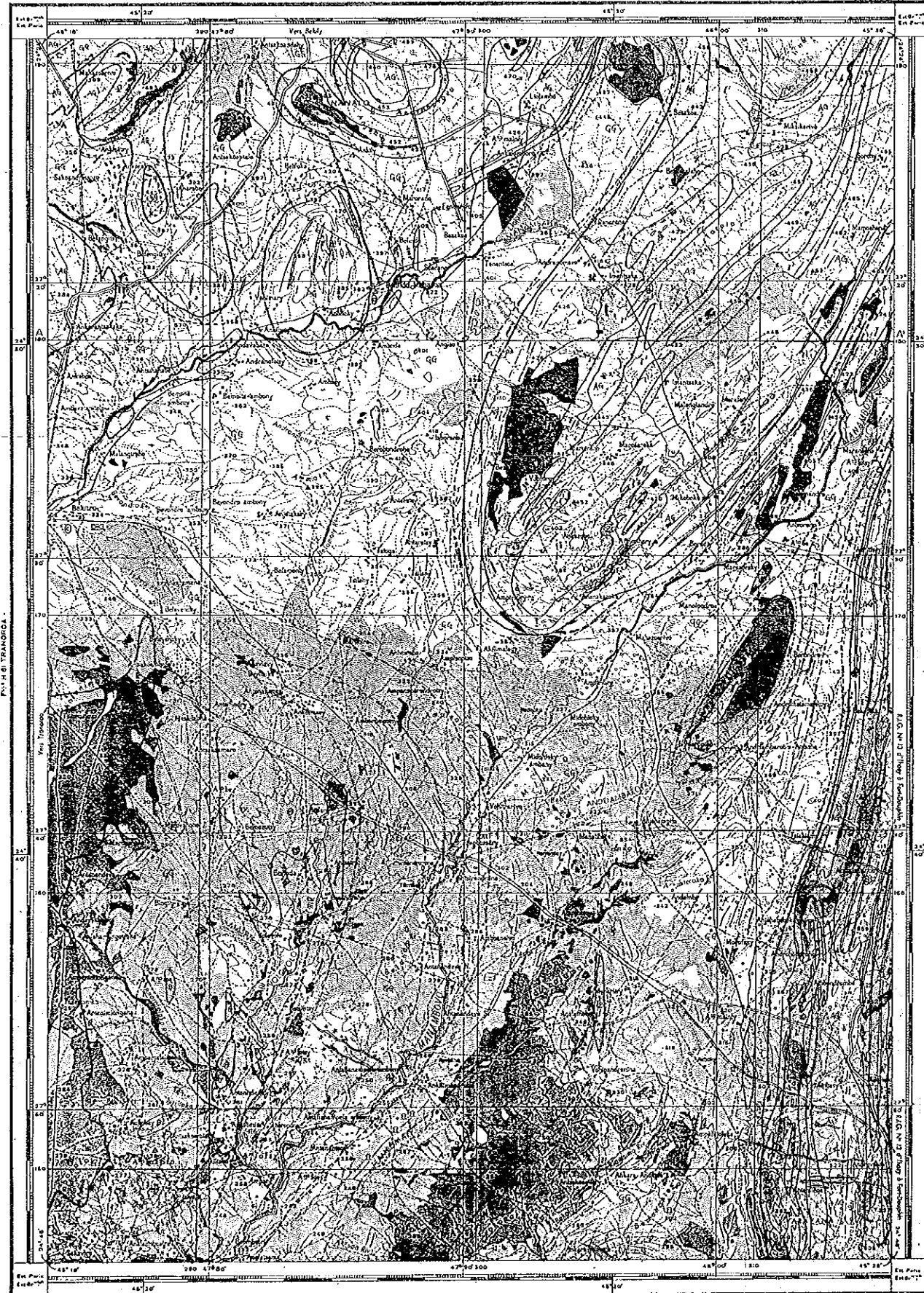
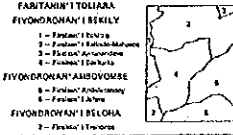
LEGEND

Holocene	□ Alluvium				
Neogene	mp Antrannabo Series, Mudstone, sandstone				
Recent igneous rocks	Basalt-Dolerite dike	Rhyolite dike	Microgranite	Microsyenite	
Quaternary faults	Granite dike	Granite	Gabbro		
	Labradorite	Serpentine	Orthogneiss		
	Augen gneiss	Granitic gneiss	Porphyritic granite		
	Contorted granite	Granitic complex	Alkali granite		
	Androsyrenes Granite	Stratiform granite, migmatitic granite			
	Pyroxenite	Charnockite	Dunite		
Precambrian Crystalline Schist					
Common facies in different formations	Graphite	Quartzite	Marble	Amphibolite	
Vehivory System (Vehivory Group)	Gneiss	Leptinite			
Graphite System (Ampangany Group)	Gneiss	Leptinite			
Androyen System					
Ampandrandava Group	Gneiss	Mafely Bed, Gneiss, marble			
Tanemaro Group	Tantimaha Bed, Leptinite	Ambre Bed, Gneiss, quartzite			
Fort Dauphin Group	Tsamaha Bed, Leptinite	Tranomaro Bed, Gneiss, marble, pyroxenite			
	Antsakomary Bed, Leptinite, quartzite, gneiss, pyroxenite				
	Leptinite, granitoid, gneiss	Leptinite	Granitic rock		
Signs					
Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline	Syncline
Overturned anticline	Overturned syncline	Schistosity	Plunging axis	Visible fault	Presumed fault
Mylonite	Pegmatite	Quartz vein			
Mine	Tunnel	Open pit			
Phlogopite	Muscovite	Quartz	Rose quartz	Graphite	Graphite vein
Cu	Mn	Beryl	Tourmaline	Euxenite	Amethyst
Chrysotile	Kaolin	Jasper	Apatite	Fluorite	Thoriumite
Corundum	Allanite	Sapphire	Sheelite	Tantalite	Magnetite
Baerite	Cassiterite	Pyrite	Pyrite, molybdenite		
Zircon	Monazite	Ilmenite - Zircon - Monazite sand			
Limestone	Quarry	Hot spring			

FEUILLE 161
CARTE TOPOGRAPHIQUE AU 1:100 000

BEKITRO

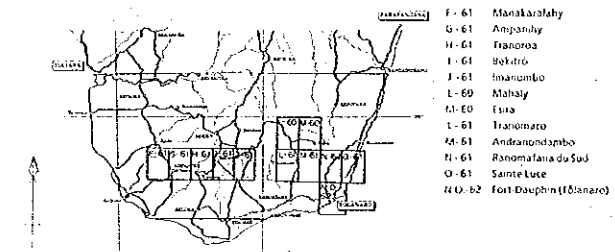
Publiée par le Département des Mines en 1972



Échelle 1:100 000
L'Échelle des courbes de niveau est de 20 mètres.

PL. 3-1-4

THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
GEOLOGICAL MAP AND PROFILE
OF THE BEKITRO DISTRICT (4)

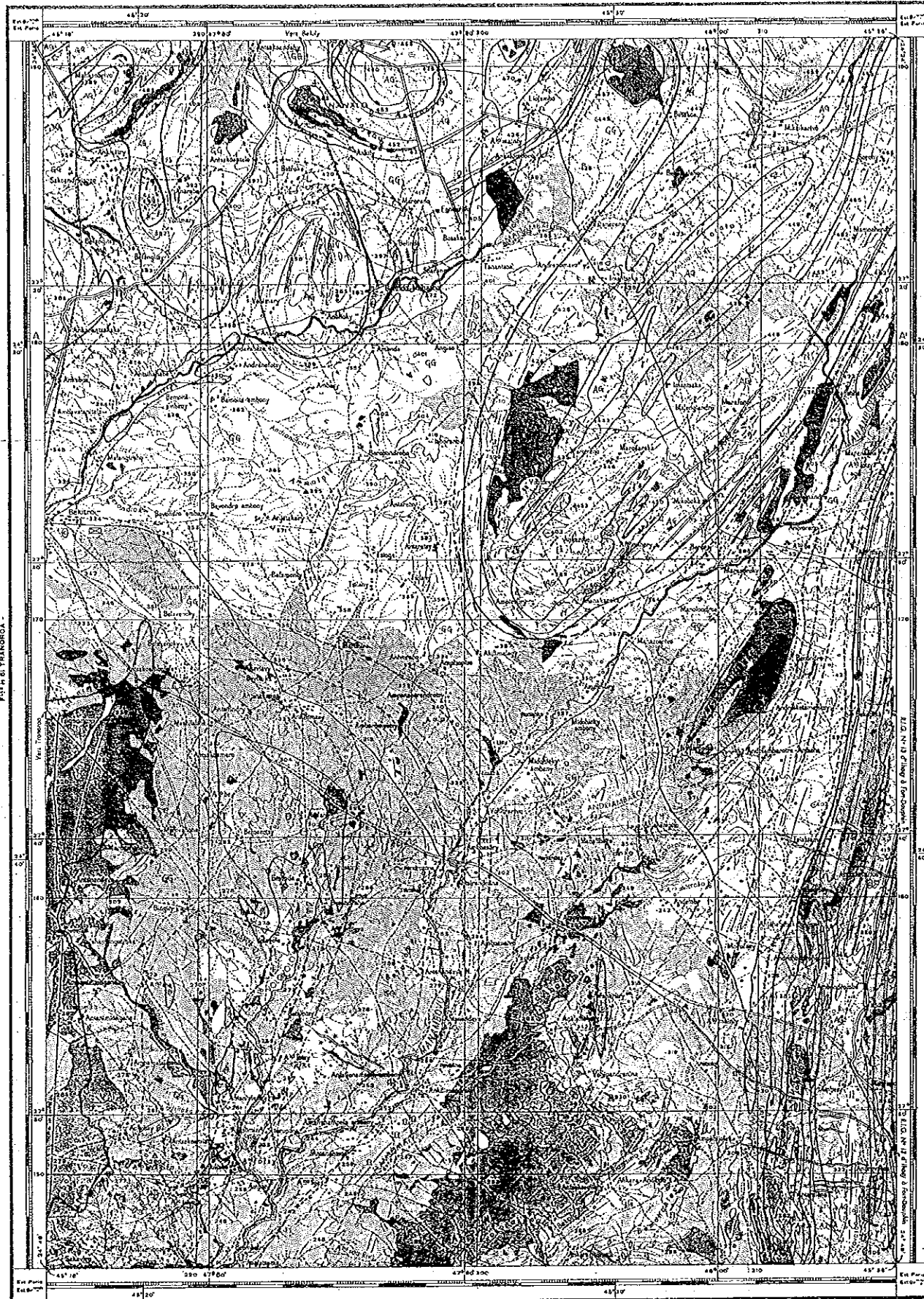


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

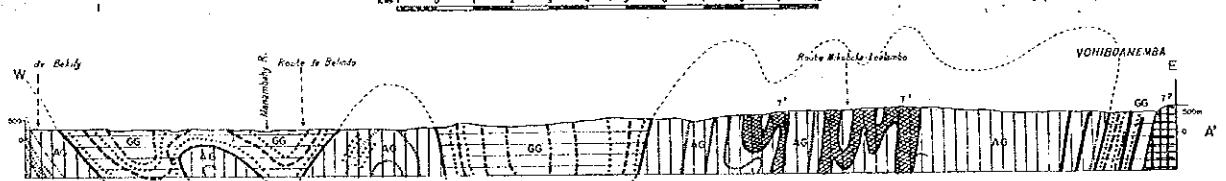
Scale 1:100,000

LEGEND

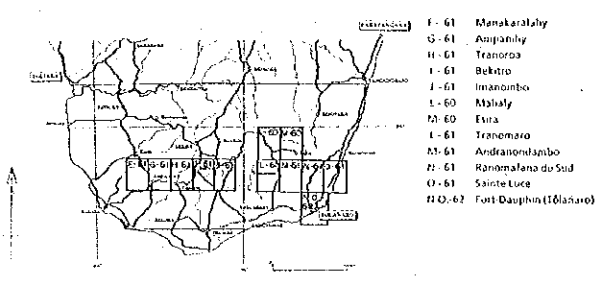
Holocene	Aluvium				
Quaternary	Andranobos Series; Mudstone, sandstone				
Recent igneous Rocks	Basalt-Dolerite dâe	Rhyolite dâe	Microgranite	Microsyenite	
Old igneous Rocks	Granite dâe	Granite	Gabbro		
	Labradorite	Serpentine	Orthogneiss		
	Augen gneiss	Granitic gneiss	Porphyritic granite		
	Concordant granite	Granitic complex	Alkali granite		
	Anapayenne Granite	Stratiform granite, migmatitic granite			
	Pyroxenite	Charnockite	Dunite		
Pre-Cambrian Crystalline Schist					
Common facies in different formations	Graphite	Quartzite	Marble	Amphibolite	
Volcanic System (Volcanic Group)	Gneiss	Leptinite			
Graphitic System (Anpanahy Group)	Gneiss	Leptinite			
Androyen System	AG Gneiss	MG Malilay Bed; Gneiss, marble			
	LL Lantseva Bed; Leptinite	AmG Ambe Bed; Gneiss, quartzite			
	TL Tsamaha Bed; Leptinite	TG Esia Tranomaro Bed; Gneiss, marble, pyroxenite			
	AL GC Antsakoamary Bed; Leptinite, quartzite, gneiss, pyroxenite				
Fort Dauphin Group	L Leptinite, granulo, gneiss	Lgc Leptinite	Lyg Granitic rock		
Structures	Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline
	Overtuned anticline	Overtuned syncline	Schistosity	Plunging axis	Visible fault
	Mylonite	Pegmatite			Presumed fault
	Mine	Tunnel	Open pit		
	Phlogopite	Muscovite	Quartz	Rose quartz	Graphite
	Cu	Mn	Beryl	Tourmaline	Euverite
	Chrysothale	Kaolin	Jasper	Apatite	Fluorite
	Enmundum	Allanite	Sapphire	Shellite	Tantalite
					Magnetite
					Graphite vein
					Amethyst
					Thorianite



Échelle 1 : 100 000
D'après les données de l'Institut National de la Recherche Scientifique (INRS) et les données géologiques de la Direction Générale des Mines et de la Géologie (DGMG) de Madagascar.
L'altitude des courbes est de 25 mètres.



THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
GEOLOGICAL MAP AND PROFILE
OF THE BEKITRO DISTRICT (4)

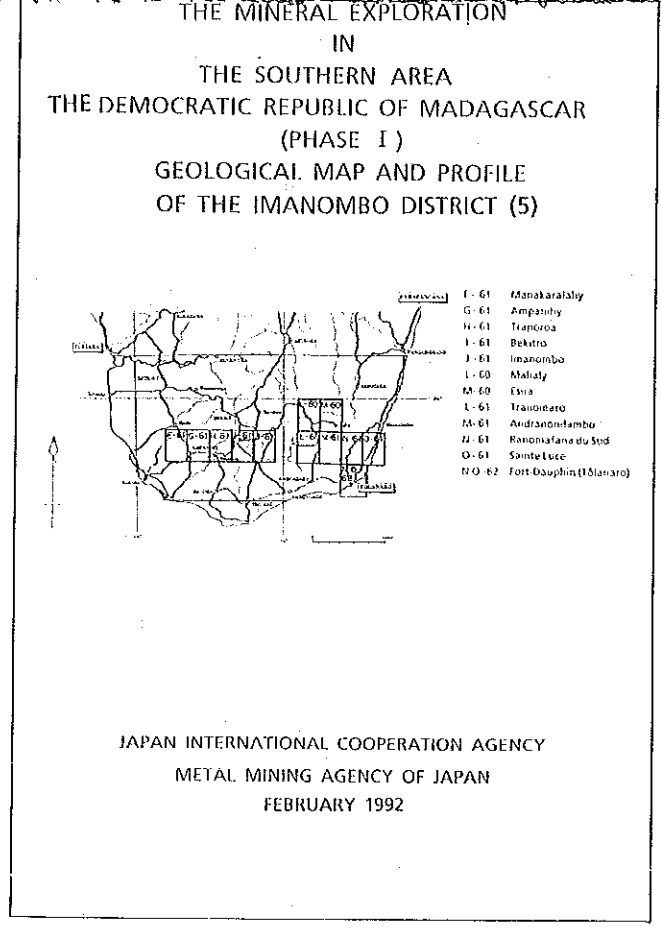


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale 1 : 100,000

LEGEND

Quaternary	Alluvium				
Tertiary	Andranabo Series, Mudstone, sandstone				
Recent igneous Rocks	Basalt-Dolente dike	Rhyolite dike	Microgranite	Microsyenite	
Old igneous Rocks	Granite dike	Granite	Gabbro	Orthogneiss	
	Labradorite	Serpentine	Porphyritic granite	Alkali granite	
	Augen gneiss	Granitic gneiss	Stratiform granite, migmatitic granite		
	Concordant granite	Granitic complex	Chlorokite	Dunite	
	Amphibole Granite				
	Pyroxenite				
Precambrian Crystalline Schist	Graphite	Quartzite	Marble	Amphibolite	
Common facies in different formations	Gneiss	Leptinite			
Vohibory System (Vohibory Group)	Gneiss	Leptinite			
Graphite System (Ampanahy Group)	Gneiss				
Ampandrandava Group	Lantsoitra Bed, Leptinite	Mafely Bed, Gneiss, marble			
Tranomaro Group	Tsamaha Bed, Leptinite	Ambre Bed, Gneiss, quartzite			
Fort Dauphin Group	Antakoumiary Bed, Leptinite, quartzite, gneiss, pyroxenite	Trianomaro Bed, Gneiss, marble, pyroxenite			
	Leptinite, granite, gneiss	Leptinite	Granitic rock		
Signs	Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline
	Overturned anticline	Overturned syncline	Schistosity	Plunging axis	Visible fault
	Mylonite	Pegmatite	Quartz vein		Presumed fault
	Mine	Tunnel	Open pit		
	Pyrope	Muscovite	Quartz	Rose quartz	Graphite
	Cu	Min	Beryl	Tourmaline	Eurosite
	Chrysolite	Kaolin	Jasper	Apatite	Fluorite
	Corundum	Alluvite	Sapphire	Sheelite	Tantalite
	Bauxite	Castanite	Pyrite	Pyrite, molybdenite	Ilmenite
	Zircon	Monazite	Ilmenite-Zircon-Monazite sand		
	Limestone	Quarry	Hot spring		

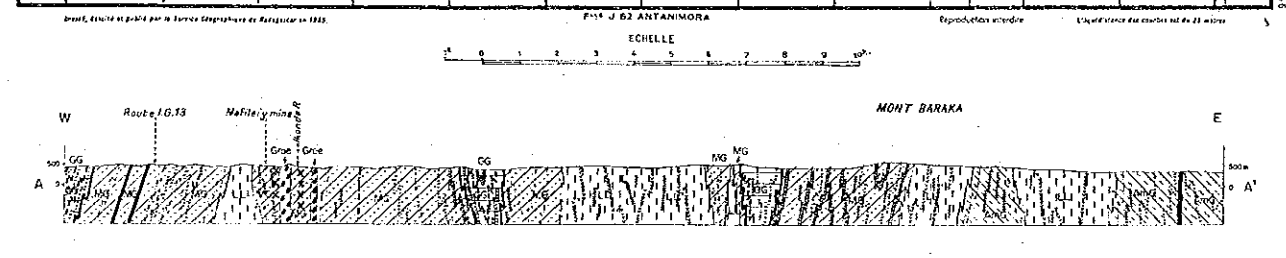


LEGEND

Holocene	Alluvium	Basalt-Dolomite dike	Rhyolite dike	Microgranite	Microsyenite
Recent	Andrianoabo Series, Mudstone, sandstone				
Recent igneous Rocks					
Old igneous Rocks	Granite dike	Labradorite	Augen gneiss	Concordant granite	Anisyenne Granite
	Pyroxenite	Granite	Serpentinite	Grenitic gneiss	Granitic complex
		Gabbro	Orthogneiss	Porphyritic granite	Alkali granite
		Stratiform granite, migmatitic granite	Charnokite	Dunite	
Preambrian Crystalline Schist	Graphite	Quartzite	Marble	Amphibolite	
Common facies in different formations	Gneiss (Voh-bory System)	Leptinite (Voh-bory System)			
Voh-bory System (Voh-bory Group)	Gneiss (Grenitic System)	Leptinite (Grenitic System)			
Graphitic System (Ampangidy Group)	Gneiss (Ampangidy Group)	Leptinite (Ampangidy Group)			
Androyen System	Ampangidy Bed, Gneiss, marble	Anibe Bed, Gneiss, quartzite	Tranomero Bed, Gneiss, marble, pyroxenite	Leptinite, granulite, gneiss	Leptinite
Fort-Dauphin Group	Leptinite, granulite, gneiss	Leptinite	Granitic rock		

Dip < 45°	Dip > 45°	Vertical	Horizontal	Anticline	Syncline
Overturned anticline	Overturned syncline	Schistosity	Plunging axis	Visible fault	Presumed fault
Mylonite	Pegmatite	Quartz vein			
Mine	Tunnel	Open pit			

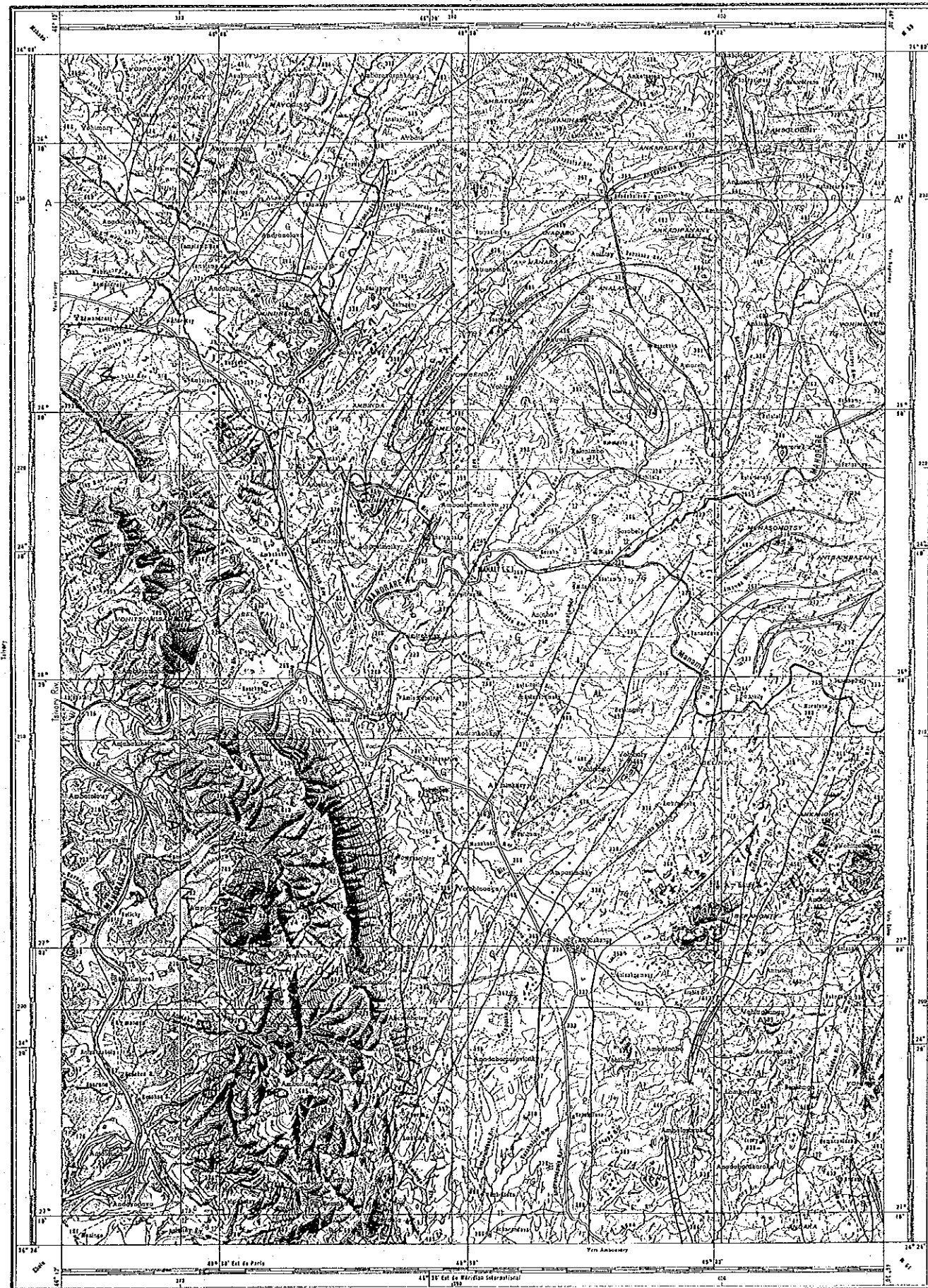
Phlogopite	Muscovite	Quartz	Rose quartz	Graphite	Graphite vein
Cu	Mn	Beryl	Tourmaline	Euxenite	Amethyst
Chrysothole	Kaolin	Jasper	Apatite	Fluorite	Thorianite
Crundum	Allantite	Sapphire	Sphalerite	Tantalite	Magnetite
Bauxite	Cassiterite	Pyrite	Pyrite, molybdenite	Ilmenite	
Zircon	Monazite	Ilmenite-Zircon-Monazite sand			
Limestone	Quarry	Hot spring			



CARTE DE MADAGASCAR AU 100.000^e

MAHALY

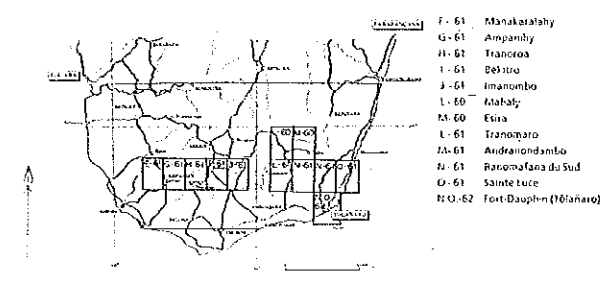
FEUILLE L-60



Échelle 1 : 100.000
 Reproduction interdite
 Tous droits réservés

PL. 3-1-6

THE MINERAL EXPLORATION
 IN
 THE SOUTHERN AREA
 THE DEMOCRATIC REPUBLIC OF MADAGASCAR
 (PHASE I)
 GEOLOGICAL MAP AND PROFILE
 OF THE MAHALY DISTRICT (6)



JAPAN INTERNATIONAL COOPERATION AGENCY
 METAL MINING AGENCY OF JAPAN
 FEBRUARY 1992

Scale 1:100,000

LEGEND

Quaternary	Aluvium	Andrianoaho Series: Mudstone, sandstone	Rhyolite dike	Microgranite	Microsyenite
Neogene					
Recent igneous rocks	Basalt - Oolite d'ite	Granite dike	Granite	Gabbro	Orthogneiss
Old igneous rocks	Labradorite	Serpentine	Granitic gneiss	Porphyritic granite	Alkal granite
	Augen gneiss	Granite complex	Stratiform granite, migmatitic granite		Dunite
	Concordant granite	Charnockite			
	Anosyennes Granite				
	Pyroxenite				
Precambrian Crystalline Schist					
Common facies in different formations	Graphite	Quartzite	Marble	Amphibolite	
Vohibory System (Vohibory Group)	VG Gneiss	VL Leptinite			
Graphite System (Ampangahy Group)	GG Gneiss	GL Leptinite			
Ampandrandava Group	AG Gneiss	MG Marble Bed, Gneiss, marble			
Tranomaro Group	LL Lantsoha Bed, Leptinite	AMG Ambe Bed, Gneiss, quartzite			
Fort Dauphin Group	TL Isalaha Bed, Leptinite	FG Fort Dauphin Bed, Gneiss, marble, pyroxenite			
	AL GC Antsalomany Bed, Leptinite, quartzite, gneiss, pyroxenite				
	L Leptinite, granite, gneiss	Lgc Leptinite	Lrg Granitic rock		
Structures	Dip > 45°	Dip < 45°	Vertical	Horizontal	Anticline
Overturned anticline	Overturned syncline	Schistosity	Plunging axis	Visible fault	Presumed fault
Mylonite	Pegmatite	Quartz vein			
Mine	Tunnel	Open pit			
Phlogopite	Muscovite	Quartz	Rose quartz	Graphite	Graphite vein
Cu	Mn	Beryl	Tourmaline	Euxenite	Amethyst
Chrysoberyl	Kaolin	Jasper	Apatite	Fluorite	Thorianite
Corundum	Allanite	Sapphirine	Sheelite	Tantalite	Magnetite
Bauxite	Cassiterite	Pyrite	Pyrite, molybdenite	Ilmenite	