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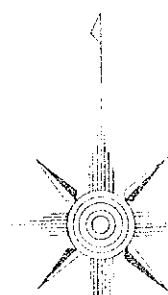
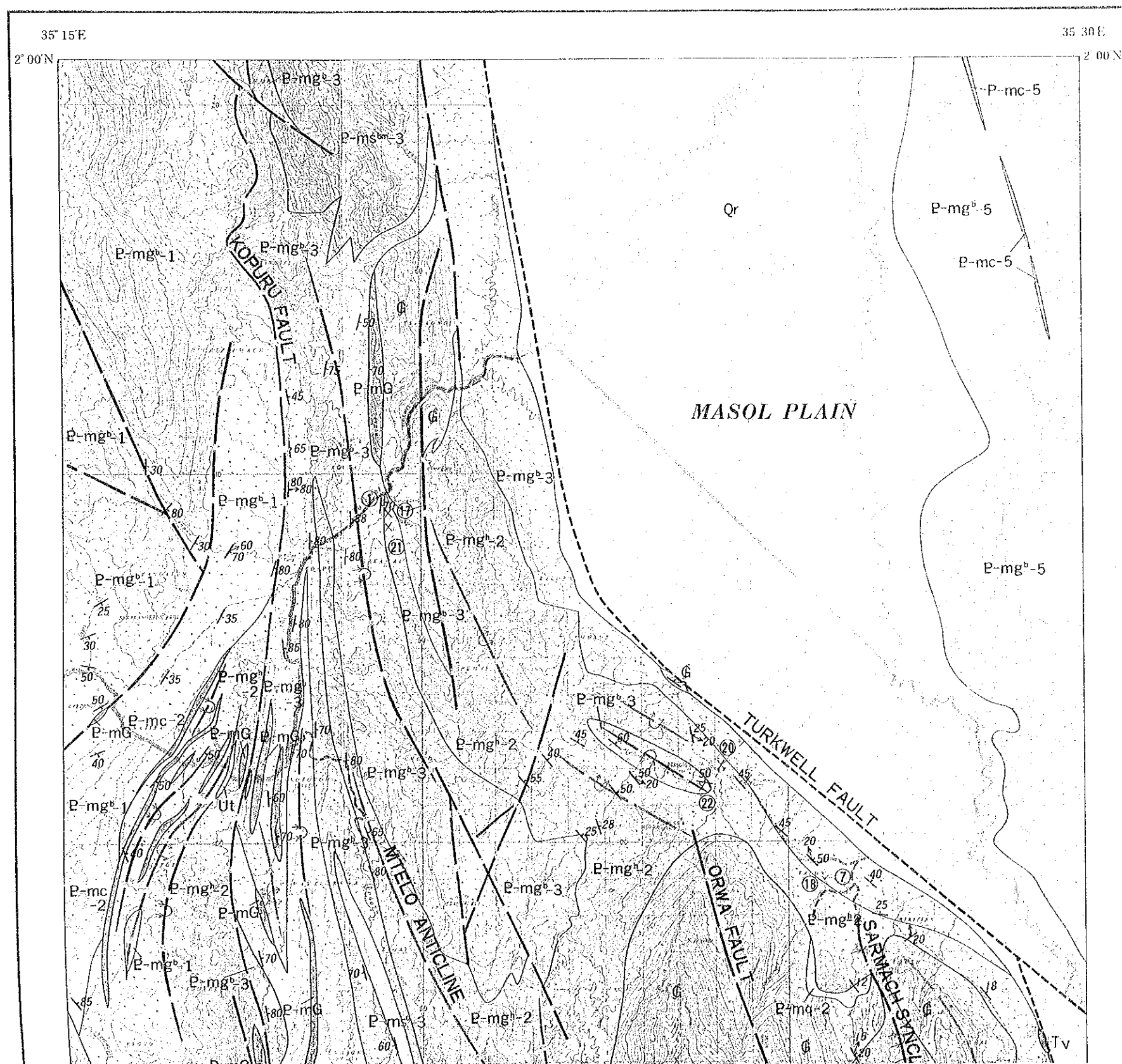
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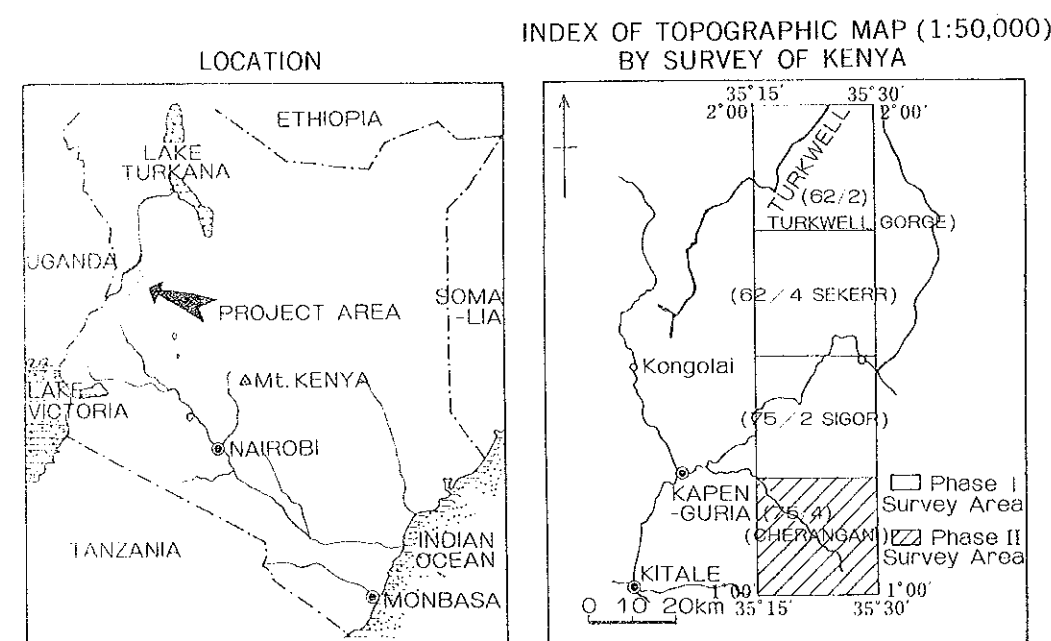
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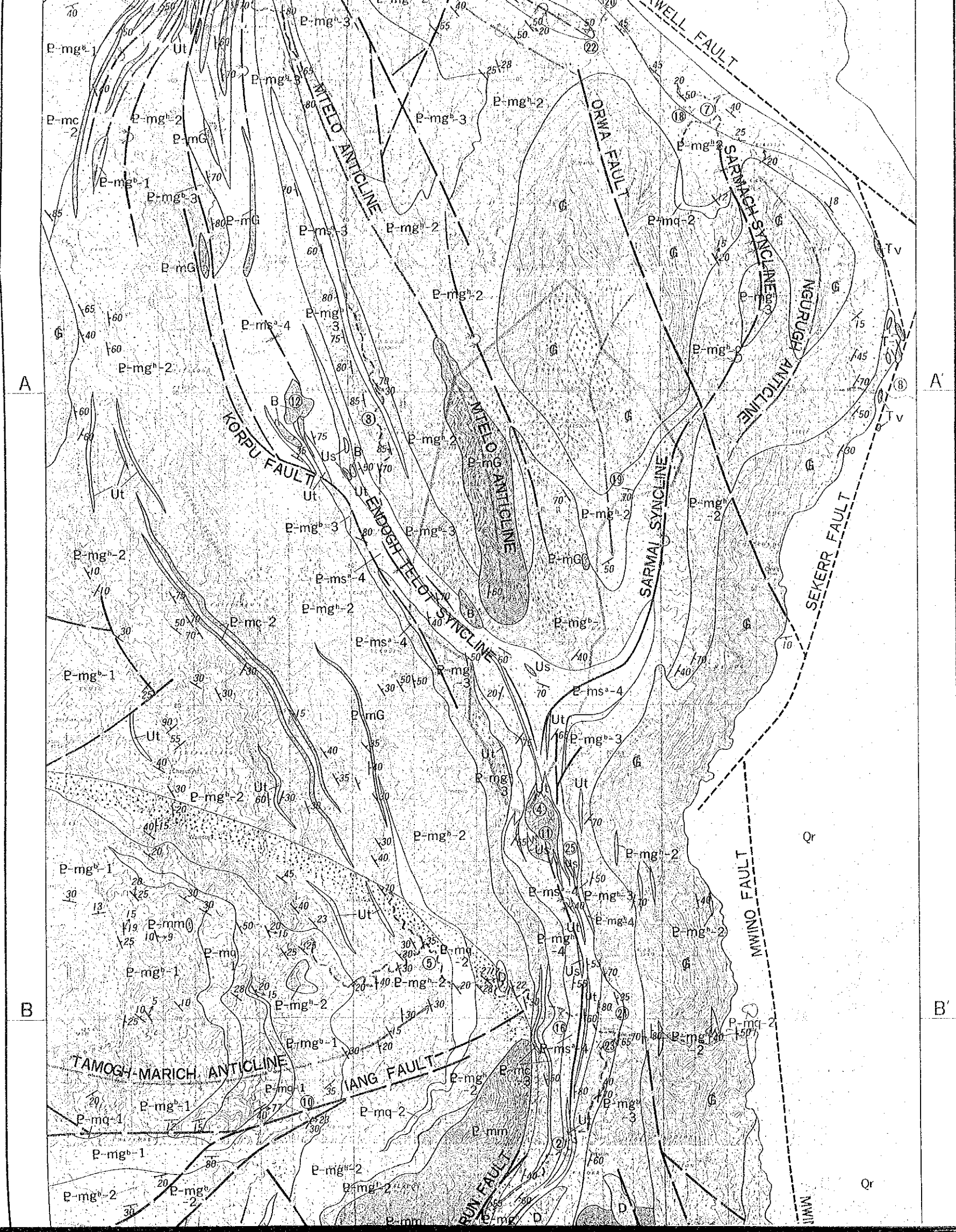


MINERAL EXPLORATION
IN
THE KERIO VALLEY DEVELOPMENT AUTHORITY AREA
REPUBLIC OF KENYA

GEOLOGICAL MAP OF THE SEKERR-CHERANGANI HILLS AREA

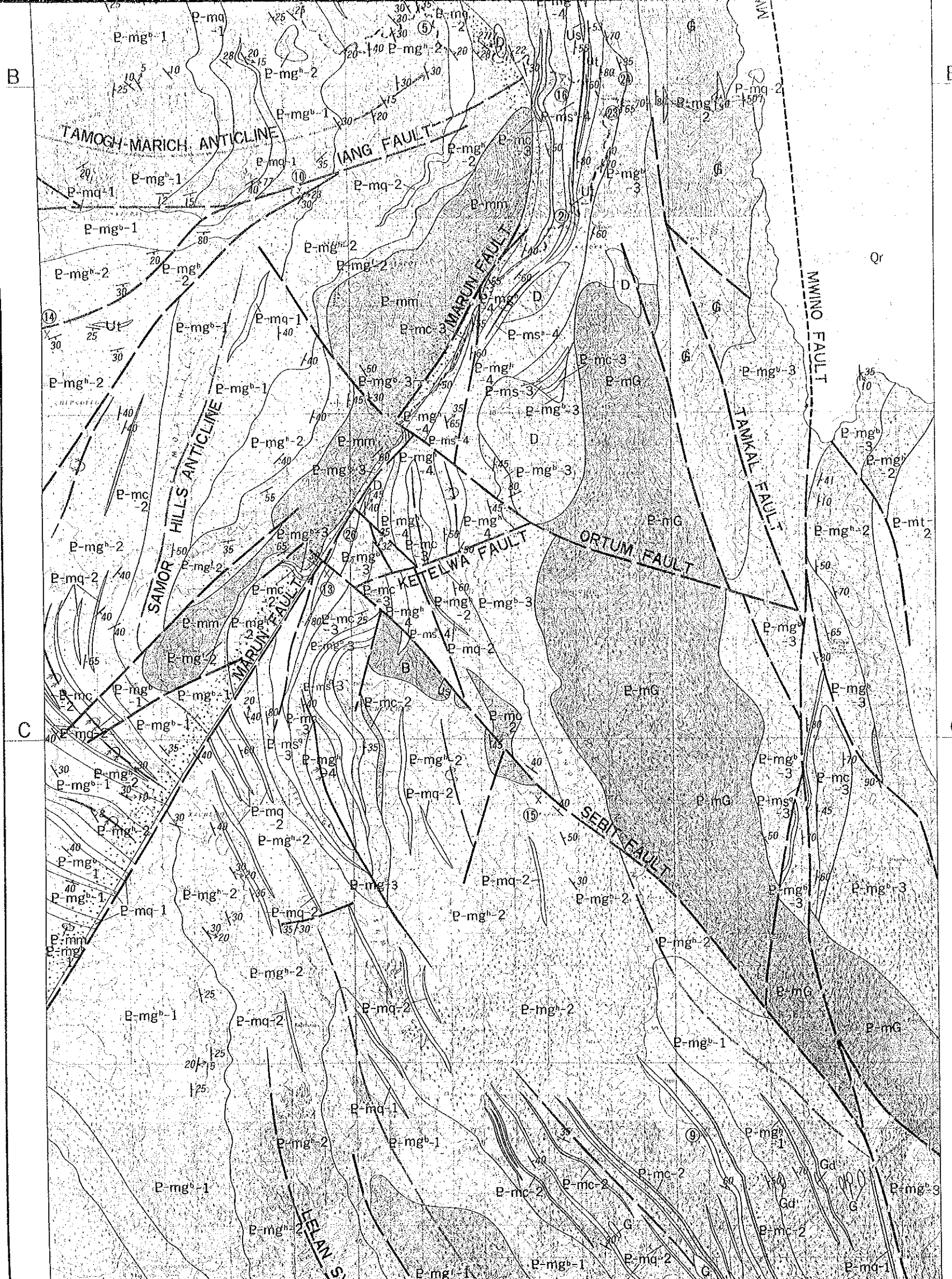


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
December 1985



EXPLANATION

CENOZOIC	QUATERNARY	Qr	Alluvium
	TERTIARY ?	T-v	Siliceous brecciated rocks
MOZAMBIQUE BELT INTRUSIVE ROCKS			
PROTEROZOIC or (PALEOZOIC)		G	Granites
		Gd	Granodiorites
		D	Diorites, Epidiorites, Metadiorites
		B	Gabbros, Metagabbros
		G	Foliated granites
		P-mG	Granitoid orthogneisses
		P-mm	Migmatitic type granites, Migmatites
	Us	Serpentinites	
	Ut	Talc rocks, Talc schists	
MOZAMBIQUE BELT METAMORPHIC ROCKS			
M-5 FORMATION			
		P-mg ^h -5	Biotite gneisses with subordinate hornblende gneisses
		P-mc-5	Crystalline limestones
M-4 FORMATION			
		P-ms ⁴ -4	Amphibole schists, amphibole chlorite schists with subordinate hornblende gneisses, quartzites and quartz schists
		P-mg ^h -4	Hornblende gneisses with subordinate amphibole schists, quartzites and quartz schists
M-3 FORMATION			
PRECAMBRIAN		P-ms ^h -3	Biotite-muscovite schists, biotite-muscovite-hornblende schists
		P-mg ^h -3	Biotite gneisses with subordinate hornblende biotite gneisses and hornblende gneisses
		P-ms ^q -3	Quartz schists, quartzites
		P-mc-3	Crystalline limestones



PRECAMBRIAN

PROTEROZOIC

- M-4 FORMATION**
- P-ms^a-4 Amphibole schists, amphibole chlorite schists with subordinate hornblende gneisses, quartzites and quartz schists
 - P-mg^b-4 Hornblende gneisses with subordinate amphibole schists, quartzites and quartz schists
- M-3 FORMATION**
- P-ms^{bn}-3 Biotite-muscovite schists, biotite-muscovite-hornblende schists
 - P-mg^b-3 Biotite gneisses with subordinate hornblende biotite gneisses and hornblende gneisses
 - P-ms^a-3 Quartz schists, quartzites
 - P-mc-3 Crystalline limestones
- M-2 FORMATION**
- P-mg^t-2 Potash-feldspar porphyroblast gneisses
 - P-mg^h-2 Hornblende gneisses with subordinate biotite gneisses and hornblende-biotite gneisses
 - P-mq-2 Quartzites, quartz schists
 - P-mc-2 Crystalline limestones
 - P-mt-2 Quartz-feldspathic paragneisses
- M-1 FORMATION**
- P-mg^b-1 Biotite gneisses with subordinate hornblende-biotite gneisses and minor hornblende gneisses
 - P-mq-1 Quartzites, quartz schists
 - P-mg^h-1 Hornblende gneisses
 - P-mg^t-1 Potash-feldspar porphyroblast gneisses
 - P-mg^g-1 Garnet porphyroblast gneisses
 - P-mt-1 Calc-silicate granulites

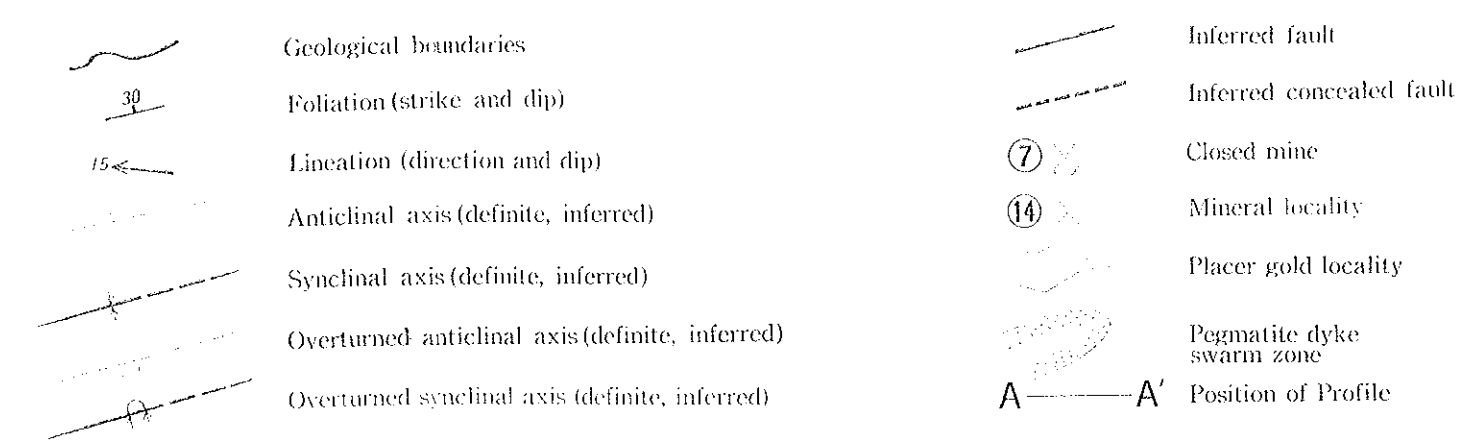
* M-1 - M-5 FORMATION : Stratigraphic units in ascending order

- Geological boundaries
- Foliation (strike and dip)
- Lineation (direction and dip)
- Anticlinal axis (definite, inferred)
- Synclinal axis (definite, inferred)
- Overturned anticlinal axis (definite, inferred)
- Overturned synclinal axis (definite, inferred)
- Inferred fault
- Inferred concealed fault
- Closed mine
- Mineral locality
- Placer gold locality
- Pegmatite dyke swarm zone
- Position of Profile

INVENTORY OF MINERAL LOCALITIES

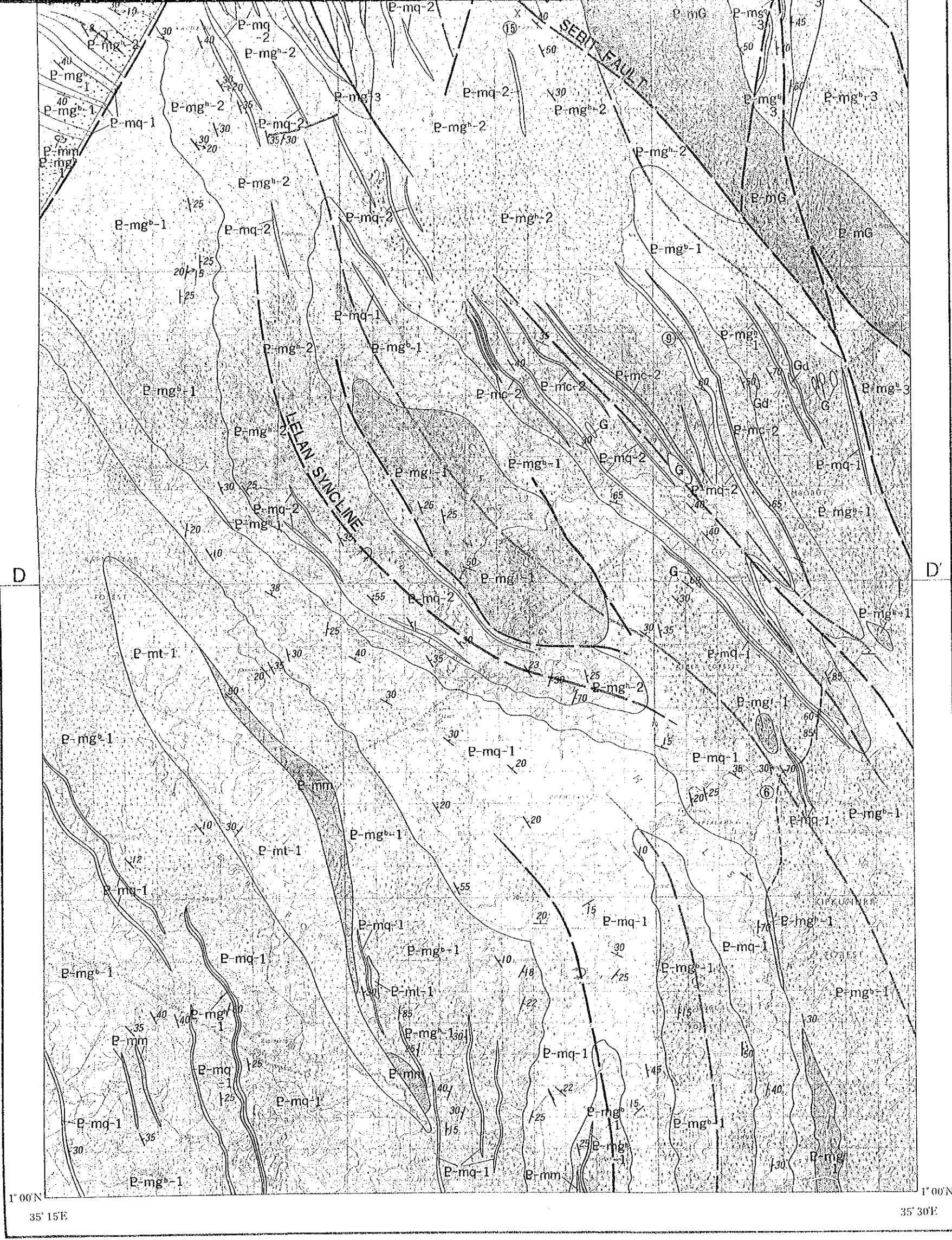
No on Geological map	Name of Mineral Localities	Metal or Minerals	Type of Mineralization	Location		Information Source	Host Rock	Ore Mineral	Occurrence	Remarks
				Survey of Kenya, Map	UTM co-ord. X Y					
①	Turkwel Suani River	Au	Alluvial gold	G-2 Turkwel Gorge	257 - 763 208 - 213	McCall(1964) Theuri(1976) Bridge(1977) JKCA/MMAJ (1983)	Alluvial gravels	Native gold	The gold in the river bed is mainly found in gravels.	Production 1953-1960 Au: 1,160.80 Fine ounces Ag: 34.38 Ounces. Recently operation is only held in dry season by local

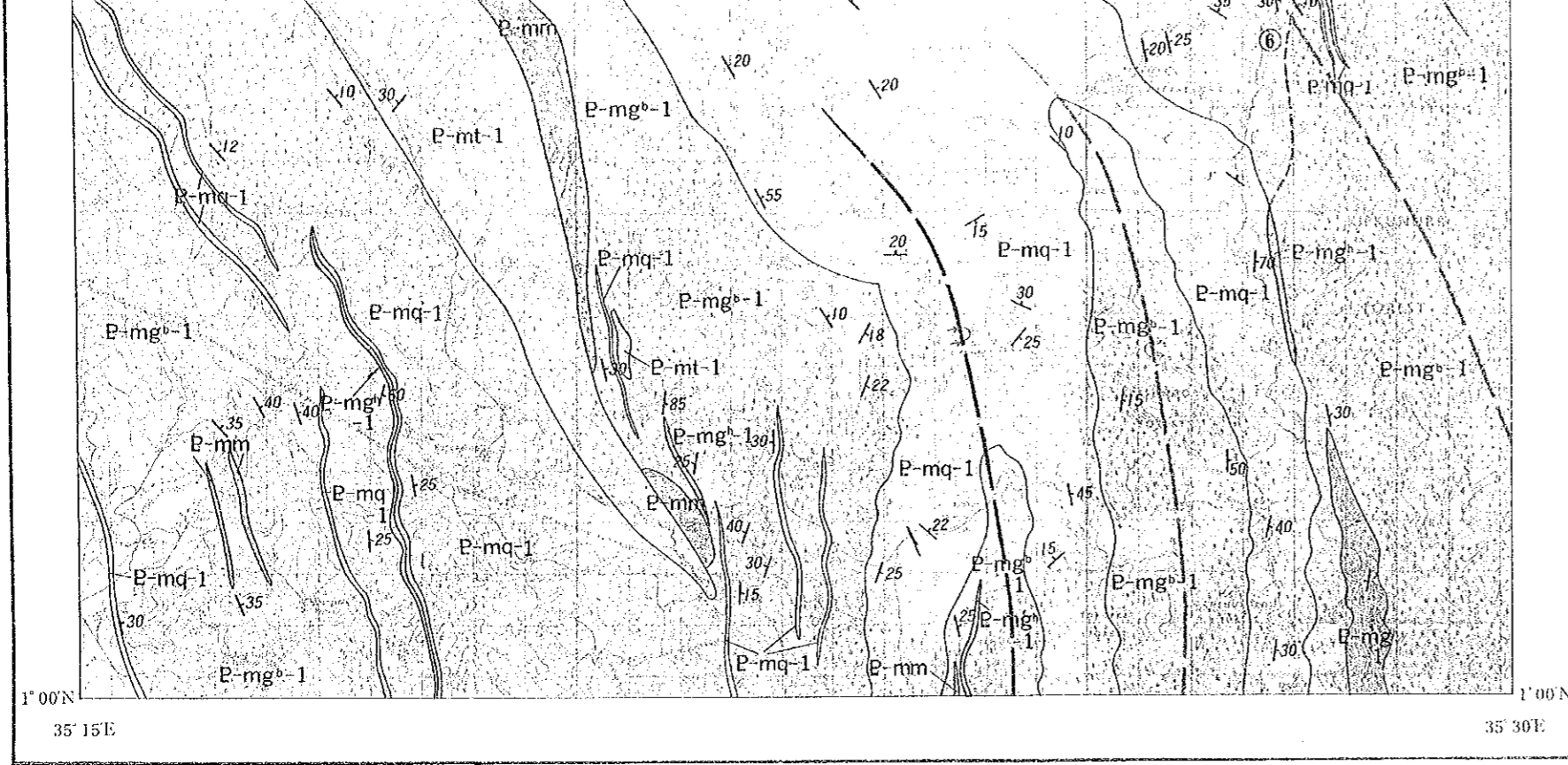
* M-1 - M-5 FORMATION : Stratigraphic units in ascending order



INVENTORY OF MINERAL LOCALITIES

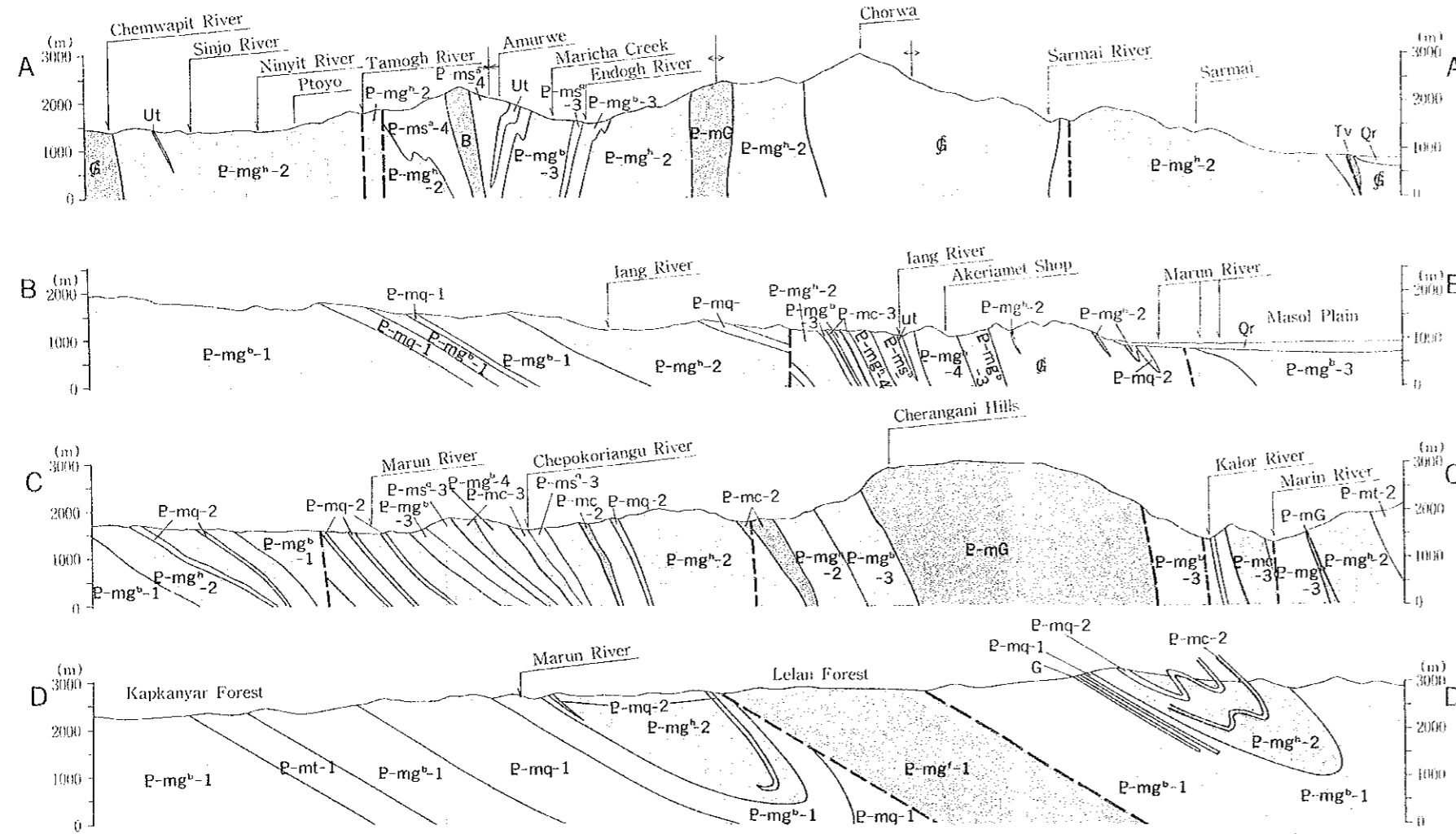
No. on Geological map	Name of Mineral Localities	Metal or Minerals	Type of Mineralization	Location		Information Source	Host Rock	Ore Mineral	Occurrence	Remarks
				Survey of Kenya, Map X	UTM coord Y					
1	Turkwell Sumu River	Au	Alluvial gold	62 2	757 208	McCall(1964) Theuri(1976) Bridge(1977) JICA MMAJ (1984)	Alluvial gravels	Native gold	The gold in the river bed is mainly found in gravels.	Production 1953-1960 Au: 1,160.80 Fine ounces Ag: 54.38 Ounces. Recently operation is only held in dry season by local people.
2	Marem River (Wakum March)	Au	Alluvial gold	62 1	767 165	McCall(1964) Miller(1965) Theuri(1976) JICA MMAJ (1984)	Alluvial gravels	Native gold	The deposits are restricted to superficial soils, alluvial gravel etc. in the river bed.	Production 1951-1955 Au: 232.72 Fine ounces Ag: 11.09 " Panning is being operated by local people in a small scale.
3	Endogh River	Au	Fluvial and alluvial gold	62 1	764 186	JICA MMAJ (1984)	Weathered Talc schist, Act. schist	Native gold	The eluvial gold is digged from weathered rock or talus composed of talc schist and actinolite schist. The alluvial gold occurs in the river bed downward.	Panning operation is flourishing by local people all the year.
4	Telot	Au	Fluvial gold	62 1	766 176	McCall(1964) Kaye(1967, 1968) JICA MMAJ (1984)	Weathered Serpentine	Native gold	The eluvial gold occurs in weathered serpentine or talus composed of serpentine.	Geochemical anomaly covers the area of 5 km ² . Small scale panning is being continued by local people.
5	Eng	Au	Alluvial gold	62 1	767 167	JICA MMAJ (1984)	Alluvial gravels	Native gold		
6	Moshen River (Upper stream)	Au	Alluvial gold	62 1	774 117	JICA MMAJ (1984)	Alluvial gravels	Native gold	The gold is found in river-bed deposits.	Panning of gold is being operated by local people in a very small scale.
7	Surmai River	Au	Alluvial gold	62 1	769 201	JICA MMAJ (1984)	Alluvial gravels	Native gold	The gold occurs in detrital sediments.	Small scale panning by local people.
8	Surmai	Au	Alluvial gold	62 1	766 198	JICA MMAJ (1984)	Alluvial gravels	Native gold	ditto	ditto.
9	Chaplotet	Au, Cu	Hydrothermal vein	62 1	770 117	JICA MMAJ (1984)	Quartzite	Native gold, Chalcopyrite	A very small amount of chalcopyrites and golds occurs in strongly silicified quartzites.	The area of silicified zone is estimated more than 1 km ² .
10	Lung	Au	Hydrothermal vein	62 1	769 167	McCall(1964)	Metamorphic rocks	Gold, Pyrite	The quartz-pyrite veins occur in a small swarm which traverses the bed of lung River	Assay Au: 0.3 dwt. per short ton.
11	Telot	Cr, Ni	Magmatic segregation Secondary enrichment	62 1	766 156	McCall(1964) Kaye(1967, 1968) Rokan Kogyo (1977) JICA MMAJ (1984)	Serpentine	Chromite, Kaimmerite, Garnierite	The podiform chromite bodies occur in the Telot serpentine body. Garnierite occurs mainly as impregnation patchily distributed in the layers of the banded serpentine. Thin seams of a mixture of Hematite and Malachite in the serpentine-talc schist complex.	Prospecting included 112 m (11 Holes) of drilling was done by Japanese Company. Assay: see JICA MMAJ (1984).
12	Kanungoyon	Cr	Magmatic segregation	62 1	768 189	McCall(1964) JICA MMAJ (1984)	Serpentine	Chromite	Scattered Chromite ores occur on the surface of weathered serpentine covering the area of 80 x 50 m.	Traces of prospecting are seen in the area.
13	Twis Ridge	Cu	Hydrothermal vein	62 2	759 153	Miller(1956)	Quartzite	Malachite, Pyrite, Chalcopyrite	The malachite staining occurs in a band of quartzite. An irregular veinlike streak of pyrite and chalcopyrite about two feet in length occurs in a contorted aplite dyke.	Assay Cu: 0.105%
14	Chepkoyab	Cu	Primary impregnation	62 2	761 162	Miller(1956)	Metadiorite	Malachite, Bornite, Azurite, Chalcopyrite	The malachite occurs as a local impregnation of Metadiorite.	15 localities in 3,000 x 800 yards country. Most part is in the outside of the survey area.
15	Parna	Cu	Hydrothermal vein	62 2	766 118	JICA MMAJ (1984)	Hornblend gneiss, Crystalline	Malachite, Bornite, Chalcopyrite	Quartz vein, Floats	Old pit or tunnel is said to be upper part of the float zone. Assay: Cu: 1.12%





Scale 1:125,000

GEOLOGICAL SECTIONS



7	Naroga River	Au	Alluvial gold	62.2 Sekeri	689	200	JICA MMAJ (1984)	Alluvial gravels	Native gold	The gold occurs in detrital sediments	Small scale panning by local people
8	Sarmai	Au	Alluvial gold	62.4 Sekeri	776	190	JICA MMAJ (1984)	Alluvial gravels	Native gold	ditto	ditto
9	Cherangani	Au	Hydrothermal vein	62.4 Cherangani	770	137	JICA MMAJ (1984)	Quartzite	Native gold Chalcopyrite	A very small amount of chalcopyrites and golds occurs in strongly silicified quartzites	The area of silicified zone is estimated more than 1 km ²
10	Jang	Au	Hydrothermal vein	62.4 Sekeri	759	167	McCall(1964)	Metamorphic rocks	Gold, Pyrite	The quartz-pyrite veins occur in a small swarm which traverses the bed of Jang River	Assay Au: 0.3 dwt. per short ton
11	Telot	Cr	Magmatic segregation secondary enrichment	62.4 Sekeri	760	176	McCall(1964) Kaye(1967, 1968) Kokan Kogyo (1971) JICA MMAJ (1984)	Serpentine	Chromite Känameterite Garnierite	The podiform chromite bodies occur in the Telot serpentinite body. Garnierite occurs mainly as impregnation patchily distributed in the layers of the banded serpentinite. Thin seam of a mixture of Hematite and Malachite in the serpentinite-talc schist complex.	Prospecting included 412 m (11 Holes) of drilling was done by Japanese Company Assay: see JICA MMAJ (1984)
12	Kamnyon	Cr	Magmatic segregation	62.4 Sekeri	768	189	McCall(1964) JICA MMAJ (1984)	Serpentine	Chromite	Scattered Chromite ores occur on the surface of weathered serpentinite covering the area of 80 x 50 m	Traces of prospecting are seen in the area.
13	Lwan Bedge	Cu	Hydrothermal vein	62.2 Sekeri	750	155	Miller(1956)	Quartzite	Malachite Pyrite Chalcopyrite	The malachite staining occurs in a band of quartzite. An irregular veinlike streak of pyrite and chalcopyrite about two feet in length occurs in a contorted apite dyke.	Assay Cu: 0.105%
14	Chepokorigh	Cu	Primary impregnation	62.2 Sekeri	751	162	Miller(1956)	Metadiorite	Malachite Bornite Azurite Chalcopyrite	The malachite occurs as a local impregnation of Meta-diorite	15 localities in 5,000 x 800 yards country. Most part is in the outside of the survey area.
15	Parea	Cu	Hydrothermal vein	62.2 Sekeri	766	148	JICA MMAJ (1984)	Hornblend gneiss, Crystalline limestone	Malachite Bornite Chalcopyrite Pyrite	Quartz vein; Floats	Old pit or tunnel is said to be upper part of the float zone Assay: Cu 1.1%
16	Akeriamet	Cu	Hydrothermal vein	62.4 Sekeri	767	179	McCall(1964)	Foliated granite	Chalcoeste Malachite	Quartz-calcite vein with ore minerals	Very small outcrop.
17	Naroga	Cu	Hydrothermal vein	62.2 Tarkwed Gorge	759	200	McCall(1964)		Malachite	The copper is present in small and sparsely distributed lodes (quartz vein).	Very small outcrop.
18	Telot	Cu	Primary dissemination	62.2 The Telot Gorge	771	190	JICA MMAJ (1984)	Amphibolite	Malachite	Several floats: the source is not found.	Assay of a chip sample Cu: 1.92%
19	Cherangani	Mo	Hydrothermal vein	62.4 Sekeri	762	187	JICA MMAJ (1984)	Misc-oxide quartzite	Molybdenite	The molybdenite occurs in a small quartz vein.	Width: 0.15m Length: 7m Depth: ?
20	Nasibol	Mica	Pegmatite	62.2 Tarkwed Gorge	771	202	McCall(1964)	Schist		The mica occurs in a swarm of large pegmatites of rather unusual dike-like form ranging 1 mile wide.	Operated in 1928-1929, 3,615 pounds of cut mica. Another operation in 1929, 0.5 Tm of low grade mica
21	Nakang	Kyanite	Hydrothermal vein	62.2 Tarkwed Gorge	770	200					Very small outcrop
22	Nasibol	Kyanite	ditto	62.2 Tarkwed Gorge	772	202				The Kyanite is concentrated in bluish gray patches of crystals up to three inches long.	Bigger than other three outcrops.
23	Naroga	Kyanite	ditto	62.4 Sekeri	768	189					Very small outcrop
24	Soroti	Kyanite	ditto	62.4 Sekeri	768	170					Very small outcrop
25	Telot	Talc	Albitic massive	62.4 Sekeri	765	175	JICA MMAJ (1984)	Talc rock Talc schist Serpentine		Large amount of talc rocks occur surrounding and inside the Telot serpentinite body.	Investigation of reserves and quality is recommended.
26	Selot	Limestone	Sedimentary origin	62.2 Sekeri	758	146	MGD Report (1971)	Crystalline limestone		Folded enlarged crystalline limestone.	Preliminary drill work has finished by MGD. Feasibility study should be needed for exploitation

Prepared by the Japan International Cooperation Agency and the Metal Mining Agency of Japan in close cooperation with the Kerio Valley Development Authority and Mines and Geological Department of the Republic of Kenya through the three years (fiscal 1983-1985) mineral exploration project.

JICA