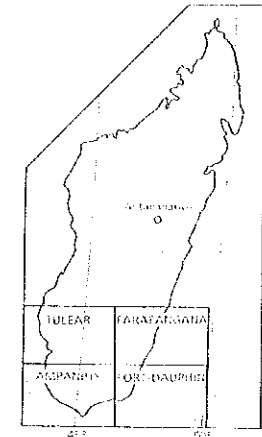


CARTE MINIERE ET DES INDICES

Feuille TULEAR N°10

PL. 3-2-1

THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
LOCATION MAP OF MINERAL DEPOSITS AND
SHOWINGS IN THE TULEAR DISTRICT (1)

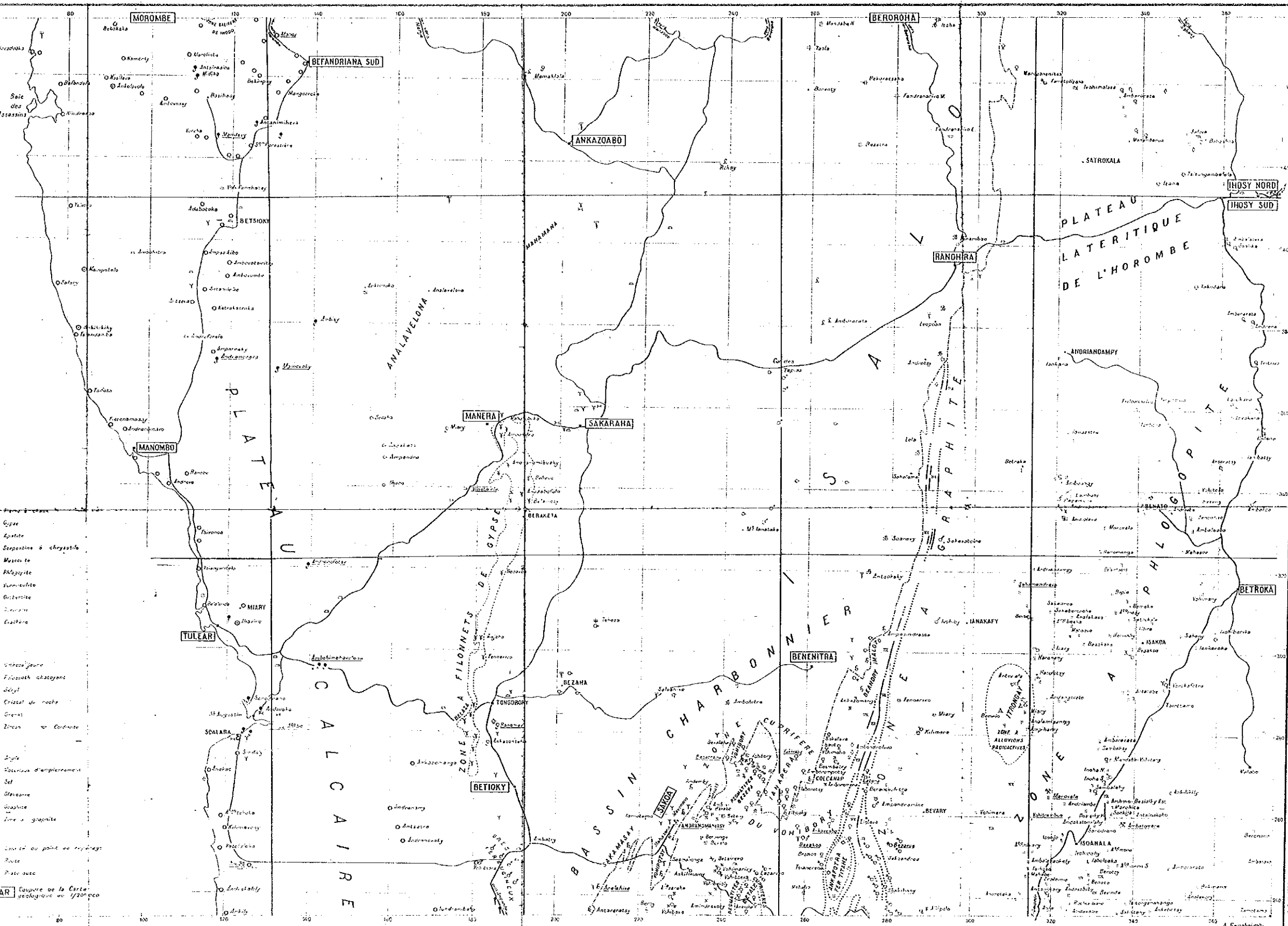


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

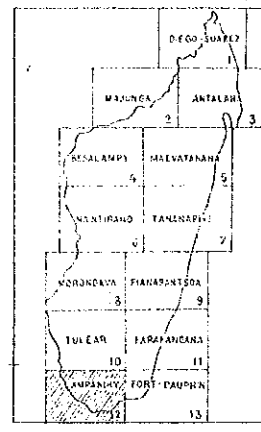
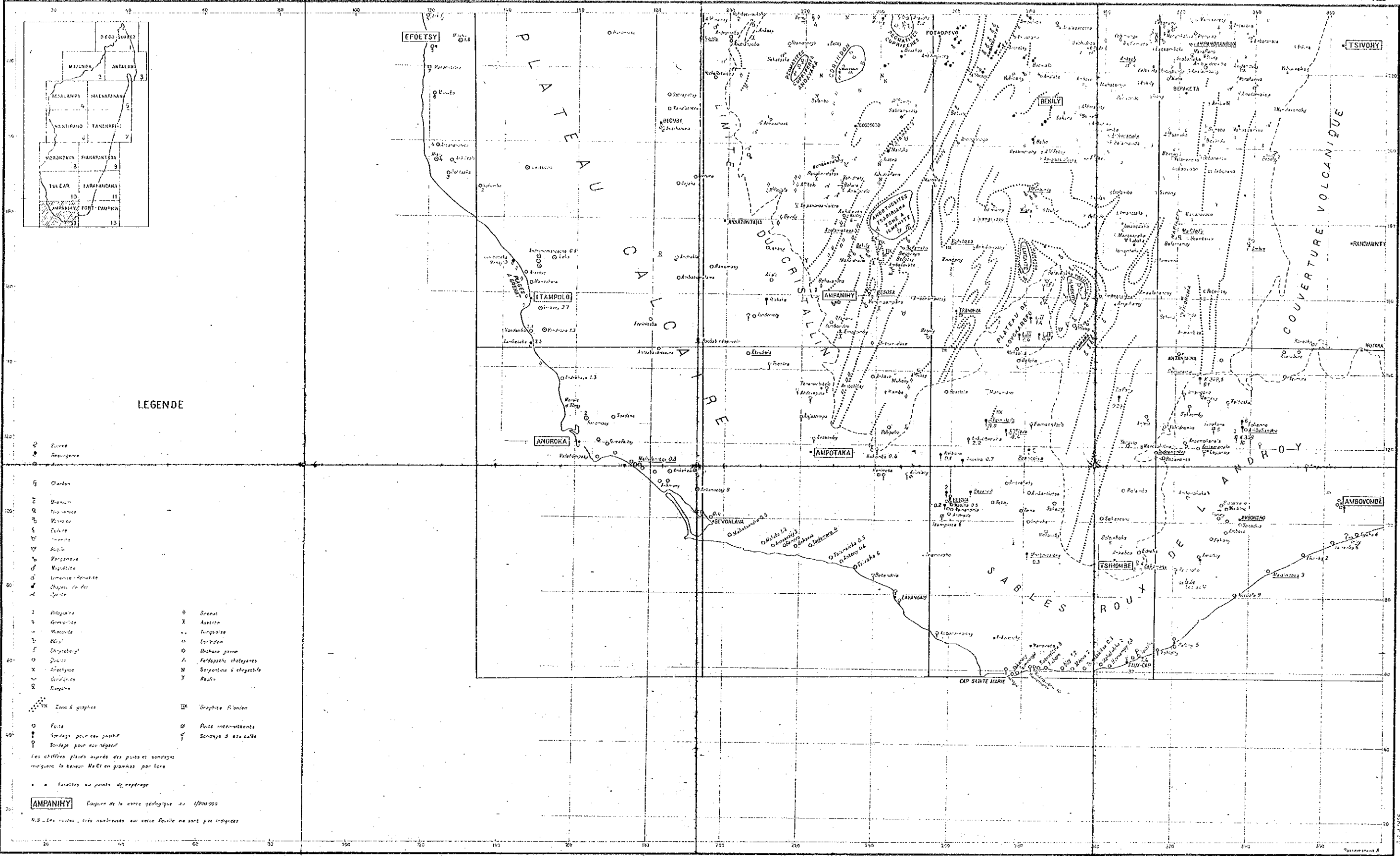
Scale : 500,000

LEGEND

- | | |
|---------------------------|------------------------------|
| ○ Fountain | ⊥ Sapphire |
| ⊙ Spring water | ⊥ Fluorite |
| ⊙ Sulphur spring | ⊥ Limestone |
| ⊥ Lignite | ⊥ Gypsum |
| ⊥ Coal | ⊥ Apatite |
| ⊥ Bitumen | ⊥ Opal |
| ⊙ Monazite | ⊥ Chrysotile serpentinite |
| ⊙ Uranium | ⊥ Muscovite |
| ⊙ Thoriumite | ⊥ Phlogopite |
| ⊙ Mn | ⊥ Vermiculite |
| ⊙ Ilmenite | ⊥ Talc |
| ⊙ Rutile | ⊥ Magnesite |
| ⊙ Allanite | ⊥ Corundum |
| ○ Au | ⊥ Sillimanite |
| ○ Cu | ⊥ Cyanite |
| ⊙ Pyrite | ⊥ Kaolinite |
| ⊙ Magnetite | ⊙ Turquoise |
| ⊙ Limonite, Hematite | ⊙ Yellow orthoclase |
| ⊙ Zn | ⊙ Iridescent feldspar |
| ⊙ Cassiterite | ⊙ Beryl |
| ⊙ Chromite | ⊙ Chrysoberyl |
| ⊙ Gossan | ⊙ Quartz |
| ⊥ Oil boring | ⊙ Amethyst |
| ⊥ Water boring (positive) | ⊙ Garnet |
| ⊥ Water boring (negative) | ⊙ Cordierite |
| ⊙ Well | ⊙ Zircon |
| ⊙ Cave | ⊙ Tourmaline |
| ⊙ Water fall | ⊙ Barite |
| ⊙ Mine | ⊙ Clay |
| | ⊙ Crushed stone |
| | ⊙ Salt |
| | ⊙ Glauconite |
| | ⊙ Graphite |
| | ⊙ Graphite zone |
| | — Road |
| | — Earth road |
| | ⊥ Geological map (1:200,000) |



ECHELLE : 1/500.000



LEGENDE

- Source
- Ressourçence
- 5 Ombre
- 6 Uranium
- 7 Thorium
- 8 Monazite
- 9 Calcite
- 10 Sulfure
- 11 Sulfate
- 12 Sulfure
- 13 Sulfure
- 14 Sulfure
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- 16 Sulfure
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- 98 Sulfure
- 99 Sulfure
- 100 Sulfure

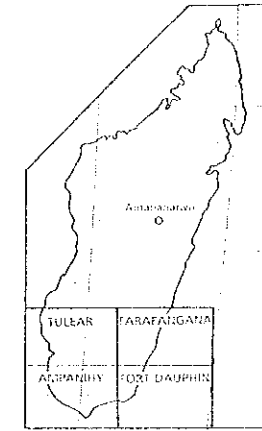
THE M...
THE S...
THE DEMOCRATIC...
LOCATION MAP...
SHOWINGS IN...
JAPAN INTERN...
METAL M...

CARTE MINIERE ET DES INDICES

Feuille AMPANIHY N°12

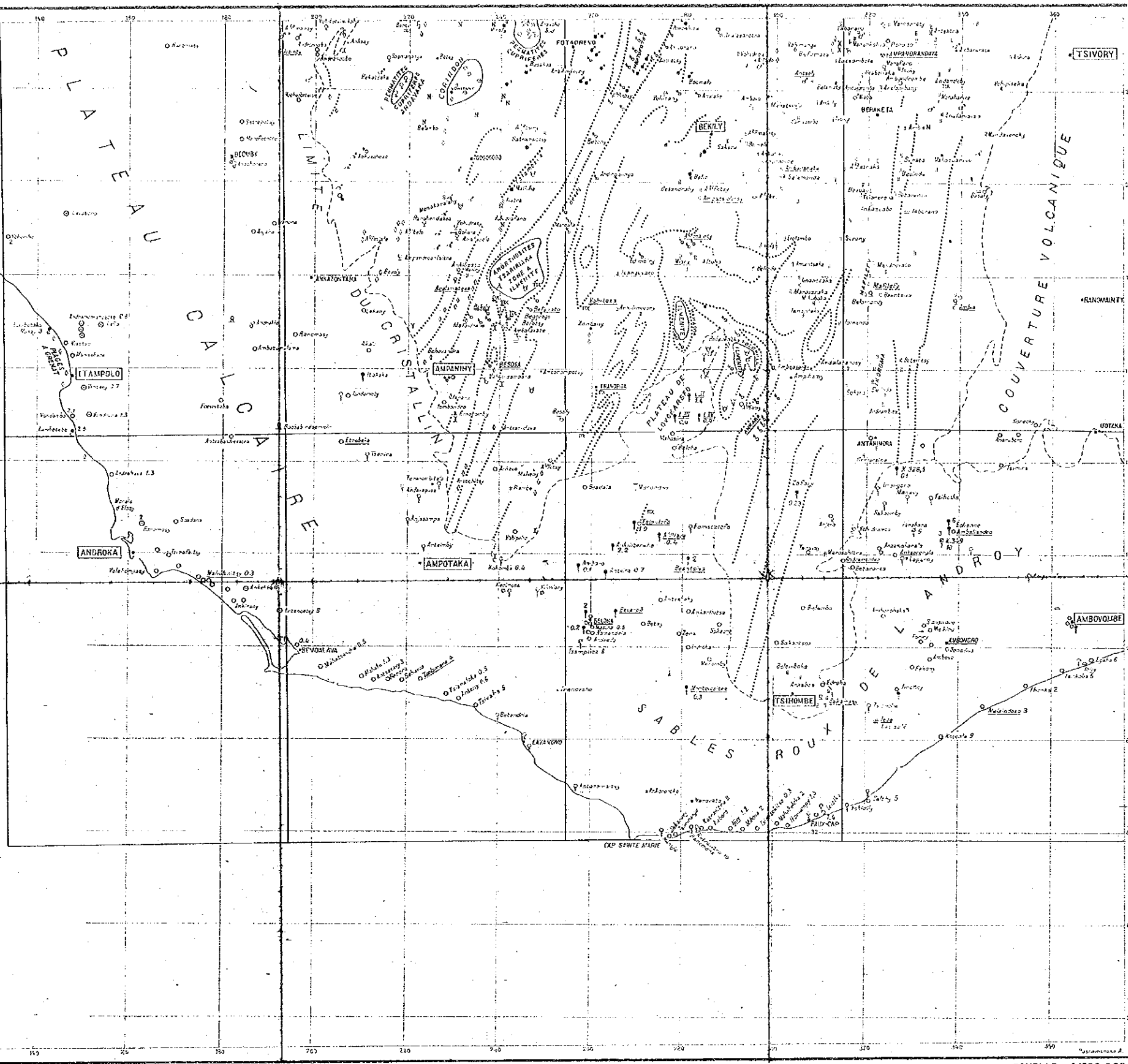
PL. 3-2-2

THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
LOCATION MAP OF MINERAL DEPOSITS AND
SHOWINGS IN THE AMPANIHY DISTRICT (2)



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale 1:500,000



ECHELLE : 1/500.000

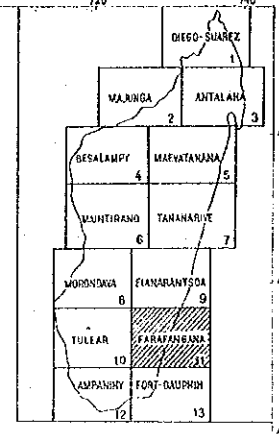
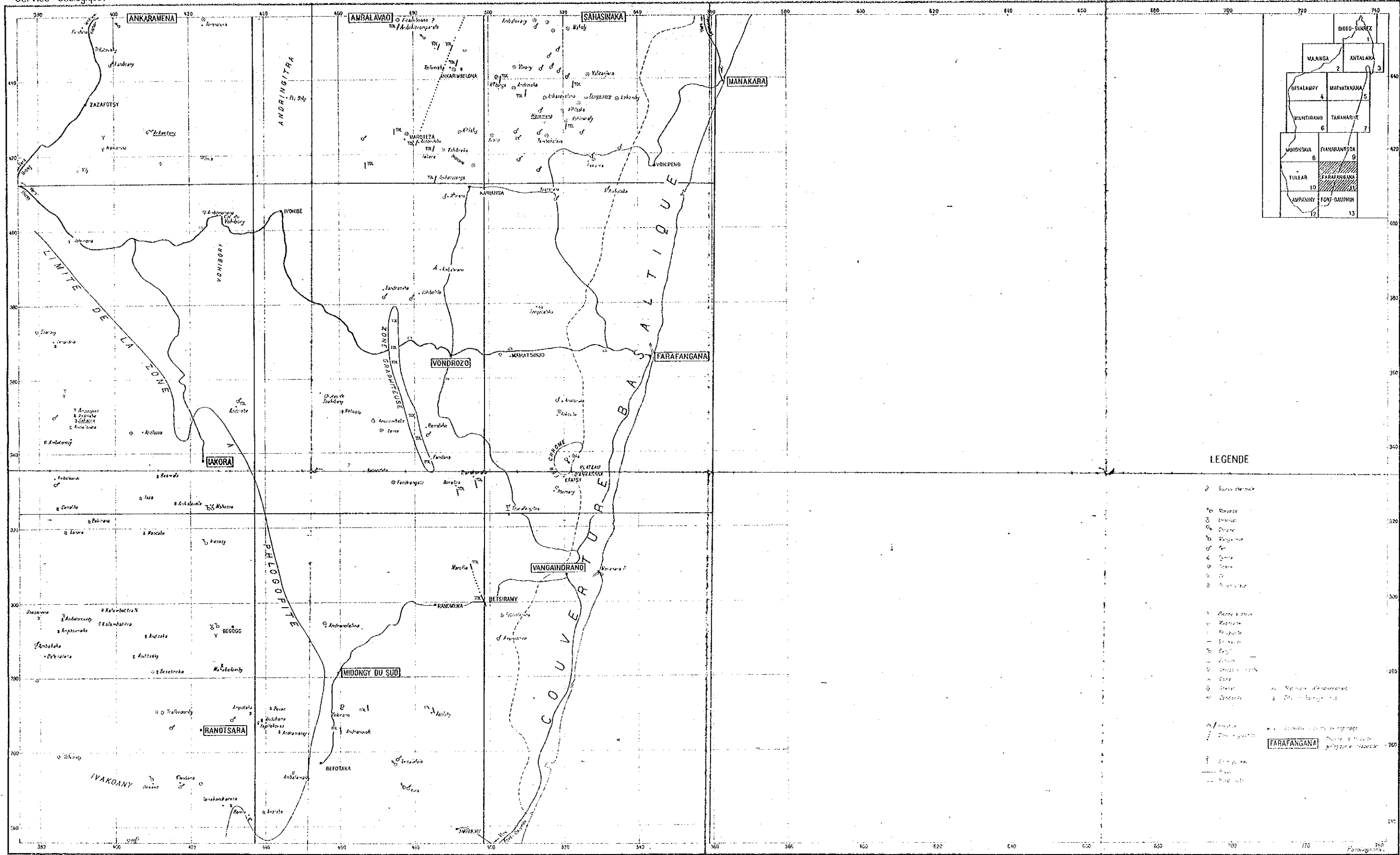
LEGEND

- | | |
|---------------------------|------------------------------|
| ○ Fountain | ⊥ Sapphire |
| ⊙ Spring water | ⊙ Fluorite |
| ⊙ Sulphur spring | ⊙ Limestone |
| ⊙ Lignite | ⊙ Gypsum |
| ⊙ Coal | ⊙ Apatite |
| ⊙ Bitumen | ⊙ Opal |
| ⊙ Monazite | ⊙ Chrysotile serpentinite |
| ⊙ Uranium | ⊙ Muscovite |
| ⊙ Thorianite | ⊙ Phlogopite |
| ⊙ Mn | ⊙ Vermiculite |
| ⊙ Ilmenite | ⊙ Talc |
| ⊙ Rutile | ⊙ Magnesite |
| ⊙ Allanite | ⊙ Corundum |
| ⊙ Au | ⊙ Sillimanite |
| ⊙ Cu | ⊙ Cyanite |
| ⊙ Pyrite | ⊙ Kaolinite |
| ⊙ Magnetite | ⊙ Turquoise |
| ⊙ Limonite, Hematite | ⊙ Yellow orthoclase |
| ⊙ Zn | ⊙ Iridescent feldspar |
| ⊙ Cassiterite | ⊙ Beryl |
| ⊙ Chromite | ⊙ Chrysoberyl |
| ⊙ Gossan | ⊙ Quartz |
| ⊙ Oil boring | ⊙ Amethyst |
| ⊙ Water boring (positive) | ⊙ Garnet |
| ⊙ Water boring (negative) | ⊙ Cordierite |
| ⊙ Well | ⊙ Zircon |
| ⊙ Cave | ⊙ Tourmaline |
| ⊙ Water fall | ⊙ Barite |
| ⊙ Mine | ⊙ Clay |
| | ⊙ Crushed stone |
| | ⊙ Salt |
| | ⊙ Glaucosite |
| | ⊙ Graphite |
| | ⊙ Graphite zone |
| | — Road |
| | — Earth road |
| | ⊙ Geological map (1:200,000) |

Grénet
Acazite
Turquoise
Cordierite
Orthose jaune
Feldspathes chatoyants
Serpentine à chrysotile
Kasho

Graphite flouze
Ruix intermédiaires
Soudure à eau salée

1/200000
Carte géologique



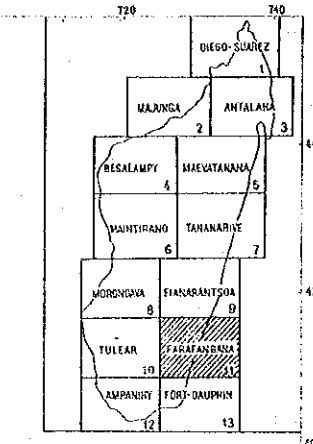
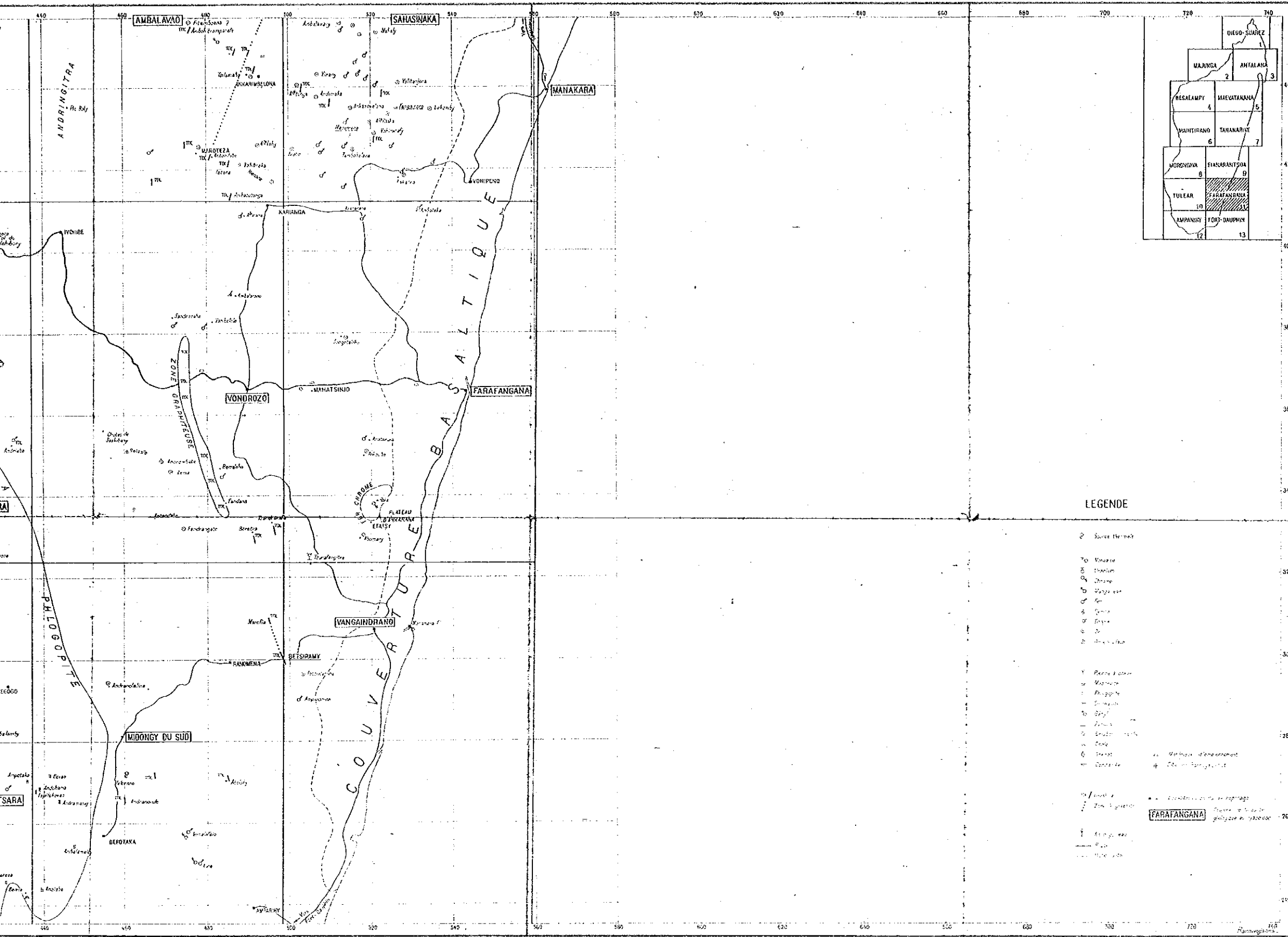
LEGENDE

- 2 Source thermales
- 30 Monazite
- 3 Uranium
- 4 Thoriumite
- 5 Mn
- 6 Ilmenite
- 7 Rutile
- 8 Allantite
- 9 Au
- 10 Cu
- 11 Pyrite
- 12 Magnetite
- 13 Limonite, Hematite
- 14 Zn
- 15 Cassiterite
- 16 Chromite
- 17 Gossan
- 18 Oil boring
- 19 Water boring (positive)
- 20 Water boring (negative)
- 21 Well
- 22 Cave
- 23 Water fall
- 24 Mine

THE MIN...
THE SO...
THE DEMOCRATIC R...
LOCATION MAP...
SHOWINGS IN THE...
JAPAN INTERNA...
METAL M...

CARTE MINIERE ET DES INDICES

Feuille FARAFANGANA N°11

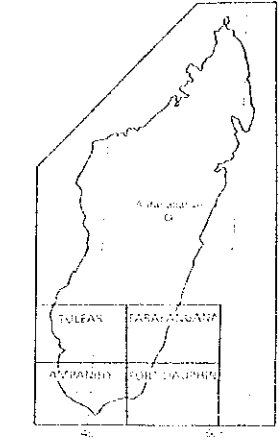


LEGENDE

- ☉ Source thermale
- ☉ Source
- ☉ Uranium
- ☉ Thorium
- ☉ Or
- ☉ Argent
- ☉ Cuivre
- ☉ Mercure
- ☉ Plomb
- ☉ Antimoine
- ☉ Fer
- ☉ Nickel
- ☉ Manganèse
- ☉ Zinc
- ☉ Molybdène
- ☉ Vanadium
- ☉ Cobalt
- ☉ Sélénium
- ☉ Bismuth
- ☉ Arsenic
- ☉ Tellure
- ☉ Iode
- ☉ Brome
- ☉ Fluorure
- ☉ Chlore
- ☉ Soufre
- ☉ Carbone
- ☉ Silice
- ☉ Kaolin
- ☉ Argile
- ☉ Sable
- ☉ Grès
- ☉ Schistes
- ☉ Marbre
- ☉ Granit
- ☉ Gneiss
- ☉ Quartzites
- ☉ Siltites
- ☉ Argilites
- ☉ Schistes cristallins
- ☉ Gneiss cristallins
- ☉ Marbres cristallins
- ☉ Granite cristallins
- ☉ Gneiss métamorphisés
- ☉ Marbres métamorphisés
- ☉ Granite métamorphisés
- ☉ Gneiss métamorphisés et métasédiments
- ☉ Marbres métamorphisés et métasédiments
- ☉ Granite métamorphisés et métasédiments

ECHILLE : 1:500,000

THE MINERAL EXPLORATION IN THE SOUTHERN AREA THE DEMOCRATIC REPUBLIC OF MADAGASCAR (PHASE I) LOCATION MAP OF MINERAL DEPOSITS AND SHOWINGS IN THE FARAFANGANA DISTRICT (3)

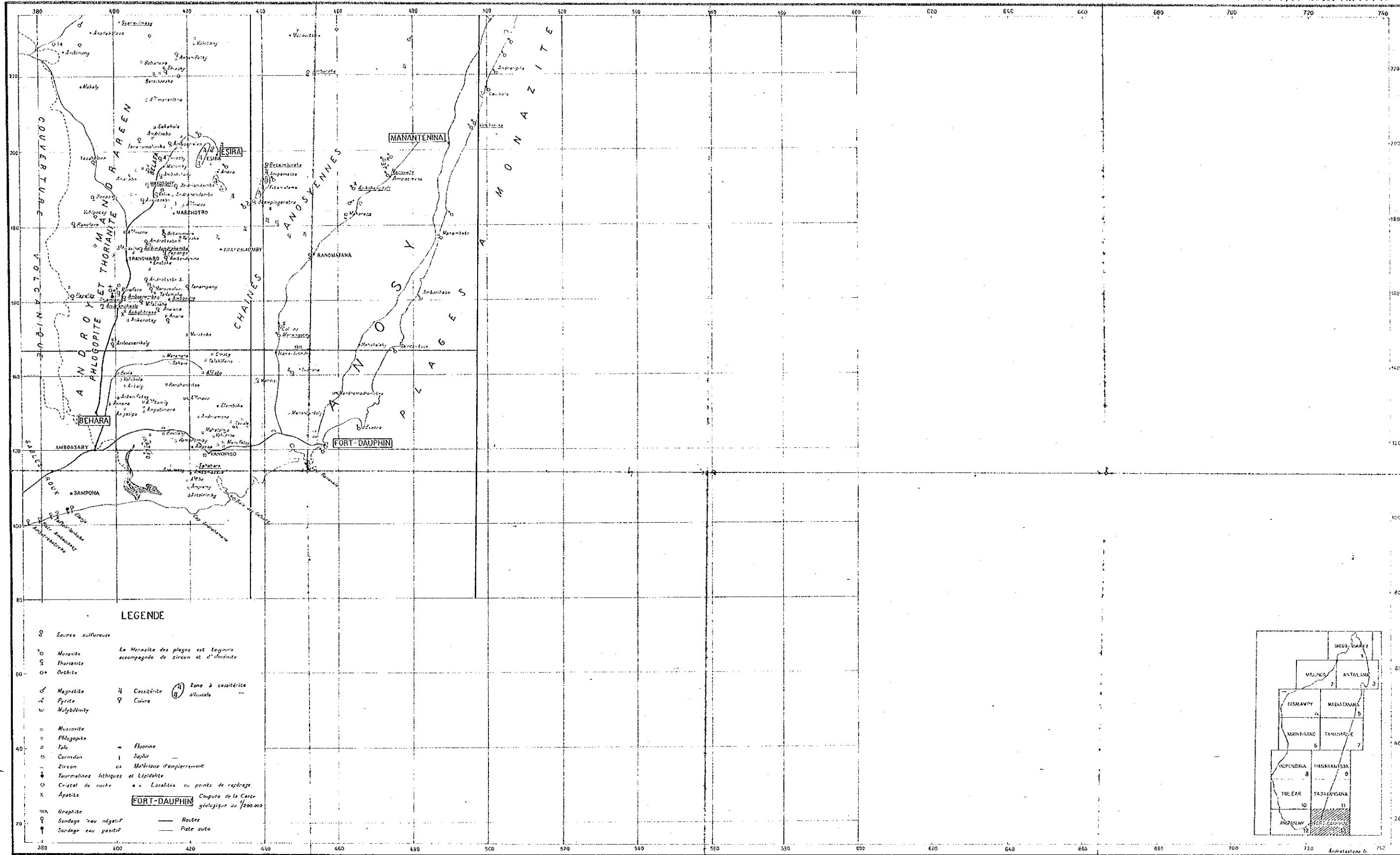


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

LEGEND

- ☉ Fountain
- ☉ Spring water
- ☉ Sulphur spring
- ☉ Lignite
- ☉ Coal
- ☉ Bitumen
- ☉ Monazite
- ☉ Uranium
- ☉ Thorianite
- ☉ Min
- ☉ Ilmenite
- ☉ Rutile
- ☉ Allanite
- ☉ Au
- ☉ Cu
- ☉ Pyrite
- ☉ Magnetite
- ☉ Limonite, Hematite
- ☉ Zn
- ☉ Cassiterite
- ☉ Chromite
- ☉ Gossan
- ☉ Oil boring
- ☉ Water boring (positive)
- ☉ Water boring (negative)
- ☉ Well
- ☉ Cave
- ☉ Water fall
- ☉ Mine
- ☉ Sapphire
- ☉ Fluorite
- ☉ Limestone
- ☉ Gypsum
- ☉ Apatite
- ☉ Opal
- ☉ Chrysolite serpentinite
- ☉ Muscovite
- ☉ Phlogopite
- ☉ Vermiculite
- ☉ Talk
- ☉ Magnesite
- ☉ Corundum
- ☉ Sillimanite
- ☉ Cyanite
- ☉ Kaolinite
- ☉ Turquoise
- ☉ Yellow orthoclase
- ☉ Iridescent feldspar
- ☉ Beryl
- ☉ Chrysoberyl
- ☉ Quartz
- ☉ Amethyst
- ☉ Garnet
- ☉ Cordierite
- ☉ Zircon
- ☉ Tourmaline
- ☉ Bante
- ☉ Clay
- ☉ Crushed stone
- ☉ Salt
- ☉ Glauconite
- ☉ Graphite
- ☉ Graphite zone
- ☉ Road
- ☉ Earth road

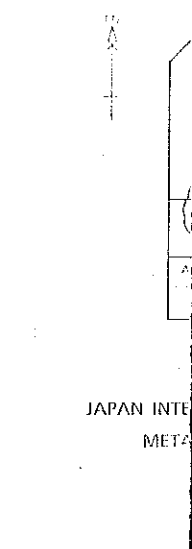
TULEAR Geological map (1:200,000)



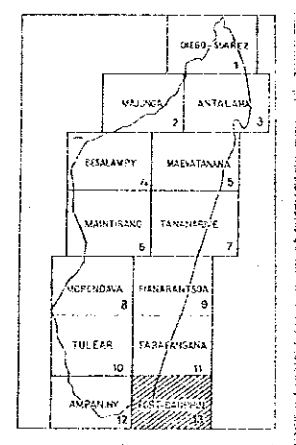
LEGENDE

- ☉ Source sulfureuse
 - ☉ Monazite
 - ☉ Thoranite
 - ☉ Orérite
 - ☉ Magnésite
 - ☉ Pyrite
 - ☉ Molybdénite
 - ☉ Muscovite
 - ☉ Phlogopite
 - ☉ Talc
 - ☉ Corindon
 - ☉ Zircon
 - ☉ Tourmalines lithiques et lipidolite
 - ☉ Cristal de roche
 - ☉ Apatite
 - ☉ Graphite
 - ☉ Sondage "eau minéral"
 - ☉ Sondage eau potabil
- Le Monazite des plages est toujours accompagnée de sircon et d'ilménite
- ☉ Cassitérite (H) zone à cassitérite alluviale
- ☉ Cuivre
- ☉ Fluorine
- ☉ Saphir
- ☉ Matériaux d'empiérement
- ☉ Localités ou points de repérage
- ☉ Route
- ☉ Piste auto
- FORT-DAUPHIN** Copure de la Carte géologique au 1/200,000

THE
THE
THE DEMOCRAT
LOCATION M
SHOWINGS IN



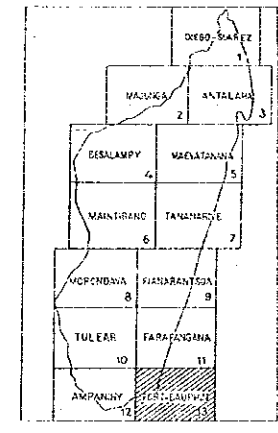
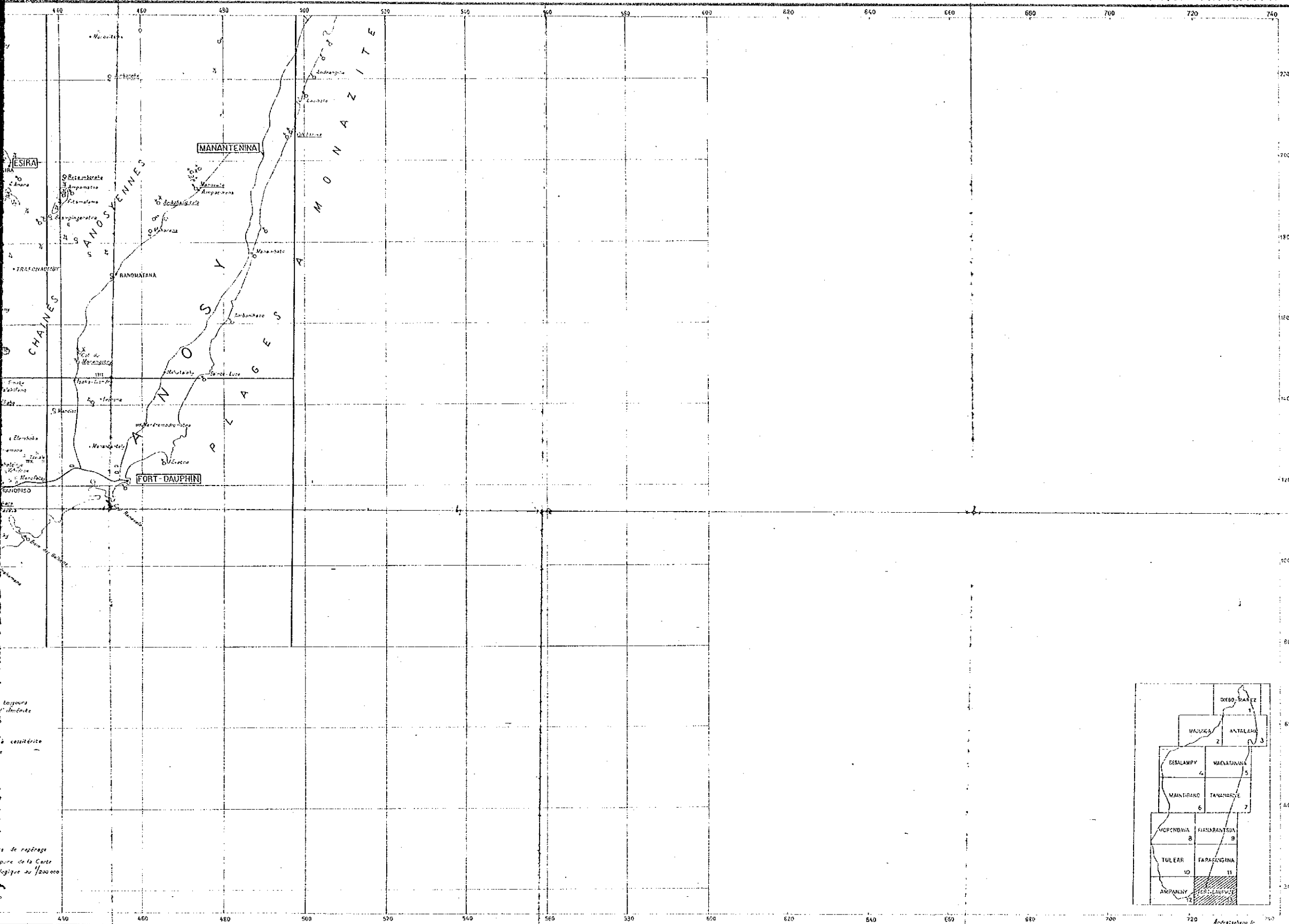
- ☉ Fountain
- ☉ Spring water
- ☉ Sulphur spring
- ☉ Lignite
- ☉ Coal
- ☉ Bitumen
- ☉ Monazite
- ☉ Uranium
- ☉ Thoranite
- ☉ Mn
- ☉ Ilmenite
- ☉ Rutile
- ☉ Allanite
- ☉ Au
- ☉ Cu
- ☉ Pyrite
- ☉ Magnetite
- ☉ Limonite, Hematite
- ☉ Zn
- ☉ Cassitérite
- ☉ Chromite
- ☉ Gossan
- ☉ Oil boring
- ☉ Water boring (positiv)
- ☉ Water boring (negativ)
- ☉ Well
- ☉ Cave
- ☉ Water fall
- ☉ Mine



ECHILLE 1/500000

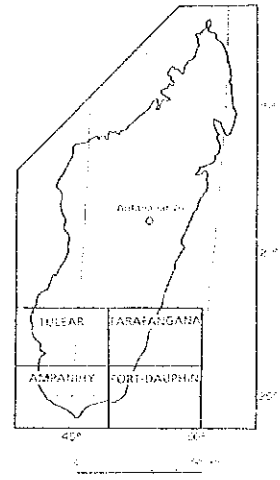
CARTE MINIERE ET DES INDICES

Feuille FORT-DAUPHIN N°13



ECHELLE : 1/500000

THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE 1)
LOCATION MAP OF MINERAL DEPOSITS AND
SHOWINGS IN THE FORT-DAUPHIN DISTRICT (4)



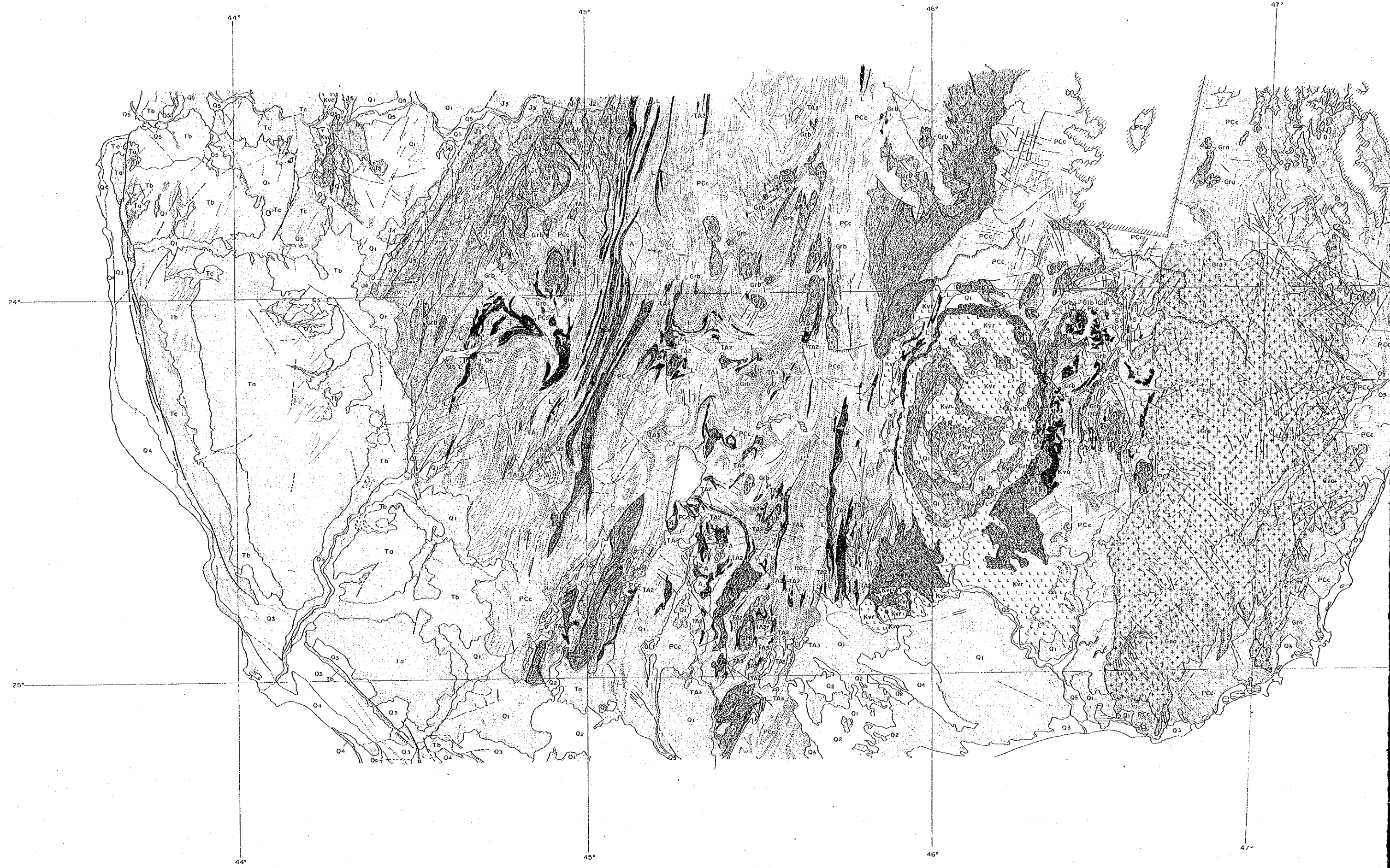
JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale : 500,000

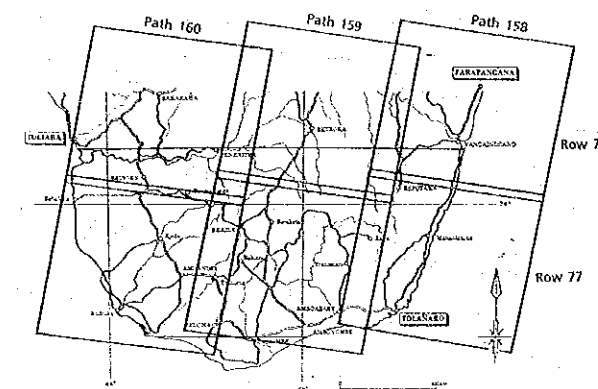
LEGEND

- | | |
|---------------------------|---------------------------|
| ○ Fountain | † Sapphire |
| ● Spring water | ■ Fluorite |
| ⊙ Sulphur spring | □ Limestone |
| ⊥ Lignite | ⊥ Gypsum |
| ⊥ Coal | ⊥ Apatite |
| ⊥ Bitumen | ⊥ Opal |
| ⊥ Monazite | ⊥ Chrysotile serpentinite |
| ⊥ Uranium | ⊥ Muscovite |
| ⊥ Thoronite | ⊥ Phlogopite |
| ⊥ Mn | ⊥ Vermiculite |
| ⊥ Ilmenite | ⊥ Talc |
| ⊥ Rutile | ⊥ Magnesite |
| ⊥ Allantite | ⊥ Corundum |
| ○ Au | ⊥ Sillimanite |
| ○ Cu | ⊥ Cyanite |
| ⊥ Pyrite | ⊥ Kaolinite |
| ⊥ Magnetite | ⊥ Turquoise |
| ⊥ Limonite, Hematite | ⊥ Yellow orthoclase |
| ⊥ Zn | ⊥ Tridescend feldspar |
| ⊥ Cassiterite | ⊥ Beryl |
| ⊥ Chromite | ⊥ Chrysoberyl |
| ⊥ Gossan | ○ Quartz |
| ⊥ Oil boring | ⊥ Amethyst |
| ⊥ Water boring (positive) | ⊥ Garnet |
| ⊥ Water boring (negative) | ⊥ Cordierite |
| ⊥ Well | ⊥ Zircon |
| ○ Cave | ⊥ Tourmaline |
| ⊥ Water fall | ⊥ Barite |
| ⊥ Mine | ⊥ Clay |
| | ⊥ Crushed stone |
| | ⊥ Salt |
| | ⊥ Glaucoste |
| | ⊥ Graphite |
| | ⊥ Graphite zone |
| | — Road |
| | — Earth road |

[TULEAR] Geological map (1:200,000)

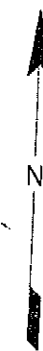
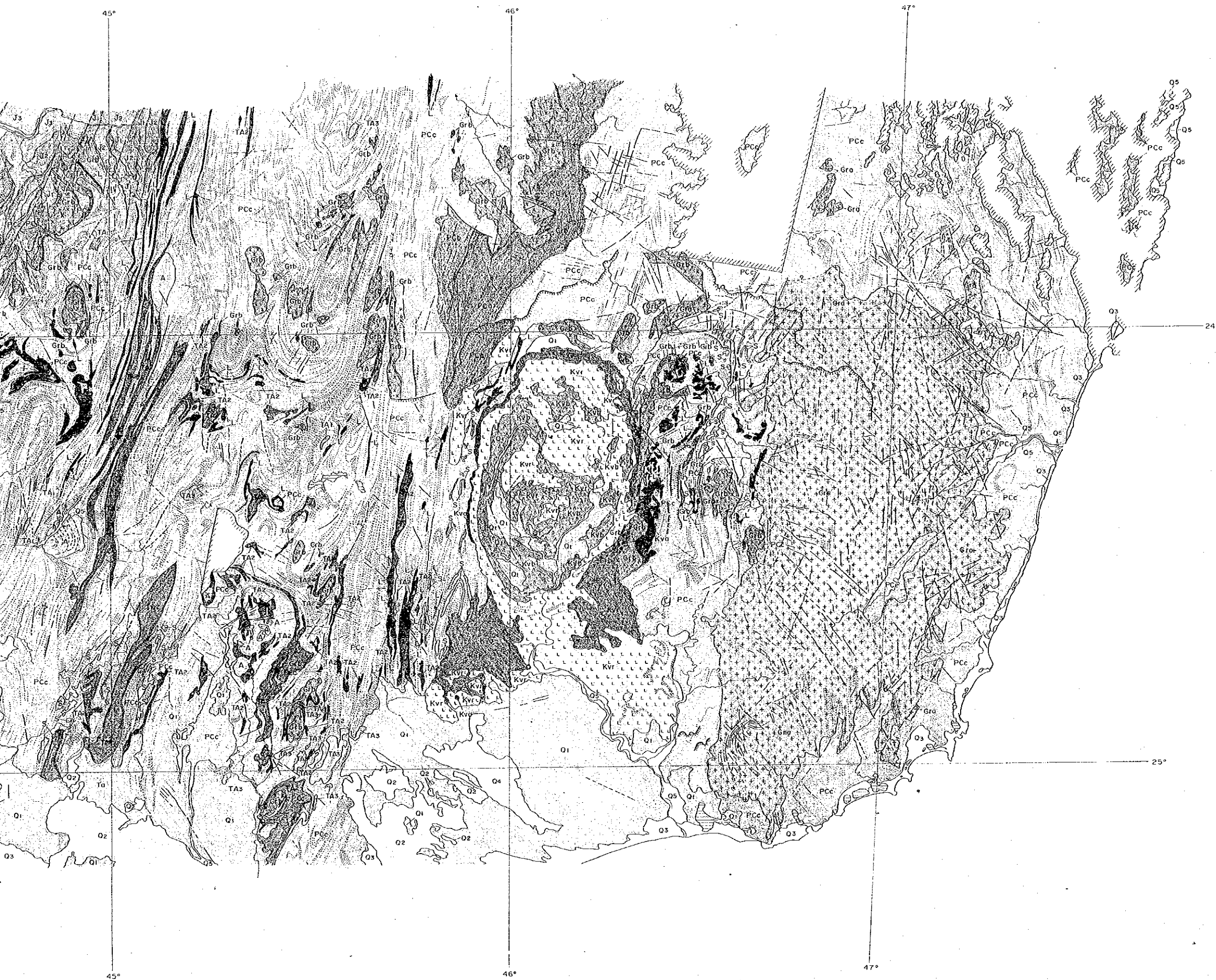


THE MINERAL EXPLORATION
IN
THE SOUTHERN AREA
THE DEMOCRATIC REPUBLIC OF MADAGASCAR
(PHASE I)
GEOLOGICAL INTERPRETATION MAP OF
LANDSAT TM FALSE COLOR IMAGERY



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1992

Scale 1 : 500,000



LEGEND

Interpreted units	Correlation with geologic map and rock types
Q5	alluvium
Q1	dune, alluvium
Q3	Aeolian old dune
Q2	elevated white sand
Q4	Carapace sand
T4	Eocene marine facies
T3	Eocene marine facies, Carapace sand
T2	Eocene marine facies, Clavate Quaternary
Kcr	Cretaceous (myofite, dufrenoyia, trachytol)
Kvt	Cretaceous (basalt, labradorite, sakalavia)
Kst	Lower to Middle Cretaceous marine facies
J1	Middle to Upper Jurassic marine facies
J2	Lower Permian to Lower Triassic continental facies
J3	
P.C.	Precambrian metamorphic rocks
G1	Archaean granite
G2	granite, migmatite
A	amphibolite
M	marble
S	quartzite
TA1	tonal anomaly
TA2	tonal anomaly
TA3	tonal anomaly
---	unit boundary
---	uncertain unit boundary
---	bedding trace or schistosity
---	strike and dip direction
---	anticline with direction of plunge
---	syncline with direction of plunge
---	fault (barbs on downthrown side)
---	inferred fault
---	lineament
---	drainage
---	lake
---	cloud cover

