



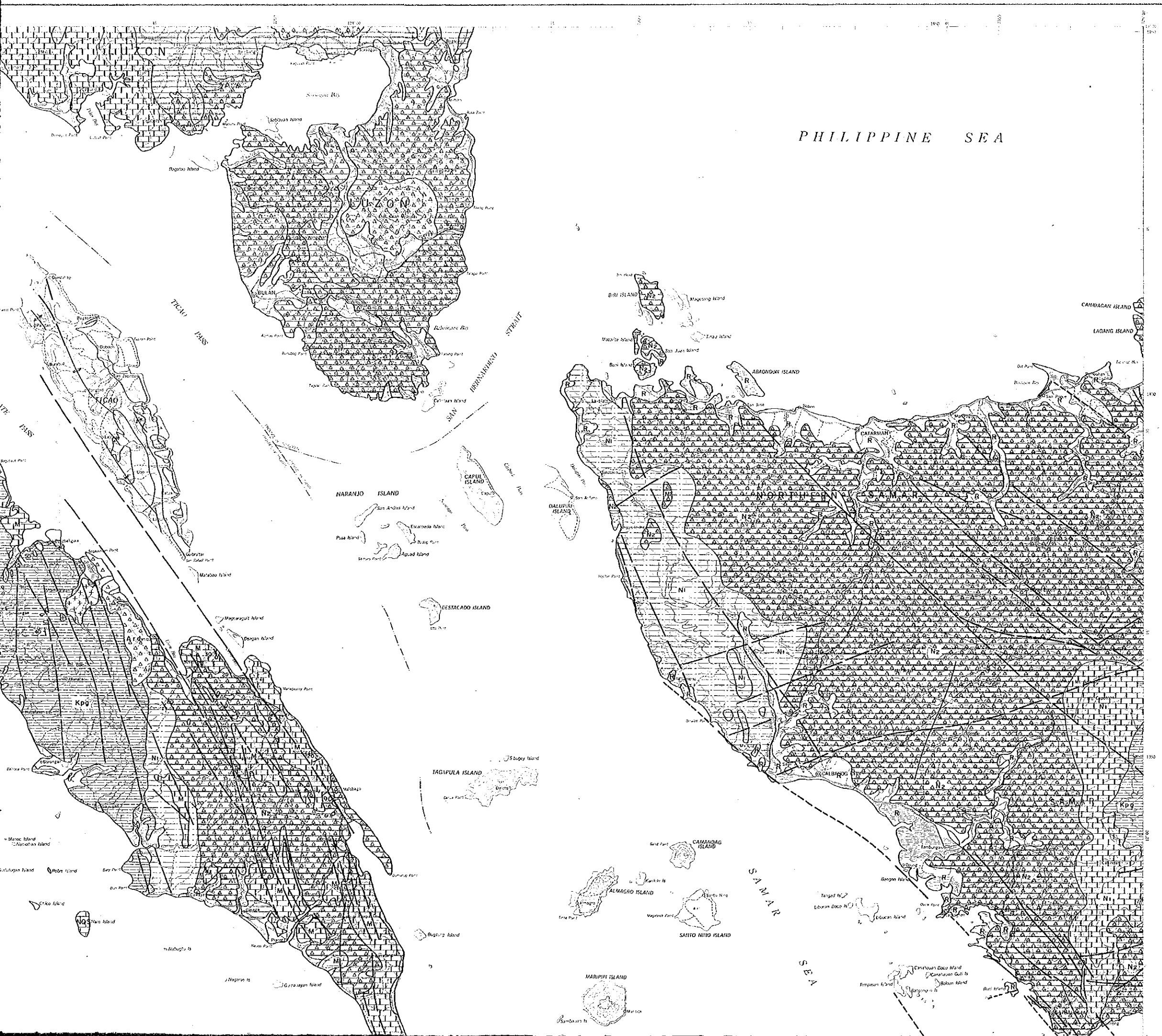
PHILIPPINE SEA

SIBUYAN SEA

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JOSTOLO CHANNEL

SEA

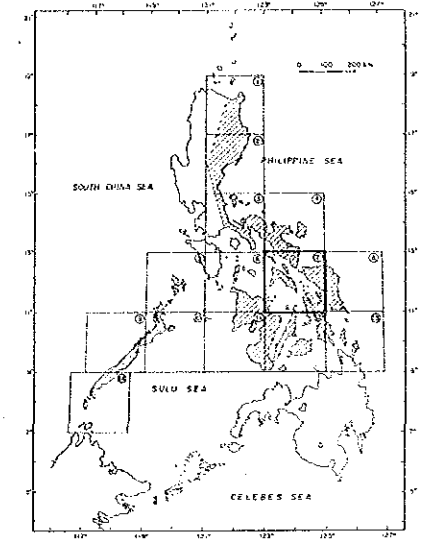


PL. 4 - 7

THE MINERAL EXPLORATION  
 - MINERAL DEPOSITS AND TECTONICS OF TWO  
 CONTRASTING GEOLOGIC ENVIRONMENTS -  
 IN  
 THE REPUBLIC OF THE PHILIPPINES  
 PHASE I

国際協力事業団  
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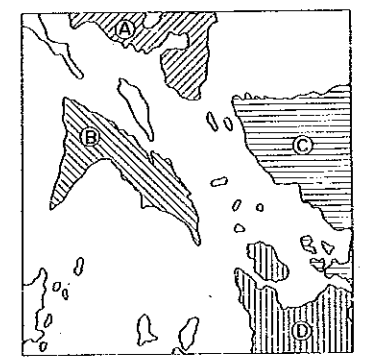
COMPILED GEOLOGICAL MAP



JAPAN INTERNATIONAL COOPERATION AGENCY  
 METAL MINING AGENCY OF JAPAN  
 JUNE 1985, FIRST EDITION

Scale 1:250,000

LEGEND



- (A) Compiled from Geological Map of Sicel Region (1:250,000) by BMG Regional Office V.
- (B) Compiled from Geology and mineral Resources Map of Masbate Island. (1:250,000)
- (C) Compiled from Geology and mineral Resources Map of Samar Island. (1:250,000)
- (D) Compiled from Geology and mineral Distribution Map of Southern Leyte. (1:250,000) (P.M. Montanong and Bopista, 1970)

AGE	SEDIMENTARY ROCKS		IGNEOUS & METAMORPHIC ROCKS	
	Symbol	Description	Symbol	Description
RECENT	□	Recent alluvium, recent beach deposits, recent coral reefs	□	Recent volcanic rocks
PLEISTOCENE	□	Pleistocene alluvium, Pleistocene beach deposits	□	Pleistocene volcanic rocks
PLIOCENE	□	Pliocene alluvium, Pliocene beach deposits	□	Pliocene volcanic rocks
UPPER MIocene	□	Upper Miocene alluvium, Upper Miocene beach deposits	□	Upper Miocene volcanic rocks
LOWER MIocene	□	Lower Miocene alluvium, Lower Miocene beach deposits	□	Lower Miocene volcanic rocks
OLIGOCENE	□	Oligocene alluvium, Oligocene beach deposits	□	Oligocene volcanic rocks
Eocene	□	Eocene alluvium, Eocene beach deposits	□	Eocene volcanic rocks
MIOCENE	□	Miocene alluvium, Miocene beach deposits	□	Miocene volcanic rocks
CRETACEOUS	□	Cretaceous alluvium, Cretaceous beach deposits	□	Cretaceous volcanic rocks
PRE-CRETACEOUS	□	Pre-Cretaceous alluvium, Pre-Cretaceous beach deposits	□	Pre-Cretaceous volcanic rocks



AND GULF

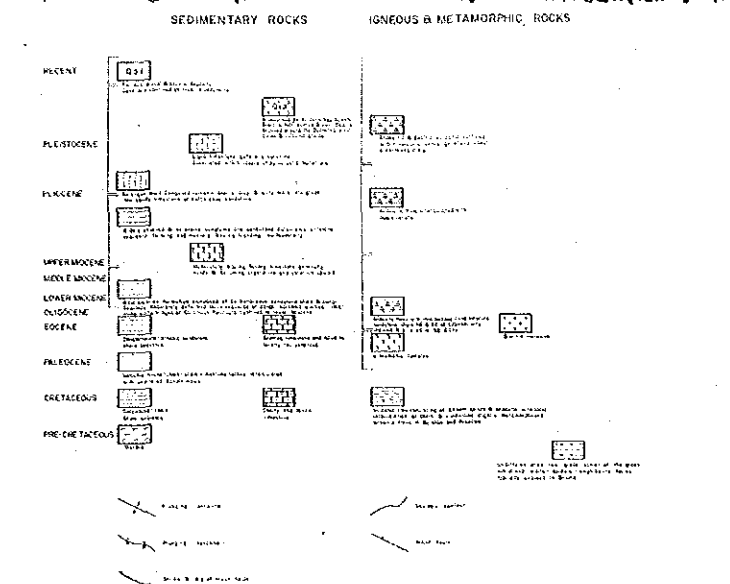
JINTOTULO CHANNEL

VISAYAN SEA

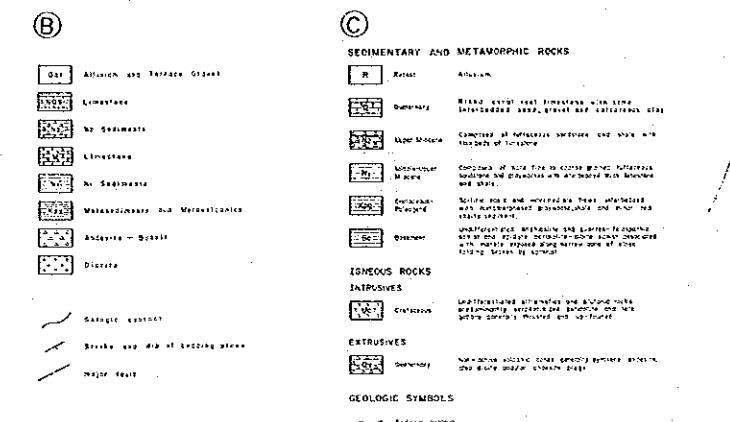
CAMOTES SEA

**LEGEND**

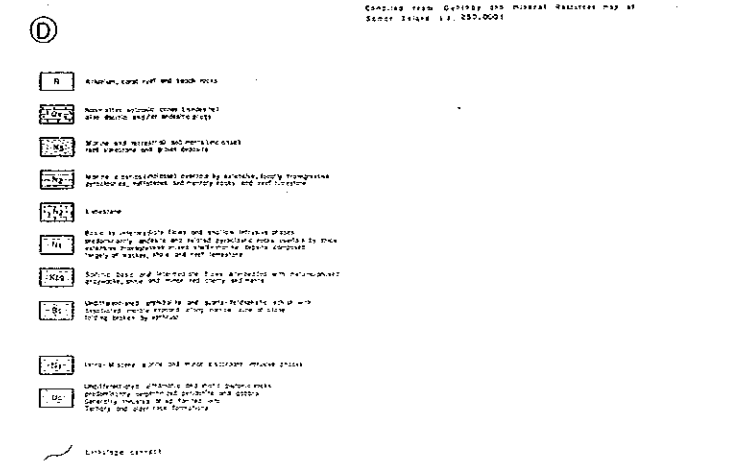
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Compiled from Geological Map of Samar (Scale 1:250,000) by R&D Project Office M.

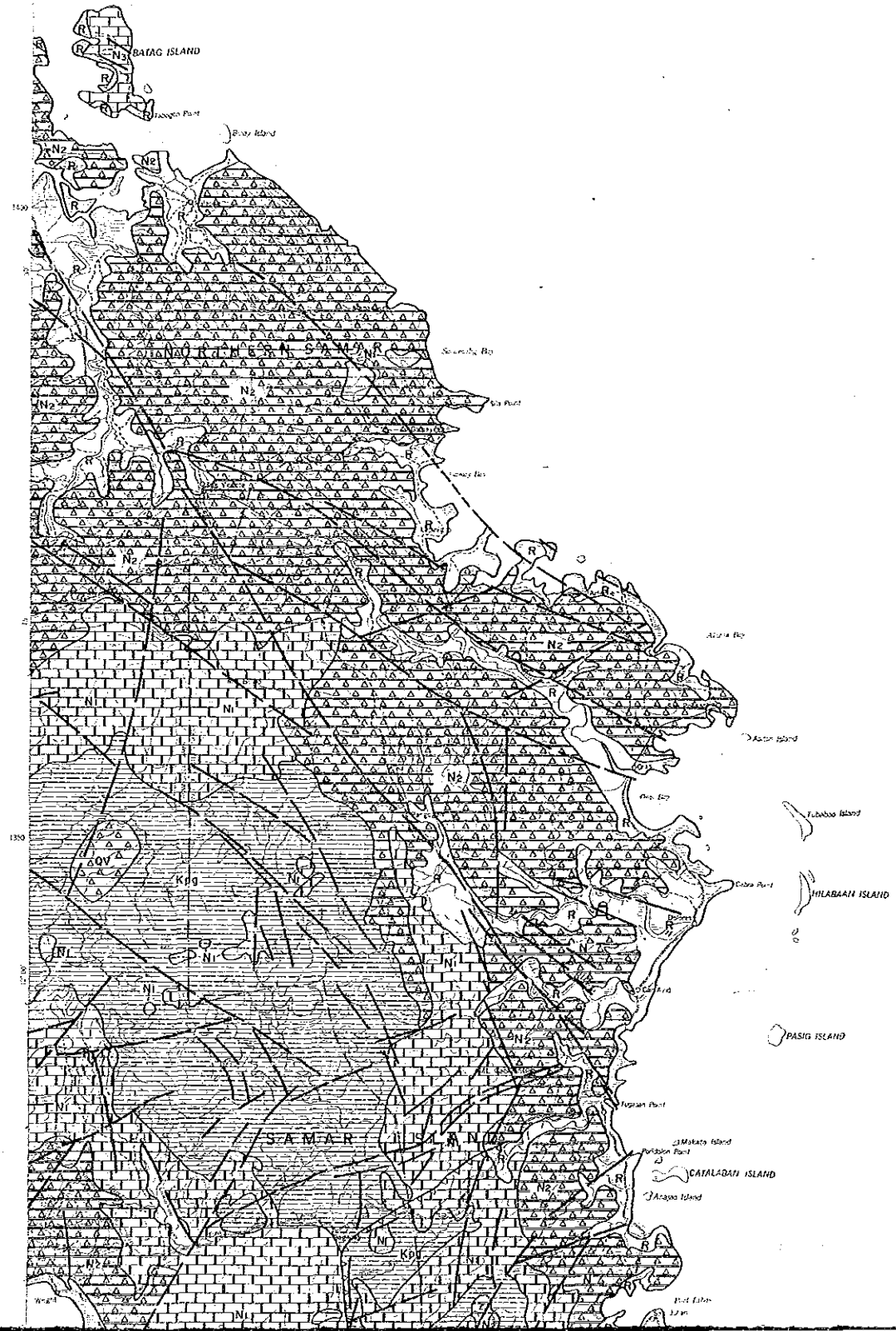


Compiled from Geological Map of Samar (Scale 1:250,000)



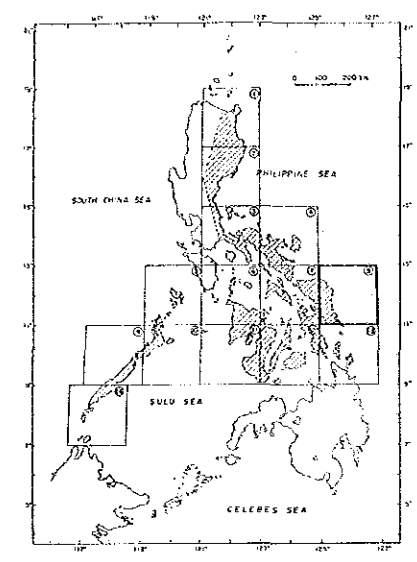
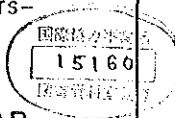
Compiled from Geological Map of Samar (Scale 1:250,000)

120° 125° 130° 135° 140° 145° 150° 155° 160° 165° 170° 175° 180°

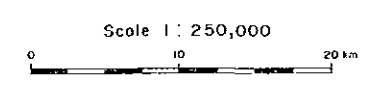


PHILIPPINE SEA

THE MINERAL EXPLORATION  
- MINERAL DEPOSITS AND TECTONICS OF TWO  
CONTRASTING GEOLOGIC ENVIRONMENTS -  
IN  
THE REPUBLIC OF THE PHILIPPINES  
PHASE I  
COMPILED GEOLOGICAL MAP



JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
JUNE 1985, FIRST EDITION



LEGEND

SEDIMENTARY AND METAMORPHIC ROCKS

- R** Recent Alluvium.
- Q** Quaternary Rised coral reef limestone with some interbedded sand, gravel and calcareous clay
- N<sub>2</sub>** Upper Miocene Composed of tuffaceous sandstone and shale with thin beds of limestone.
- N<sub>1</sub>** Middle-Upper Miocene Composed of hard fine to coarse grained tuffaceous sandstone and graywackes with interbedded thick limestone and shale.
- Kpg** Cretaceous-Paleogens Spilitic basic and intermediate flows interbedded with metamorphosed graywacke, shale and minor red cherty sediment.
- Bc** Basement Undifferentiated amphibolite and quartzo-feldspathic schist and epidote oenite-schist associated with marble exposed along narrow zone of close folding broken by upthrust.

IGNEOUS ROCKS

- Uc** Intrusives Cretaceous Undifferentiated ultramafics and plutonic rocks predominantly serpeninized peridotite and late gabbro generally thrust and up-faulted.

EXTRUSIVES

- Qv** Extrusives Quaternary Non-active volcanic cones generally pyroxene andesite, also diatite and/or andesite plugs.

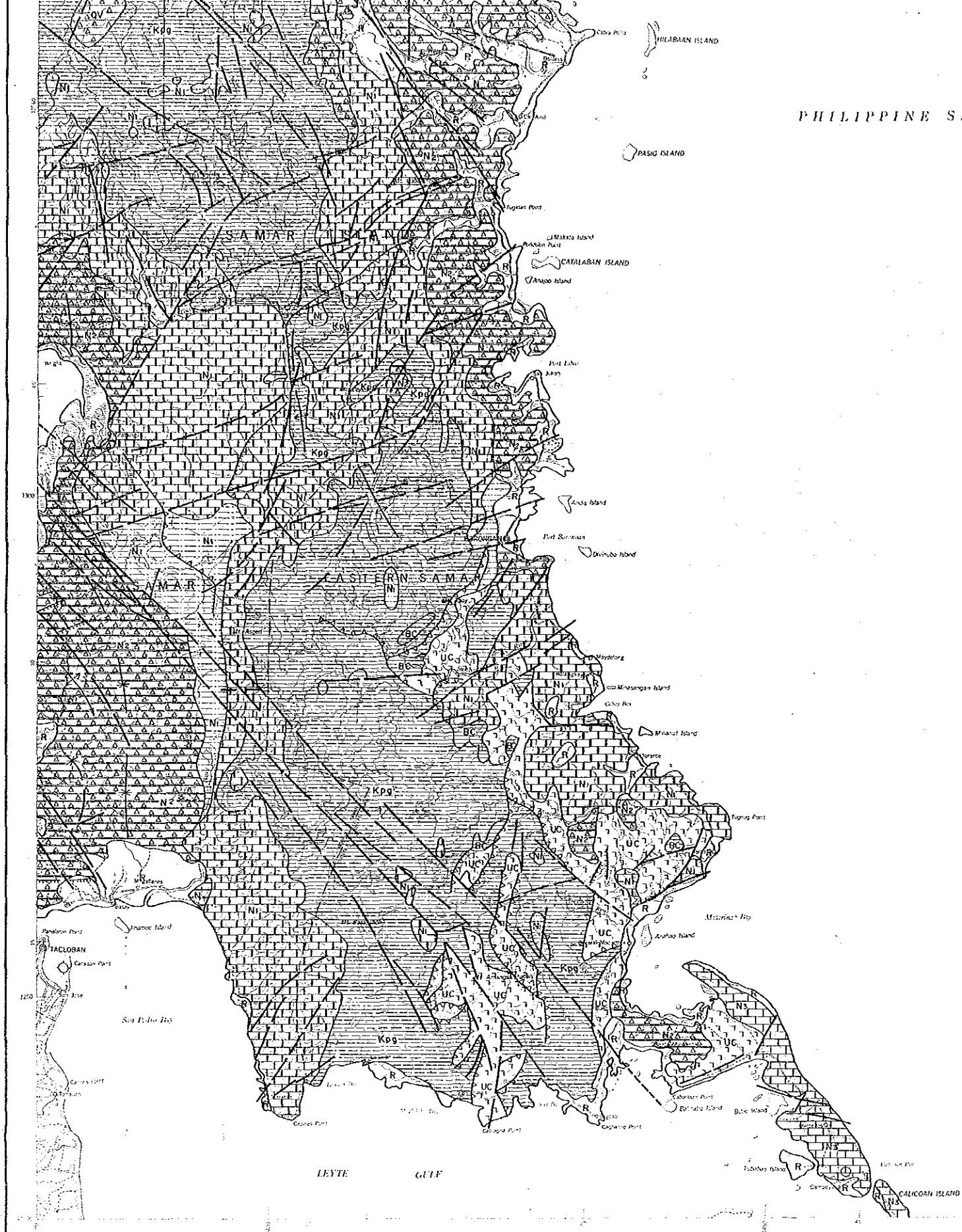
GEOLOGIC SYMBOLS

- Geologic contact.
- High angle fault. Dashed where inferred, arrow indicate strike-slip movement.
- Thrust fault. Dashed where inferred, saw-teeth on overriding side.
- Normal fault. Hachures on downthrown side.
- Anticlinal axis with plunge.

PHILIPPINE SEA

LABAAN ISLAND

PHILIPPINE SEA



LEGEND


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○	MAG. 49	○	MAG. 50




with marble exposed along narrow zone of close folding broken by upthrust.

**IGNEOUS ROCKS**


**INTRUSIVES**


 Cretaceous Undifferentiated ultramafics and plutonic rocks predominantly serpentinized peridotite and leucogabbro generally thrust and up-taulted.


**EXTRUSIVES**


 Quaternary Non-active volcanic cones generally pyroxene andesite, also diorite and/or andesite plugs.


**GEOLOGIC SYMBOLS**


 Geologic contact.

 High angle fault. Dashed where inferred, arrow indicate strike-slip movement.

 Thrust fault. Dashed where inferred, saw-teeth on overriding side.

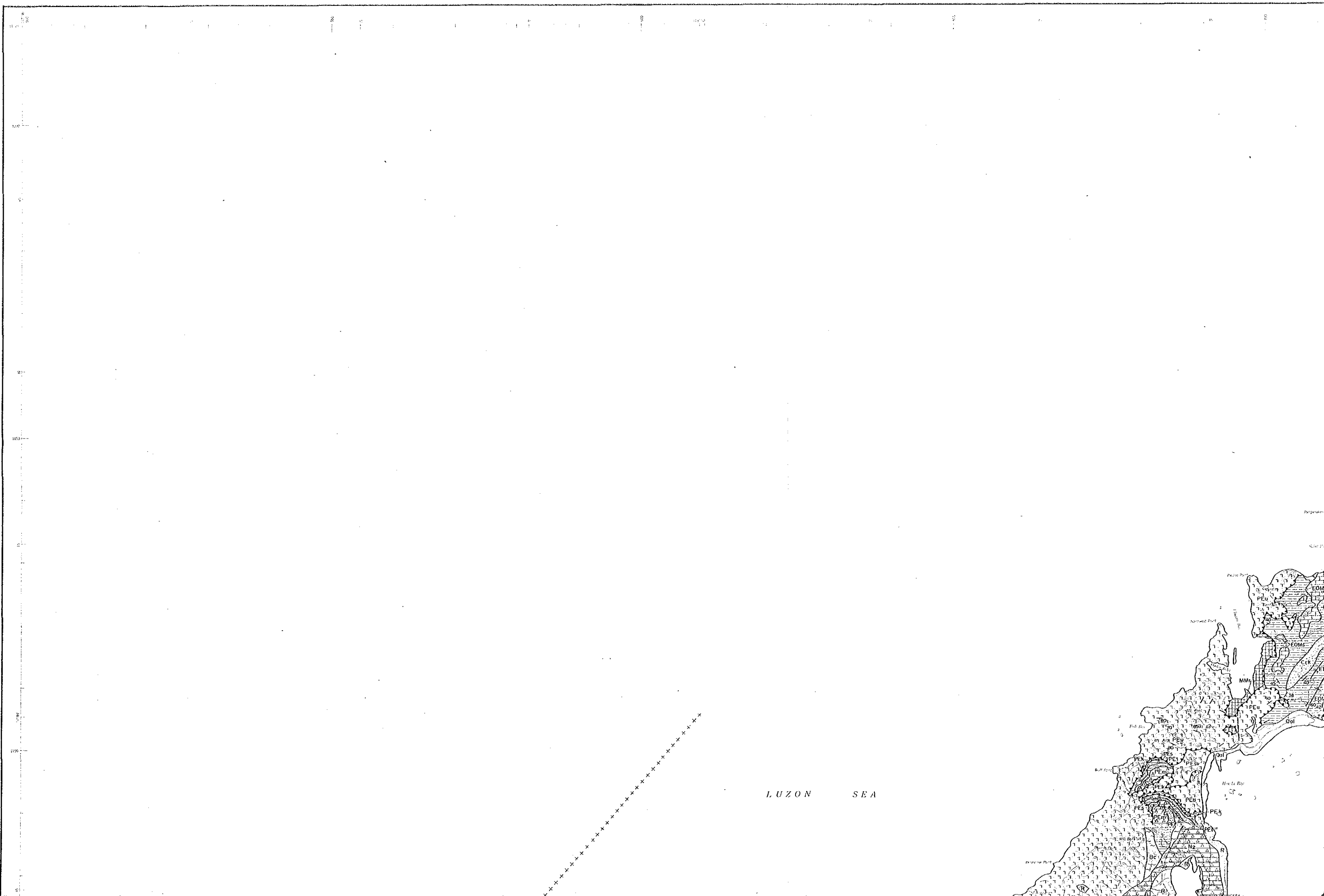
 Normal fault. Hachures on downthrown side.

 Anticlinal axis with plunge.

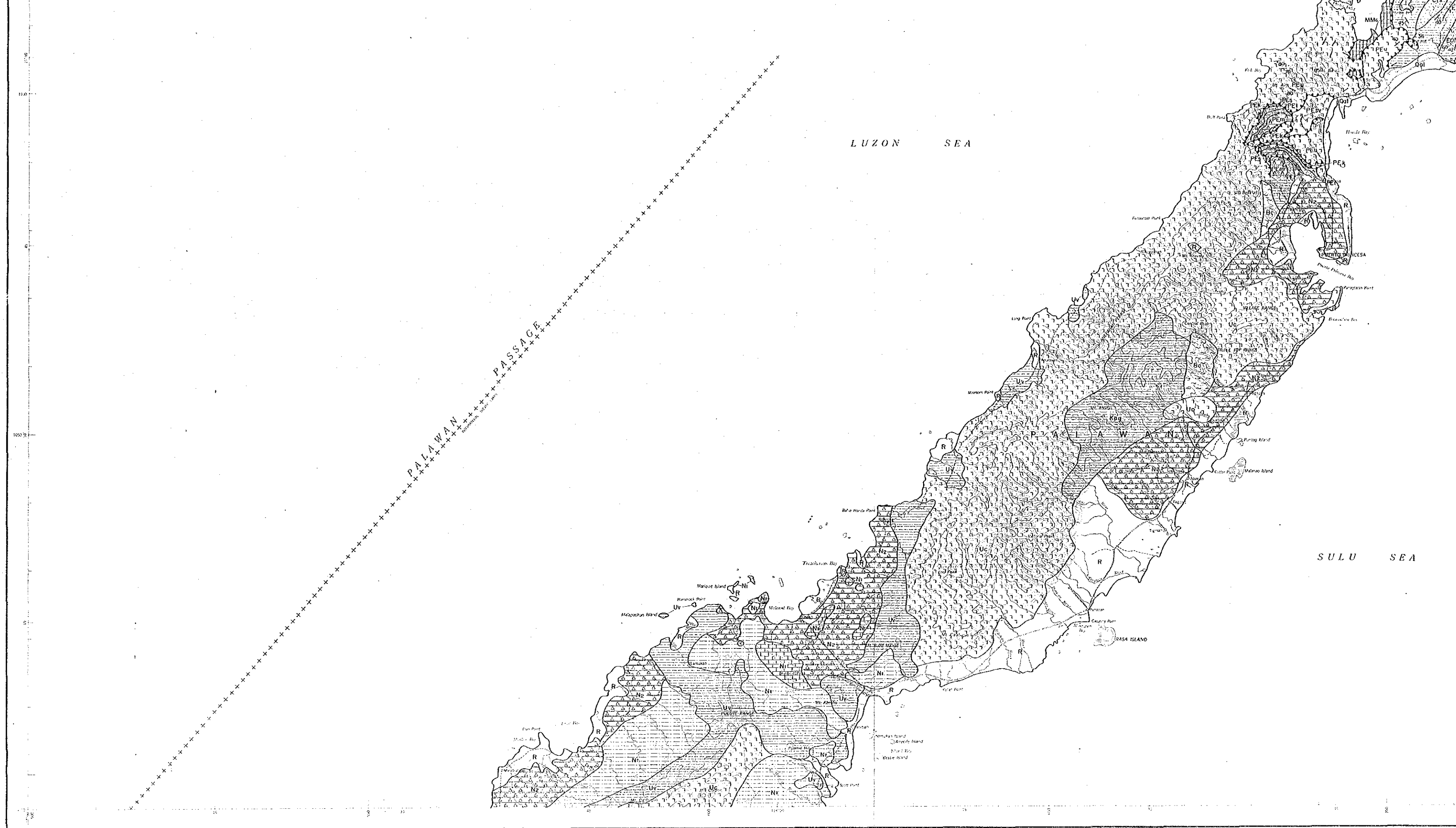
 Synclinal axis with plunge.

Compiled from Geology and Mineral Resources Map of Samar Island (1:250,000)



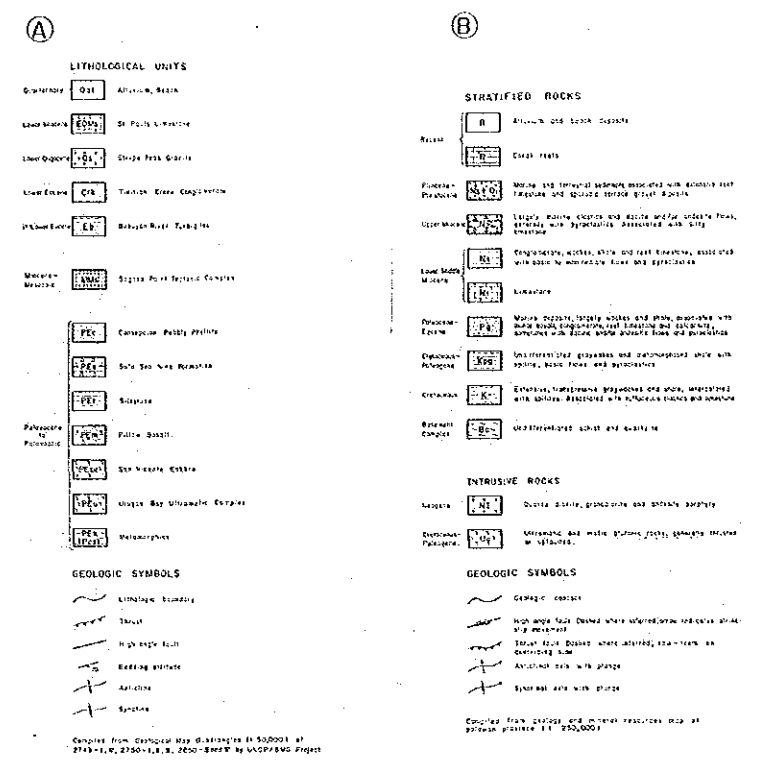






**LEGEND**

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LUZON SEA

PALAWAN

SULU SEA

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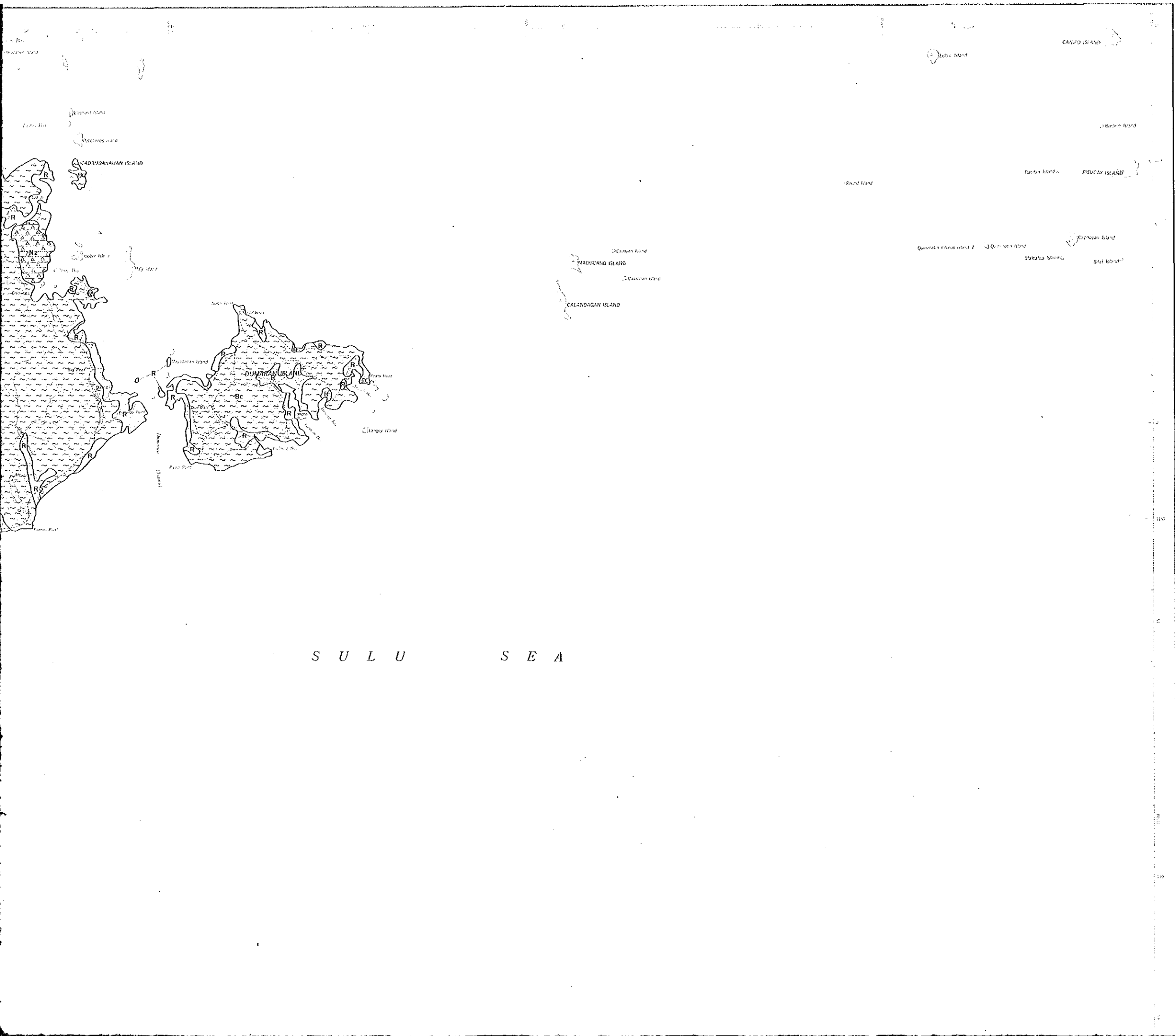
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PL. 4-10

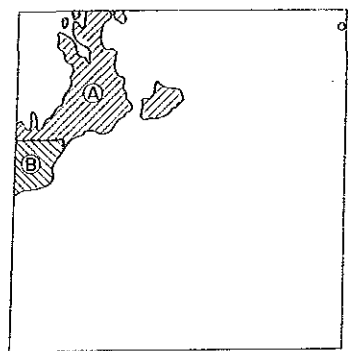
**THE MINERAL EXPLORATION**  
**- MINERAL DEPOSITS AND TECTONICS OF TWO**  
**CONTRASTING GEOLOGIC ENVIRONMENTS**  
**IN**  
**THE REPUBLIC OF THE PHILIPPINES**  
**PHASE I**

**COMPILED GEOLOGICAL MAP**

JAPAN INTERNATIONAL COOPERATION AGENCY  
 METAL MINING AGENCY OF JAPAN  
 JUNE 1985, FIRST EDITION

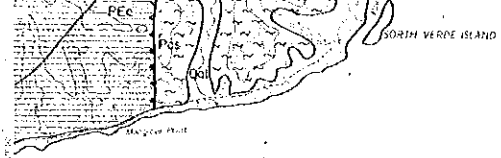
Scale 1 : 250,000

**LEGEND**



**(A)** Compiled from Geology and Mineral Resources Map of Palawan Province (1:250,000)  
**(B)** Compiled from Geological Map Quadrangles (1:50,000) of 2749-I, W, 2750-1, E, E, 2850-E and M by USDP/BMG Project.

<p><b>(A)</b></p> <p><b>STRATIFIED ROCKS</b></p> <p><b>R</b> Shales and sandstones</p> <p><b>CS</b> Coral reefs</p> <p><b>PL</b> Limestone</p> <p><b>PL-1</b> Limestone</p> <p><b>PL-2</b> Limestone</p> <p><b>PL-3</b> Limestone</p> <p><b>PL-4</b> Limestone</p> <p><b>PL-5</b> Limestone</p> <p><b>PL-6</b> Limestone</p> <p><b>PL-7</b> Limestone</p> <p><b>PL-8</b> Limestone</p> <p><b>PL-9</b> Limestone</p> <p><b>PL-10</b> Limestone</p> <p><b>PL-11</b> Limestone</p> <p><b>PL-12</b> Limestone</p> <p><b>PL-13</b> Limestone</p> <p><b>PL-14</b> Limestone</p> <p><b>PL-15</b> Limestone</p> <p><b>PL-16</b> Limestone</p> <p><b>PL-17</b> Limestone</p> <p><b>PL-18</b> Limestone</p> <p><b>PL-19</b> Limestone</p> <p><b>PL-20</b> Limestone</p> <p><b>PL-21</b> Limestone</p> <p><b>PL-22</b> Limestone</p> <p><b>PL-23</b> Limestone</p> <p><b>PL-24</b> Limestone</p> <p><b>PL-25</b> Limestone</p> <p><b>PL-26</b> Limestone</p> <p><b>PL-27</b> Limestone</p> <p><b>PL-28</b> Limestone</p> <p><b>PL-29</b> 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Limestone</p> <p><b>PL-96</b> Limestone</p> <p><b>PL-97</b> Limestone</p> <p><b>PL-98</b> Limestone</p> <p><b>PL-99</b> Limestone</p> <p><b>PL-100</b> Limestone</p>	<p><b>(B)</b></p> <p><b>LITHOLOGICAL UNITS</b></p> <p><b>GA</b> Gabbro</p> <p><b>EP</b> Epidiorite</p> <p><b>EP-1</b> Epidiorite</p> <p><b>EP-2</b> Epidiorite</p> <p><b>EP-3</b> Epidiorite</p> <p><b>EP-4</b> Epidiorite</p> <p><b>EP-5</b> Epidiorite</p> <p><b>EP-6</b> Epidiorite</p> <p><b>EP-7</b> Epidiorite</p> <p><b>EP-8</b> Epidiorite</p> <p><b>EP-9</b> Epidiorite</p> <p><b>EP-10</b> Epidiorite</p> <p><b>EP-11</b> Epidiorite</p> <p><b>EP-12</b> Epidiorite</p> <p><b>EP-13</b> Epidiorite</p> <p><b>EP-14</b> Epidiorite</p> <p><b>EP-15</b> Epidiorite</p> <p><b>EP-16</b> Epidiorite</p> <p><b>EP-17</b> Epidiorite</p> <p><b>EP-18</b> Epidiorite</p> <p><b>EP-19</b> Epidiorite</p> <p><b>EP-20</b> Epidiorite</p> <p><b>EP-21</b> Epidiorite</p> <p><b>EP-22</b> Epidiorite</p> <p><b>EP-23</b> Epidiorite</p> <p><b>EP-24</b> 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Epidiorite</p> <p><b>EP-57</b> Epidiorite</p> <p><b>EP-58</b> Epidiorite</p> <p><b>EP-59</b> Epidiorite</p> <p><b>EP-60</b> Epidiorite</p> <p><b>EP-61</b> Epidiorite</p> <p><b>EP-62</b> Epidiorite</p> <p><b>EP-63</b> Epidiorite</p> <p><b>EP-64</b> Epidiorite</p> <p><b>EP-65</b> Epidiorite</p> <p><b>EP-66</b> Epidiorite</p> <p><b>EP-67</b> Epidiorite</p> <p><b>EP-68</b> Epidiorite</p> <p><b>EP-69</b> Epidiorite</p> <p><b>EP-70</b> Epidiorite</p> <p><b>EP-71</b> Epidiorite</p> <p><b>EP-72</b> Epidiorite</p> <p><b>EP-73</b> Epidiorite</p> <p><b>EP-74</b> Epidiorite</p> <p><b>EP-75</b> Epidiorite</p> <p><b>EP-76</b> Epidiorite</p> <p><b>EP-77</b> Epidiorite</p> <p><b>EP-78</b> Epidiorite</p> <p><b>EP-79</b> Epidiorite</p> <p><b>EP-80</b> Epidiorite</p> <p><b>EP-81</b> Epidiorite</p> <p><b>EP-82</b> Epidiorite</p> <p><b>EP-83</b> Epidiorite</p> <p><b>EP-84</b> Epidiorite</p> <p><b>EP-85</b> Epidiorite</p> <p><b>EP-86</b> Epidiorite</p> <p><b>EP-87</b> Epidiorite</p> <p><b>EP-88</b> 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1530

1560

1590

1620

1650

East Wind

Wind

LEGEND

(Symbol)	MARSH	(Symbol)	Highland Forest
(Symbol)	Water	(Symbol)	Shrub
(Symbol)	Open	(Symbol)	Grass
(Symbol)	Barren	(Symbol)	Lowland Forest
(Symbol)	Rock	(Symbol)	Mountain
(Symbol)	Cliff	(Symbol)	Lowland Forest
(Symbol)	Cliff	(Symbol)	Mountain
(Symbol)	Cliff	(Symbol)	Mountain
(Symbol)	Cliff	(Symbol)	Mountain

(A)

STRATIFIED ROCKS

- Quartzite** Quartzite
- Granite** Granite
- Diabase** Diabase
- Basalt** Basalt
- Andesite** Andesite
- Trachyte** Trachyte
- Obsidian** Obsidian
- Quartzite** Quartzite
- Granite** Granite
- Diabase** Diabase
- Basalt** Basalt
- Andesite** Andesite
- Trachyte** Trachyte
- Obsidian** Obsidian

INTRUSIVE ROCKS

- Granite** Granite
- Diabase** Diabase
- Basalt** Basalt

GEOLOGIC SYMBOLS

- Contact
- Fault
- Unconformity
- Discontinuity

Compiled from Geologic Map, District of Columbia, 1:50,000

(B)

LITHOLOGICAL UNITS

- Quartzite** Quartzite
- Granite** Granite
- Diabase** Diabase
- Basalt** Basalt
- Andesite** Andesite
- Trachyte** Trachyte
- Obsidian** Obsidian
- Quartzite** Quartzite
- Granite** Granite
- Diabase** Diabase
- Basalt** Basalt
- Andesite** Andesite
- Trachyte** Trachyte
- Obsidian** Obsidian

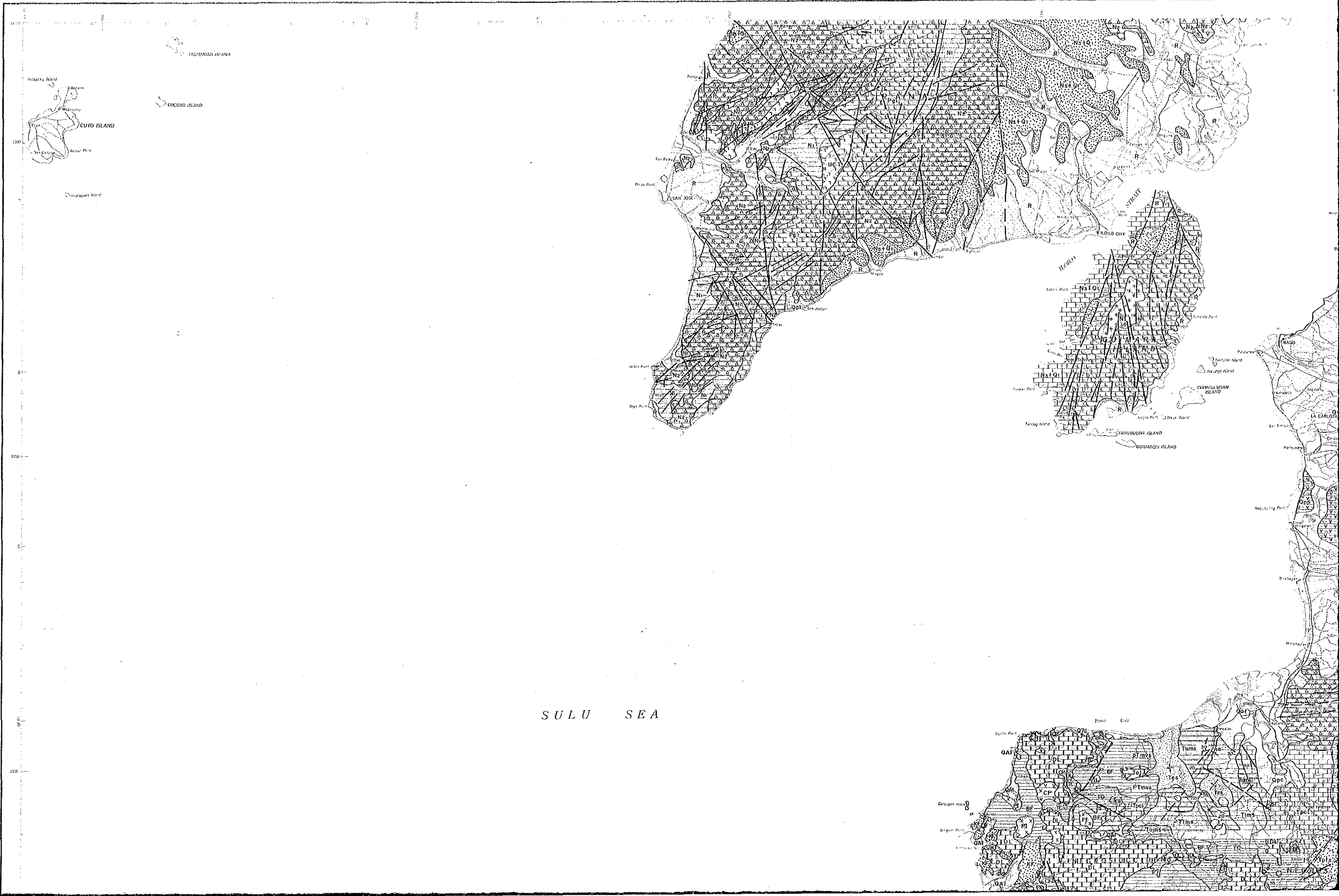
GEOLOGIC SYMBOLS

- Contact
- Fault
- Unconformity
- Discontinuity

Compiled from Geologic Map, District of Columbia, 1:50,000

Carroll Island  
L. Area 1000'



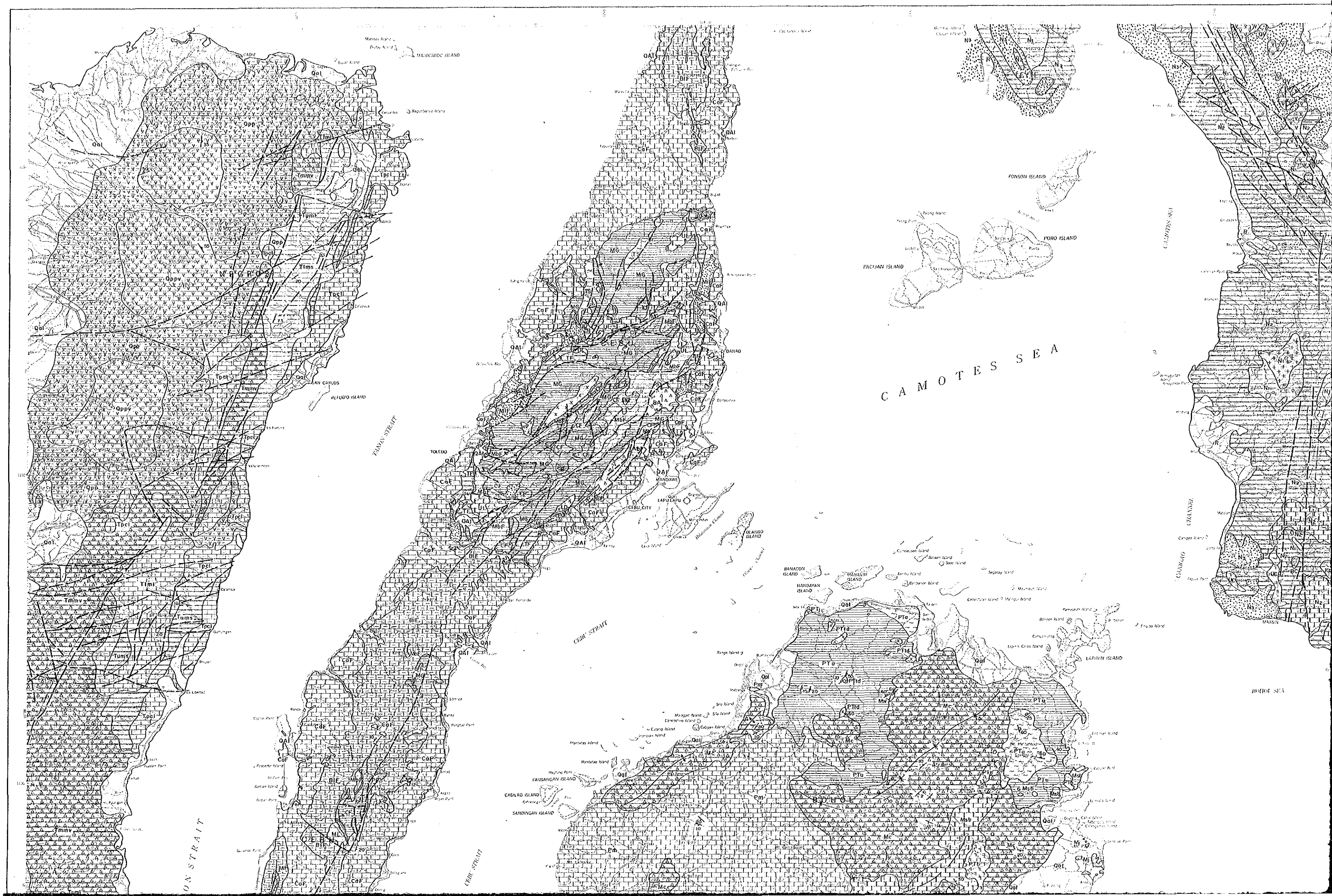


SULU SEA



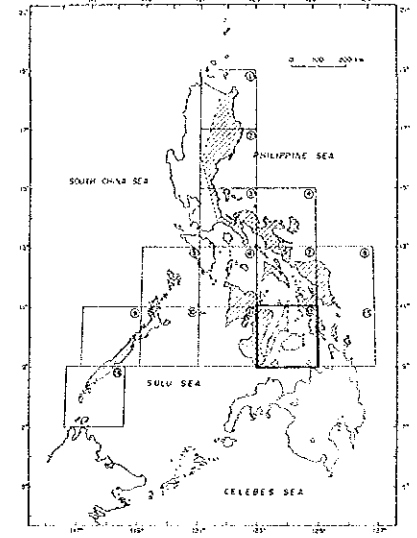




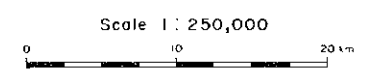


THE MINERAL EXPLORATION  
- MINERAL DEPOSITS AND TECTONICS OF TWO  
CONTRASTING GEOLOGIC ENVIRONMENTS  
IN  
THE REPUBLIC OF THE PHILIPPINES  
PHASE I

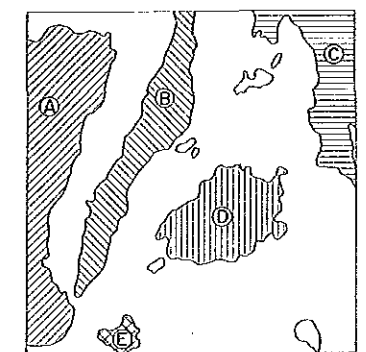
COMPILED GEOLOGICAL MAP



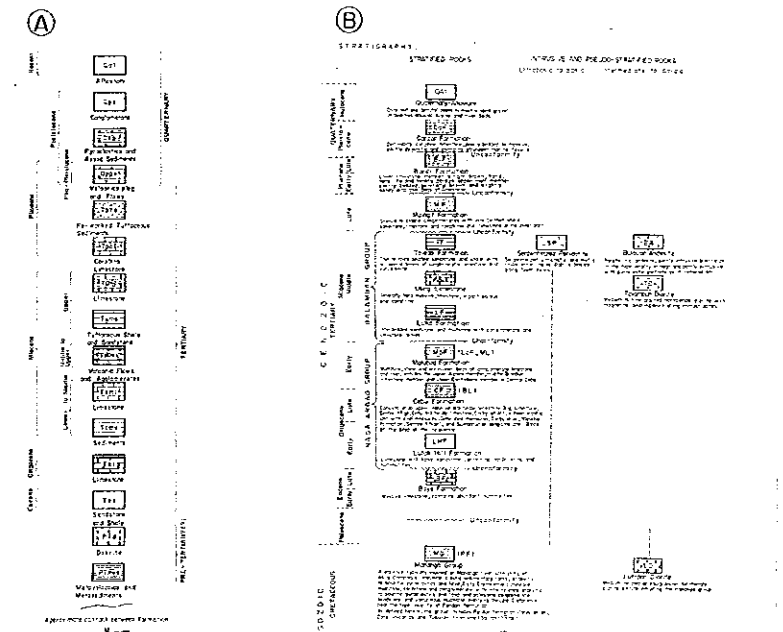
JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
JUNE 1985, FIRST EDITION

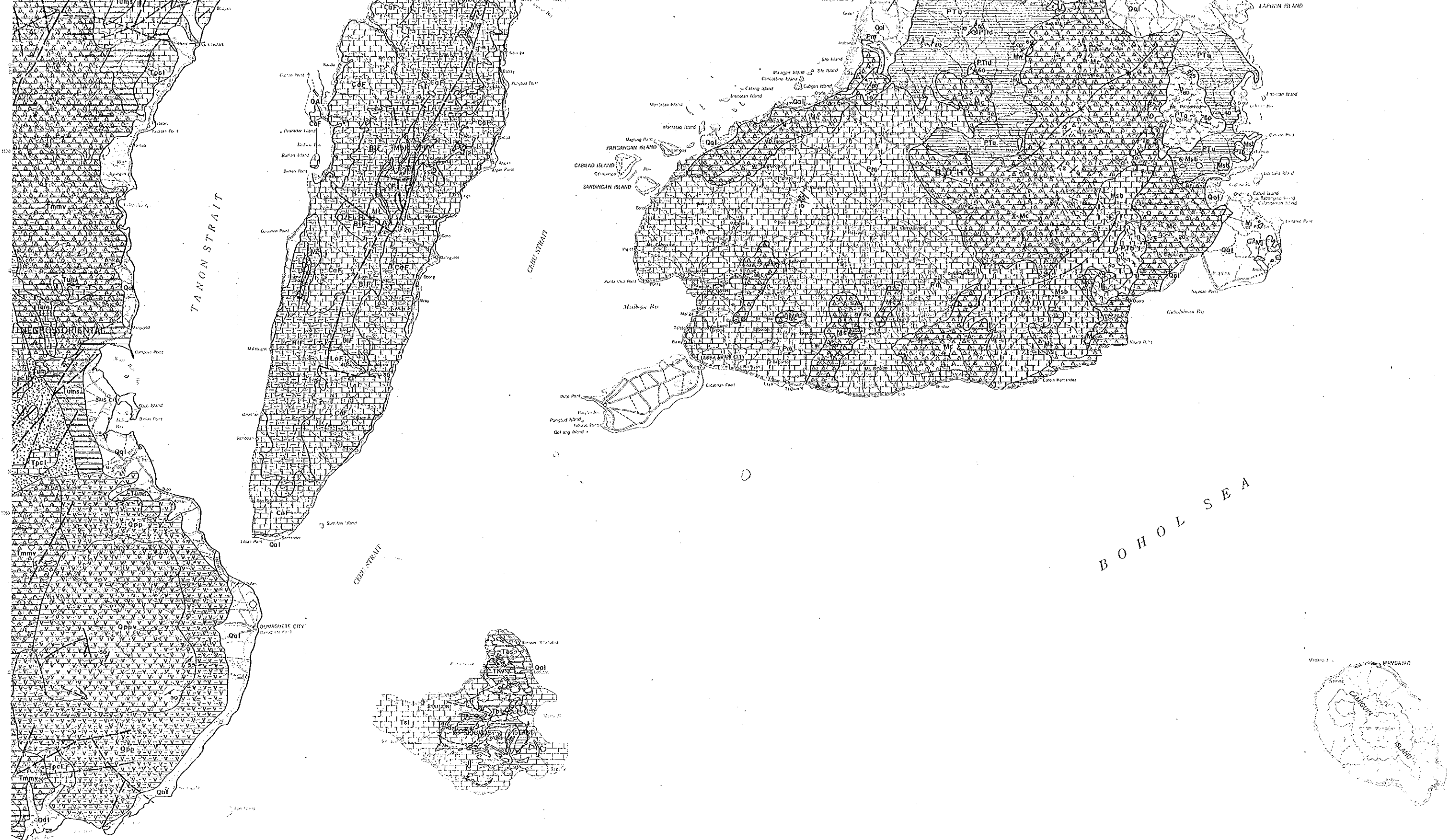


LEGEND



- (A) Compiled from Reconnaissance Geological Map of Negros Island 1:250,000.
- (B) Compiled from Geological Map Quadrangles 1:50,000 of Sheet No. 3648-1, 3649-1, 3650-W, 3750-W, 3751-1, 3752-W, 3851-W, 3852-W, and Geologic Map of Cebu 1:250,000.
- (C) Compiled from Geology and Mineral Distribution Map of Southern Leyte, 1:250,000. (P.M. Mantaling and Boalis, 1970)
- (D) Compiled from Geology and Mineral Resources Map of Bohol Province, 1:250,000 by BMG Region W, Jan 1982
- (E) Compiled from Geologic and Mineral Occurrences Map of Siquijor Island, 1:50,000 by BMG Region W, Nov 1984.





BOHOL SEA

**LEGEND**

- 1000
- 2000
- 3000
- 4000
- 5000
- 6000
- 7000
- 8000
- 9000
- 10000
- 11000
- 12000
- 13000
- 14000
- 15000
- 16000
- 17000
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- 20000
- 21000
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- 44000
- 45000
- 46000
- 47000
- 48000
- 49000
- 50000









PHILIPPINE SEA

DINAGAT SOUND

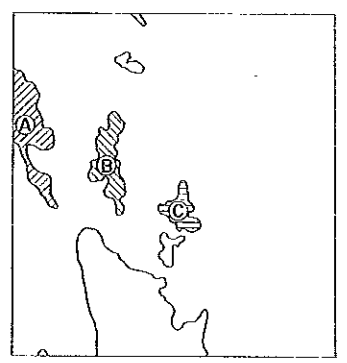
PL. 4-13

### THE MINERAL EXPLORATION - MINERAL DEPOSITS AND TECTONICS OF TWO CONTRASTING GEOLOGIC ENVIRONMENTS - IN THE REPUBLIC OF THE PHILIPPINES PHASE I COMPILED GEOLOGICAL MAP

JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN  
JUNE 1985, FIRST EDITION

Scale 1 : 250,000  
0 10 20 km

### LEGEND



- (A) Compiled from Geology and Mineral Distribution Map of Southern Legate, 1:250,000. (PAF Montanosa and Baptista, 1970)
- (B) Compiled from Geology and Mineral Resources Map of Surigao Del Norte, 1:250,000 by BMG Regional Office No. X, Sept. 1980 (R) No. 102
- (C) Compiled from Geological Map Quadrangle 1:50,000 of Sheet No. 4149-1, 4249-D, V, 4250-D.

- (A)**

  - Recent alluvium, sand and silt
  - Well-sorted, yellow to reddish, fine to medium grained sandstone
  - Yellow to reddish, medium to coarse grained sandstone
  - White to yellowish, medium to coarse grained sandstone
  - Limestone
  - Dark to light gray, fine to medium grained sandstone with many small pebbles and shells, and quartz grains
  - Brownish to reddish, medium to coarse grained sandstone with many small pebbles and shells, and quartz grains
  - Dark to light gray, medium to coarse grained sandstone
  - Dark to light gray, medium to coarse grained sandstone with many small pebbles and shells, and quartz grains
  - Fault
  - Fracture
  - Trench
  - Arching

**(B)**

**SEDIMENTARY AND METAMORPHIC ROCKS**

  - Recent alluvium, sand and silt
  - Well-sorted, yellow to reddish, fine to medium grained sandstone
  - Yellow to reddish, medium to coarse grained sandstone
  - White to yellowish, medium to coarse grained sandstone
  - Limestone
  - Dark to light gray, fine to medium grained sandstone with many small pebbles and shells, and quartz grains
  - Brownish to reddish, medium to coarse grained sandstone with many small pebbles and shells, and quartz grains
  - Dark to light gray, medium to coarse grained sandstone
  - Dark to light gray, medium to coarse grained sandstone with many small pebbles and shells, and quartz grains

**IGNEOUS ROCKS**

**INTRUSIVES**

  - Granite
  - Diorite

**EXTRUSIVES**

  - Basalt
  - Andesite

**GEOLOGIC SYMBOLS**

  - High angle fault exposed above surface
  - Normal fault exposed above surface

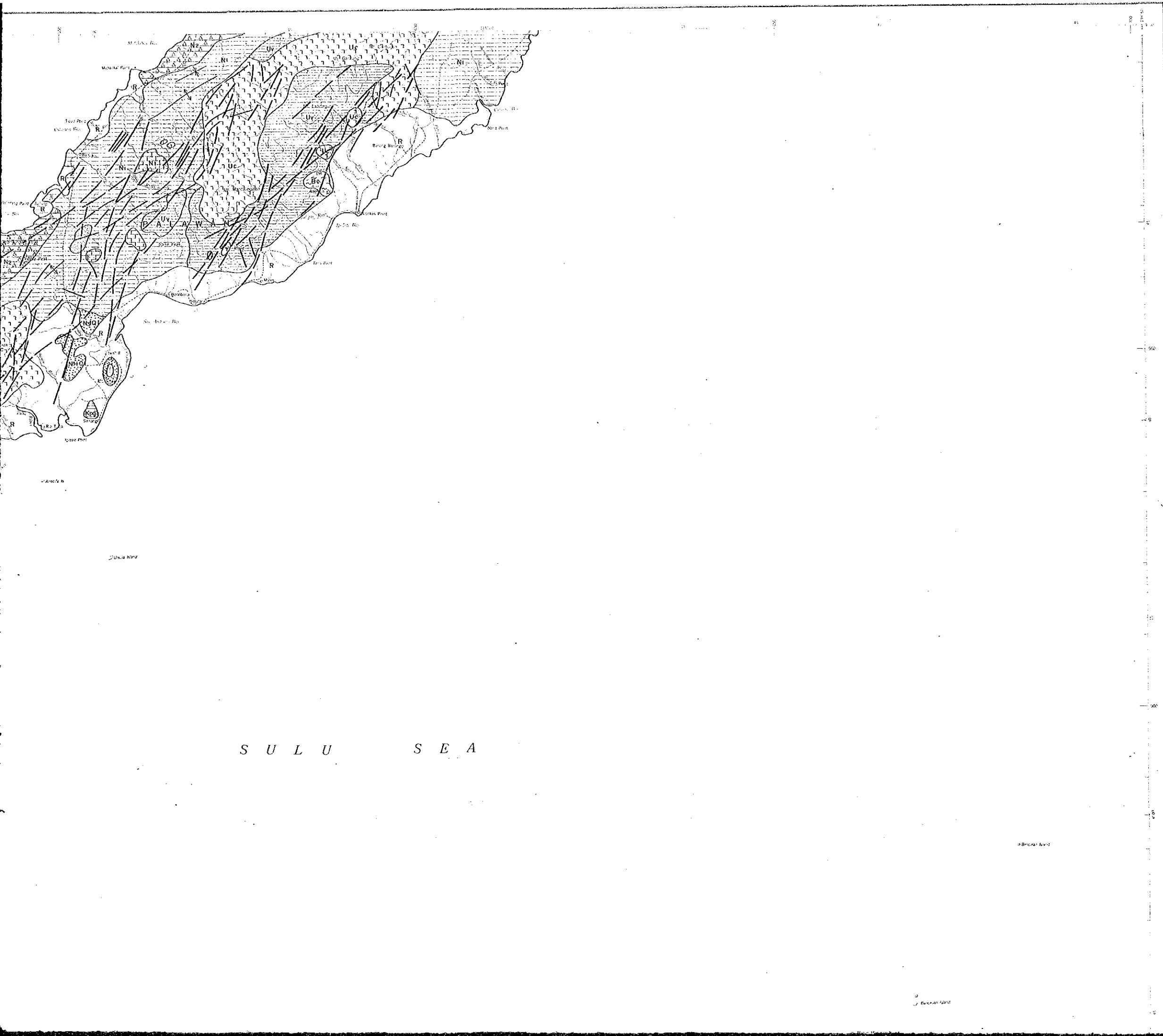


**LEGEND**

<ul style="list-style-type: none"> <li>• MAGAS</li> <li>○ BATAVIA</li> <li>○ SINGAPORE</li> <li>○ MALACCA</li> <li>○ BANGALOR</li> <li>○ COCHIN</li> <li>○ CEYLON</li> <li>○ INDIA</li> <li>○ CHINA</li> <li>○ JAPAN</li> <li>○ AUSTRALIA</li> <li>○ NEW ZEALAND</li> <li>○ SOUTH AFRICA</li> <li>○ EUROPE</li> <li>○ AMERICA</li> <li>○ AFRICA</li> <li>○ ASIA</li> <li>○ OCEANIA</li> </ul>	<ul style="list-style-type: none"> <li>• MAGAS</li> <li>○ BATAVIA</li> <li>○ SINGAPORE</li> <li>○ MALACCA</li> <li>○ BANGALOR</li> <li>○ COCHIN</li> <li>○ CEYLON</li> <li>○ INDIA</li> <li>○ CHINA</li> <li>○ JAPAN</li> <li>○ AUSTRALIA</li> <li>○ NEW ZEALAND</li> <li>○ SOUTH AFRICA</li> <li>○ EUROPE</li> <li>○ AMERICA</li> <li>○ AFRICA</li> <li>○ ASIA</li> <li>○ OCEANIA</li> </ul>
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PL. 4-14

THE MINERAL EXPLORATION  
- MINERAL DEPOSITS AND TECTONICS OF TWO  
CONTRASTING GEOLOGIC ENVIRONMENTS -  
IN  
THE REPUBLIC OF THE PHILIPPINES  
PHASE I

国際協力事業団  
1960

COMPILED GEOLOGICAL MAP

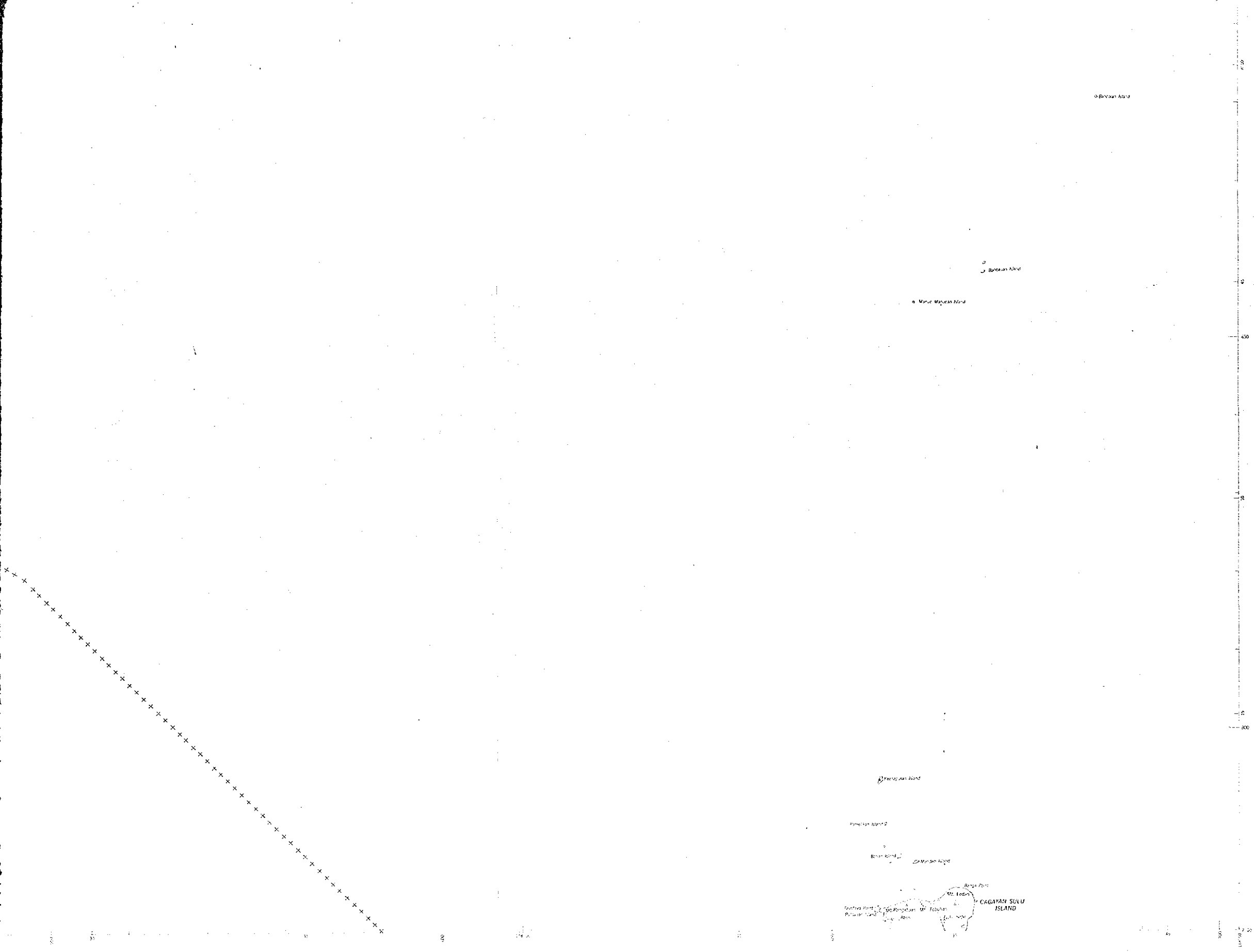
JAPAN INTERNATIONAL COOPERATION AGENCY  
METAL MINING AGENCY OF JAPAN

Scale 1:250,000

**LEGEND**

- STRATIFIED ROCKS**
- Recent
    - R Alluvium and beach deposits
    - Rr Coral reefs
  - Pliocene-Pleistocene
    - Ns + Ql Marine and terrestrial sediments associated with extensive reef limestone and sporadic terrace gravel deposits.
  - Upper Miocene
    - N2a Largely marine clastics and dacite and/or andesite flows, generally with pyroclastics. Associated with silty limestone.
  - Lower-Middle Miocene
    - N1 Conglomerate, wackes, shale and reef limestone, associated with basic to intermediate flows and pyroclastics.
    - N1l Limestone.
  - Paleocene-Eocene
    - Pg Marine deposits, largely wackes and shale, associated with minor basalt, conglomerate, reef limestone and calcarenite, sometimes with dacitic and/or andesitic flows and pyroclastics.
  - Cretaceous-Paleogene
    - Kpg Undifferentiated graywackes and metamorphosed shale with siltite, basic flows and pyroclastics.
  - Cretaceous
    - K Extensive, transgressive graywackes and shale, intercalated with siltites. Associated with tuffaceous clastics and limestone.
  - Basement Complex
    - Bc Undifferentiated schist and quartzite.
- INTRUSIVE ROCKS**
- Neogene
    - NI Quartz diorite, granodiorite and andesite porphyry.
  - Cretaceous-Paleogene
    - Uc Ultramafic and mafic plutonic rocks, generally thrust or upfaulted.
- GEOLOGIC SYMBOLS**





Paleocene-Eocene	Pg	Marine deposits, largely wackes and shale, associated with minor basalt, conglomerate, reef limestone and calcarenite, sometimes with dacitic and/or andesitic flows and pyroclastics.
Cretaceous-Paleogene	Kpg	Undifferentiated graywackes and metamorphosed shale with siltite, basic flows and pyroclastics.
Cretaceous	K	Extensive, transgressive graywackes and shale, intercolated with siltites. Associated with tuffaceous clastics and limestone.
Basement Complex	Bo	Undifferentiated schist and quartzite.

**INTRUSIVE ROCKS**

Neogene	NI	Quartz diorite, granodiorite and andesite porphyry.
Cretaceous-Paleogene	Uc	Ultramafic and mafic plutonic rocks, generally thrust or upfaulted.

**GEOLOGIC SYMBOLS**

- Geologic contact.
- High angle fault. Dashed where inferred; arrow indicates strike-slip movement.
- Thrust fault. Dashed where inferred; saw-teeth on overriding side.
- Anticlinal axis with plunge.
- Synclinal axis with plunge.

Compiled from geology and mineral resources map of Palawan province (1:250,000)