

Table A-1-1 List of Lager Foraminifera

Table A-1-2 List of Smaller Foraminifera

| Group Name | | Sample No. | Location | Geologic Age | Species of Larger Foraminifera | Planktinic Foraminifera | |
|--|------------|------------|----------|--------------|--------------------------------|-------------------------|--|
| Sablayan Group | | | | | | Benthonic Foraminifera | |
| Group Name | Sample No. | | | | | | |
| A. sp. | | | | | | | |
| Amphistegina radiata (Fichtel and Moll) | | | | | | | |
| Amphistegina quadrilatera | | | | | | | |
| Biplanispira mirabilis (Umbgrove) | | | | | | | |
| Cyclocypris sp. | | | | | | | |
| D. sp. | | | | | | | |
| Gypsinia globulus (Reuss) | | | | | | | |
| G. vesicularia (Parker and Jones) | | | | | | | |
| H. sp. | | | | | | | |
| Homotrema rubrum (Lamereck) | | | | | | | |
| Lepidocycline (Eulepidina) cf. monstrosa Yabe | | | | | | | |
| (E.) planata (Oppenoorth) | | | | | | | |
| (L.) sp. | | | | | | | |
| L. (Multilepidina) luxurians (Tobler) | | | | | | | |
| L. (Nephrolepidina) angulosa Provale | | | | | | | |
| L. (N.) ferteroi Provale | | | | | | | |
| L. (N.) cf. isolepidinoides Van der Vliet | | | | | | | |
| L. (N.) japonica (Yabe) | | | | | | | |
| L. (N.) sumatrensis (Brady) | | | | | | | |
| M. miniacina minacea (Pallas) | | | | | | | |
| M. myopsina (Lepidosemidiscina) thecidiformis Rütten | | | | | | | |
| (Miospinoides) complanata (Schlumberger) | | | | | | | |
| N. fichteli (Mitchellotti) | | | | | | | |
| Operolina cf. complanata (Defans) | | | | | | | |
| O. venosa (Fichtel and Moll) | | | | | | | |
| O. sp. | | | | | | | |
| Panorbulinella larvata (Parker and Jones) | | | | | | | |
| Rotalia sp. | | | | | | | |
| Rupertia? sp. | | | | | | | |
| Spirolytus teupoldi Van der Vliet | | | | | | | |
| S. vernicularis Tan | | | | | | | |

| Group Name | | Sample No. | Location | Geologic Age | Species of Smaller Foraminifera | Planktinic Foraminifera | |
|------------------------------|------------|------------|----------|--------------|---------------------------------|-------------------------|--|
| Sablayan Group | | | | | | Benthonic Foraminifera | |
| Group Name | Sample No. | | | | | | |
| Bolivina robusta | | | | | | | |
| Bolivinita quadrilatera | | | | | | | |
| Bulimina cf. buchiana | | | | | | | |
| B. marginata | | | | | | | |
| B. striata | | | | | | | |
| Cassidulina subglobosa | | | | | | | |
| Cellanthis craticulatum | | | | | | | |
| Chilostomella colina | | | | | | | |
| Cibicides dorsopustulosus | | | | | | | |
| C. praecinctus | | | | | | | |
| Cymbaloporella squammosa | | | | | | | |
| Dorothyia sp. | | | | | | | |
| Florilus boucautum | | | | | | | |
| Gyroidina soldanii | | | | | | | |
| Hemicerasellaria geminata | | | | | | | |
| Hoglundia elegans | | | | | | | |
| Hyalinea balinica | | | | | | | |
| Karenella bradyi | | | | | | | |
| Lagenodusaria hirsuta | | | | | | | |
| Marginulinopsis brevi | | | | | | | |
| Nodosaria longicosta | | | | | | | |
| Planulina atrinensis | | | | | | | |
| Psuedorotalia schlotheeriana | | | | | | | |
| Rectobolvina nitrons | | | | | | | |
| Rotalia calcar | | | | | | | |
| Signoolopsis schlumbergeri | | | | | | | |
| Siphonenerina striata | | | | | | | |
| Uvigerina ampullacea | | | | | | | |
| U. canariensis | | | | | | | |
| U. custrinari | | | | | | | |
| U. peregrina | | | | | | | |
| Catapsyrax dissimilis | | | | | | | |
| C. obliquus | | | | | | | |
| C. unicavus | | | | | | | |
| Cyclammina cancellata | | | | | | | |
| Globigerina bulloides Blow | | | | | | | |
| Globigerinoides conglobatus | | | | | | | |
| G. obliquus | | | | | | | |
| G. quadrilobatus group | | | | | | | |
| G. rubra (d'Orbigny) | | | | | | | |
| Globigerinoides sp. | | | | | | | |
| G. menardii (d'Orbigny) | | | | | | | |
| G. pseudopinniz | | | | | | | |
| G. tosensis | | | | | | | |
| G. tumida | | | | | | | |
| Haplophragmoides compressa | | | | | | | |
| Neoglobogaudnia dueterri | | | | | | | |
| Orbulina universa d'Orbigny | | | | | | | |
| Pulnularia obliqueoculata | | | | | | | |
| P. primalis | | | | | | | |
| Sphaerodinella dehiscentis | | | | | | | |

Table A-2-1 List of Microscopic Observations(Thin Section)

| Abbreviation: | |
|---------------|------------------|
| Mineral | |
| q | quartz |
| kf | potash feldspar |
| pl | plagioclase |
| bt | biotite |
| mus | muscovite |
| hb | homblende |
| au | augite |
| hy | hypersthene |
| en | enstatite |
| ol | olivine |
| act | actinolite |
| tor | tourmaline |
| cpx | clinopyroxene |
| opx | orthopyroxene |
| ap | apatite |
| ga | gamet |
| sph | sphene |
| op | opaque minerals |
| gl | glass |
| ep | epidote |
| ser | sericite |
| chl | chlorite |
| cal | clacite |
| srp | serpentine |
| sap | saponite |
| mon | montomorillonite |
| zeo | zeorite |
| prh | prehnite |
| ru | rutile |
| cr | chromite |
| pic | picotite |
| tr | tremolite |

Igneous Rocks

(1)

| Sample No. | Location | Rock Name | Texture | Phenocryst | | | | | | | | | | | | Groundmass | | | | | | | | | | Secondary Minerals | | | | | | | | | | Remarks | | | | |
|------------|-------------|------------------|-------------------|------------|----|----|----|----|-----|------|------|-----|----|----|----|------------|----|-----|---|----|----|----|----|-----|-----|--------------------|----|----|----|---|-----|-----|-----|-------------|--------------------------|---------------|---------------|-----|-----|-----|
| | | | | q | kf | pl | bt | mu | hb | au | hy | ol | en | ap | ga | op | cr | pic | q | kf | pl | bt | hb | cpx | opx | op | ap | ga | gl | q | cal | ser | chl | ep | op | sph | srp | sap | mon | zed |
| KR2 - 004 | Lumintao R. | dolerite | subophitic | | | | ◎ | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | |
| 009 | do | basalt | intersertal | | | | ○ | | | ● | ○ | | | | | | | | | ◎ | | | ○ | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 011 | do | dolerite | subophitic | | | | ◎ | | | ○ | | | | | | | | | | ◎ | | | ○ | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 014 | do | basalt | intersertal | | | | ○ | | | ○ | | | | | | | | | | ◎ | | | ○ | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 015 | do | au gabbro | equigranular | | | | ◎ | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 017 | do | au gabbro | equigranular | | | | ◎ | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | ○ | An 50 ~ 70% | | | | |
| 020 | Pintin R. | harzburgite | - | | | | | | | | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | |
| 021 | do | dunite | - | | | | | | | (●) | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | | |
| 025 | do | hornblendite | equigranular | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | cataclastic | | | | |
| 026 | do | orthopyroxenite | equigranular | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 029 | do | dolerite | doleritic | | | | ◎ | | | ● | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | brecciated | | | | | |
| 030 | do | au hy gabbro | equigranular | | | | ◎ | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 031 | do | hb au gabbro | equigranular | | | | ◎ | | | ● | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 033 | do | dunite | - | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | | |
| 036 | do | au gabbro | equigranular | | | | ◎ | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70%, cataclastic | | | | | |
| 038 | do | hb hy au gabbro | equigranular | | | | ○ | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 039 | do | harzburgite | equigranular | | | | | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | | |
| 040 | do | harzburgite | equigranular | | | | | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 044 | do | hy au gabbro | equigranular | | | | ○ | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 048 | do | harzburgite | - | | | | | | | ○ | ●(●) | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | | |
| 054 | Liwliw area | lherzolite | equigranular | | | | | | | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 060 | Igoso area | Chromitite | banded | | | | | | | ○ | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| 061 | do | dunite | - | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | | | |
| 063 | do | hb gabbro | equigranular | | | | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | An 30 ~ 50% | | | | | |
| 064 | do | au hb gabbro | equigranular | | | | ○ | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | | |
| 066 | do | au gabbro | equigranular | | | | ○ | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 80% | | | | |
| 067 | Mariil area | harzburgite | - | | | | | | | ○(●) | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | pumpellyite | | | | | |
| 068 | do | diorite porphyry | porphyritic | | | | ● | ○ | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 071 | San Vicente | granophyre | holocrystalline | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 073 | Igoso area | basalt | cryptocrystalline | | | | | | | ● | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | pumpellyite | | | |
| 074 | Liwliw area | gabbro | holocrystalline | ○ | | | ○ | | | ● | | | | | | | | | | ○ | | | ○ | ○ | | | | | | | | | | An 30 ~ 70% | | | | | | |
| 075 | do | au hy gabbro | equigranular | ○ | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 077 | do | hornblendite | equigranular | ○ | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 078 | do | dunite | equigranular | | | | | | | ○(●) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 082 | Sumagui R. | harzburgite | equigranular | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | serpentinized | | | |
| 084 | do | harzburgite | - | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | cataclastic | | | | |
| 085 | do | orthopyroxenite | equigranular | | | | | | | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 086 | do | harzburgite | equigranular | | | | | | | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | An 50 ~ 70% | | | | |
| 091 | Balete R. | au hy gabbro | holocrystalline | ○ | | | ○ | ○ | (●) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 092 | do | dolerite | doleritic | ○ | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 094 | do | harzburgite | equigranular | | | | | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 095 | do | lherzolite | equigranular | | | | | | | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 097 | do | altered gabbro | - | | | | | | | ● | ● | (●) | | | | | | | | | | | | | | | | | | | | | | | zeolitization | | | | | |
| 100 | Ogos R. | dunite | equigranular | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 102 | do | harzburgite | holocrystalline | ○ | | | ○ | ○ | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | porphyritic, layered | | | | | |
| 104 | do | dunite | equigranular | ○ | | | ○ | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 108 | do | dunite | equigranular | ○ | | | ○ | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 109 | do | harzburgite | equigranular | ○ | | | ○ | ○ | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | do | harzburgite | equigranular | ○ | | | ○ | ○ | | ● | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | |
| TR2 - 032 | Mongpong R. | basalt | intergranular | ○ | | | ○ | | | | ○ | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | |

Remarks: ◎: abundant ○: common •: rare (): pseudomorph

Remarks: ◎: abundant ○: common •: rare (): pseudomorph

Metamorphic Rocks

Remarks: ◎ : abundant ○ : common • : rare () : pseudomorph

Clastic Rocks

| Sample No. | Location | Rock Name | Fragments | | | Matrix | | Remarks |
|------------|-------------|-----------|-----------|----|----|--------|-----|----------------------|
| | | | q | pl | kf | mus | ser | |
| TR2-013 | Balangan R. | sandstone | ◎ | • | • | • | • | quartz content > 80% |

Table A-2-2 List of Microscopic Observations(Polished Section)

| No. | Sample No. | Location | Name of Ore and Formation | Microscopic Observation | Remarks |
|-----|------------|------------------|--|---|------------------------------|
| 1 | FR2-024 | Sibatoi R. | Pyrite-Chalcopyrite Ore (Mansalay F.) | Ore minerals consist of Pyrite > chalcopyrite > pyrrhotite > sphalerite. Earlier stage pyrite, chalcopyrite and pyrrhotite have a colloform banding, which are cut by later stage pyrite veins (0.1 ~ 1 cm in width). | see photograph float |
| 2 | FR2-036 | Nagsatongan Dep. | Magnetic Ore (Sablayan G.) | A small amount of hematite with acicular or dendritic form, replace magnetite along cracks. Very fine grains (0.02 mm. in size) of pyrite and chalcopyrite are sometimes visible in magnetite. | |
| 3 | FR2-037 | do | Magnetic Ore (do) | Same as FR2-36 | |
| 4 | FR2-039 | Tiraca R. | Hematite Ore (do) | The section consists mainly of hypidiomorphic hematite grain aggregate (0.05 ~ 0.5 mm. in size). A small amount of limonite and silicate minerals fill intergranular spaces. Hematite crystals show lattice structure. | see photograph massive ore |
| 5 | KR2-050a | Pintin R. | Chromite Ore (Ultramafic C.) | Idiomorphic chromite crystals (0.2 ~ 1.0 mm. in size) compose the ore. The crystals have irregular cracks (0.02 ~ 0.5 mm. in width) and are partly changed into fine fragments (0.05 ~ 0.2 mm. in size) by shearing. | see photograph massive ore |
| 6 | KR2-050b | do | Chromite Ore (do) | Same as KR2-050a | massive ore |
| 7 | KR2-055a | Liw liw area | Chromite Ore (do) | Xenomorphic granular chromite crystals (0.01 ~ 0.1 mm. in size), containing many irregular cracks, show a cataclastic texture. Two systems of shear fracture (0.5 ~ 1.0 mm. in width) are found and the crystals are broken into fine fragments (0.01 ~ 0.02 mm. in size) | dense sporadic ore stockpile |
| 8 | KR2-055b | do | Chromite Ore (do) | Same as KR2-055a | massive ore stockpile |
| 9 | KR2-060 | Igssoso | Chromite Ore (do) | Xenomorphic chromite crystals (0.03 ~ 1.0 mm. in size) with many irregular cracks (0.01 ~ 0.3 mm. in width) are abundant. A small amount of idiomorphic chromite crystals have sometimes a zonal arrangement of olivine inclusions (0.01 ~ 0.03 mm. in size). Prismatic or acicular magnetite crystals (0.01 ~ 0.1 mm. in width, 0.1 ~ 1 mm. in length) are rarely found, some of which are replaced by hematite. The chromite crystals are fairly crushed by shearing. | banded ore |
| 10 | KR2-062 | do | Chromite Ore (do) | Same as KR2-060 | |

(2)

| No. | Sample No. | Location | Name of Ore and Formation | Microscopic Observation | Remarks |
|-----|------------|------------------|---------------------------------|--|--------------------------------------|
| 11 | KR2-065 | Igoso | Chromite Ore (Ultramafic C.) | Xenomorphic chromite crystals (0.04 ~ 2.0 mm in size) with many irregular cracks (0.02 ~ 1 mm in width) are abundant. The section shows a cataclastic texture and the chromite crystals are crushed into fragments (< 0.2 mm in size). A few coarse idiomorphic crystals are rotated and crystal rims are crushed by shearing. Slightly hematized magnetite (< 0.05 mm in size) and silicate mineral (< 0.1 mm in size), with zonal arrangement, are rarely found. | massive ore stock pile |
| 12 | KR2-069a | Mari area | Chromite Ore (do) | Abundant chromite fragments (0.02 ~ 1.0 mm in size) with many cracks (0.01 ~ 0.3 mm in width) show a cataclastic texture. Two directions of shear fracture (0.3 ~ 0.5 mm in width) intersecting at an angle of 60° are developed and crush the chromite into fine fragments under 0.05 mm in size. | dense spotted ore, stock pile |
| 13 | KR2-069b | do | Chromite Ore (do) | Same as KR2-069a | dense spotted ore, stock pile |
| 14 | KR2-070 | do | Chromite Ore (do) | Coarse, idiomorphic chromite crystals (0.5 ~ 1 mm in size) with many cracks (0.05 ~ 0.3 mm in width) occupy the most part. Uvarovite veinlets (< 0.2 mm in width) are found along cracks. Irregular shear fractures (0.2 ~ 0.5 mm in width) are developed and the crystals are crushed into fragments (0.03 ~ 0.1 mm) along fractures. | massive ore float |
| 15 | KR2-072 | San Vicente Dep. | Chromite Ore (do) | Main ore mineral is coarse, idiomorphmagnetic (0.5 ~ 3 mm in size), replaced by hematite along the rim. Chromite crystals (0.02 ~ 0.05 mm in size) are fine grained, idiomorphic and very few. | disseminated ore float |
| 16 | KR2-105a | Ogoz River | Chromite Ore (do) | Chromite crystals (0.3 ~ 1.5 mm in size) are idiomorphic but somewhat rounded. Many cracks are developed. A few idiomorphic pyrite crystals (0.03 ~ 0.06 mm in size) are included in chromite. | see photograph dense spotted ore |
| 17 | KR2-105b | do | Chromite Ore (do) | Almost same as KR2-105a, but the grain size is coarser (0.3 ~ 2 mm in size). | dense ore |
| 18 | KR2-105c | do | Chromite Ore (do) | Same as KR2-105b | dense spotted ore |
| 19 | KR2-106 | do | Chromite Ore (do) | Chromite grains (0.03 ~ 0.3 mm in size) are sand-like particles decomposed by weathering. | disseminated ore sandy by weathering |
| 20 | SR2-124 | Masiron Dep. | Pyrrhotite-Pyrite Ore (do) | Ore minerals are pyrrhotite > pyrite > chalcopyrite, sphalerite. Brecciation is partly recognized. The later stage of sphalerite has filled many fractures (0.02 ~ 0.6 mm in width) with quartz, and replaced partially pyrrhotite. | |

(3)

| No. | Sample No. | Location | Name of Ore and Formation | Microscopic Observation | Remarks |
|-----|------------|------------------|---|--|----------------|
| 21 | SR2-125 | Mazon Dep. | Chalcopyrite-Pyrite Ore (Ultramafic C.) | The section consists mainly of chalcopyrite enclosing a small amount of pyrite > sphalerite grains (< 0.4 mm in size), and shows a brecciated texture in part. Sphalerite is included in pyrite as hypidiomorphic grains (0.02 ~ 0.3 mm in size) or veinlets (< 0.03 mm in width). | |
| 22 | SR2-127a | do | Chalcopyrite-Pyrite-Pyrrhotite Ore. (do) | Chalcopyrite, pyrite and pyrrhotite occupy almost same amount associating lesser amount of sphalerite. Large pyrite grains (> 2 mm in size) enclosing hypidiomorphic sphalerite (0.02 ~ 0.2 mm in size) have been crushed intensely and replaced by chalcopyrite and pyrrhotite along fractures. Chalcopyrite and pyrrhotite are cut by veinlets (0.01 ~ 0.2 mm in width) of other ore minerals. Twining lamellae has developed in pyrrhotite. | see photograph |
| 23 | SR2-127b | do | Pyrrhotite-Pyrite Ore (do) | Ore minerals are pyrrhotite > pyrite > sphalerite > chalcopyrite. Many micro-fractures filled by chalcopyrite and pyrrhotite are developed in pyrite. The sequence of crystallization is pyrite + sphalerite > pyrrhotite + chalcopyrite. | see photograph |
| 24 | SR2-136 | Manambura Dep. | Chalcopyrite-Pyrite-Quartz Vein (Luminatio F.) | String-like or tabular shaped chalcopyrite encloses granular pyrite (2 mm in size), some of which have been replaced by chalcopyrite. A small amount of sphalerite are visible as partial rim of other minerals or as veinlets. | |
| 25 | SR2-148 | Mazon Dep. | Chalcopyrite-Pyrrhotite Ore (Ultramafic C.) | Component minerals, chalcopyrite = pyrrhotite > sphalerite > pyrite, are brecciated into smaller grains (0.01 ~ 2.0 mm in size). Pyrite in pyrrhotite-rich part is fractured intensely and replaced by pyrrhotite and sphalerite. Pyrite veinlets (0.03 ~ 0.2 mm in width) cut chalcopyrite. | brecciated ore |
| 26 | SR2-151 | Chialawood Dep. | Pyrrhotite Ore (Luminatio F.) | Most of the field consist of pyrrhotite and gangue mineral. Pyrrhotite encloses irregular shaped chalcopyrite (0.01 ~ 0.3 mm in size) and less sphalerite (< 0.1 mm in size). Very thin sphalerite veinlets (< 0.01 mm in width) can be seen in the gangue. | |
| 27 | SR2-154 | Banbanon Dep. | Pyrite Ore (Luminatio F.) | Fine grained pyrite aggregates (0.01 ~ 0.1 mm in size), showing a mosaic texture, occupy most of the section. Sphalerite and some copper minerals (chalcopyrite, bornite, chalcocite, covellite) fill intergranular spaces of pyrite. Covellite has replaced copper minerals. | |
| 28 | TR2-044 | Amnay R. | Pyrite-Sphalerite Ore (?) | Ore minerals consist of pyrite > sphalerite > chalcopyrite. Pyrite grains (0.02 ~ 0.6 mm in size) have an idiomorphic ~ hypidiomorphic form showing a mosaic texture. Irregular shaped sphalerite, chalcopyrite and quartz fill intergranular spaces of pyrite grains. | float |
| 29 | TR2-060 | San Vicente Dep. | Chromite Ore (Ultramafic C.) | Chromite crystals are idiomorphic (1 ~ 2 mm in size) and have many cracks (0.1 ~ 0.5 mm in width). A very few acicular crystals (< 0.01 mm in width) of magnetite, replaced by hematite mostly, are included in chromite. Two directions of shear fractures (0.01 ~ 0.03 mm in width) intersecting at an angle of 30° are developed. | massive ore |

| No. | Sample No. | Location | Name of Ore and Formation | Microscopic Observation | Remarks |
|-----|------------|-----------------|---|---|--|
| 30 | TR2-090 | Lasaia Dep. | Hematite-Magnetite Ore (Sablayan G.) | Ore minerals consist of hematite > magnetite > limonite. Hematite grains (0.1 ~ 0.6 mm in size) show pseudomorph of idiomorphic magnetite. Small grains of relict magnetite (< 0.05 mm in size) are scattered in Hematite. | banded ore |
| 31 | TR2-093 | Lasaia Dep. | Magnetite Ore (do) | Magnetite and hematite occur in almost the same amount. Magnetite has been replaced by hematite. Magnetite grains (0.005 ~ 0.05 mm in size) are also found in hematite. | see photograph massive ore float |
| 32 | TR2-096 | Lapa-Ao Dep. | Magnetite Ore (Mansalay F.) | Ore minerals consist of magnetite > hematite > limonite. Magnetite grains (0.05 ~ 0.5 mm in size) are xenomorphic and rich in cracks. Acicular or dendritic hematite has replaced magnetite along cracks. | |
| 33 | TR2-097 | do | Magnetite Ore (do) | Magnetite grains (0.1 ~ 0.5 mm in size) are composed of xenomorphic crystals showing a mosaic texture partly. Acicular hematite crystals replacing magnetite are rarely found. | |
| 34 | TR2-109 | Cobanga-on Dep. | Magnetite Ore (do) | Magnetite > hematite > limonite are component ore minerals. Hematite occurs in magnetite in the form of dot or needle, and also in silicate mineral as idiomorphic blade-like crystal (< 0.1 mm in length). Many fractures are formed by shearing. | massive ore |
| 35 | TR2-130a | Banis R. | Chromite Ore (Ultramafic C.) | The section consists mainly of xenomorphic chromite crystals (0.05 ~ 1.0 mm in size) with a cataclastic texture. A few coarse idiomorphic chromites have been rotated and crushed at crystal rim by shearing. Many shear fractures are developed and have broken crystals into aggregate of many fragments (< 0.12 mm in size). Very fine grains of pyrite and magnetite (< 0.02 mm in size) are rarely included. | see photograph massive ore |
| 36 | TR2-130b | do | Chromite Ore (do) | Chromite crystals (0.1 ~ 2.0 mm in size) are rounded and idiomorphic, and rich in fractures or cracks (0.01 ~ 0.05 mm in width) with a cataclastic texture. Aggregates of fine grained fragmental chromite (< 0.05 mm in size) are arranged parallel to the foliation of host rock. | spotted ore |
| 37 | TR2-152 | Dulangan R. | Pyrite-Chalcopyrite Ore (Halcon M.) | Irregular shaped pyrite (0.02 ~ 0.4 mm in size) > chalcopyrite (0.02 ~ 0.25 mm in size) grains are arranged almost parallel to the foliation of host rock. Many open spaces rimmed by pyrite suggest the mineralization after brecciation. | float |
| 38 | TR2-157 | do | Pyrite-Quartz (do) | Pyrite > sphalerite, chalcopyrite are in quartz separatedly. Smaller grains of pyrite (< 0.1 mm in size) are idiomorphic while larger ones (0.1 ~ 0.5 mm in size) are xenomorphic. A few grains of sphalerite (< 0.1 mm in size) and chalcopyrite (0.03 mm) are visible. | float |

(5)

| No. | Sample No. | Location | Name of Ore and Formation | Microscopic Observation | Remarks |
|-----|------------|----------|---------------------------------|---|-------------|
| 39 | YR2-037a | Main | Chromite Ore (Ultramafic C.) | The ore consists of euhedral chromite crystals with a weakly sheared texture. Many fractures or cracks (< 0.1 mm in width) are developed and have broken chromite crystals into fine-grained aggregate. | massive ore |
| 40 | YR2-037b | do | Chromite Ore (do) | Almost same as YR2-37b, but parallel fractures are more developed. | massive ore |

Table A-3 Result of Rb-Sr Dating

| Sample No. | Rock Name | Location | Rb (ppm) | Sr (ppm) | Rb/Sr | $^{87}\text{Rb}/^{86}\text{Sr}$ | $^{87}\text{Sr}/^{86}\text{Sr}$ |
|-------------------|---------------------------|--------------------------|----------|----------|-------|---------------------------------|---------------------------------|
| TR2-161 | muscovite schist | Puerto Galera | 150.4 | 54.5 | 2.76 | 7.98 | 0.71311 ± 0.00008 |
| YR2-112 | muscovite-chlorite schist | Catuiran River | 66.4 | 153.8 | 0.43 | 1.25 | 0.71667 ± 0.00008 |
| YR2-112 (mica) | muscovite | do | 117.9 | 84.5 | 1.40 | 4.04 | 0.71678 ± 0.00009 |
| TR2-046 | amphibolite | Tributary of Annay River | 10.0 | 144.5 | 0.07 | 0.20 | 0.70866 ± 0.00010 |
| TR2-047 | amphibolite | do | 36.7 | 155.8 | 0.24 | 0.68 | 0.70619 ± 0.00008 |
| YR2-077 | epidote amphibolite | Rosanna River | 4.61 | 178.6 | 0.03 | 0.075 | 0.70293 ± 0.00010 |

Remarks: The model age calculated for the sample YR2-112 is 2.8 million years, using the data generated from the mica separate and whole rock material.

Table A-4 Result of X-ray Diffractive Analysis

| Minerals | Sample No. | Location | Remarks | | | | | | | | | | | | | | | | | |
|------------|-----------------|----------|-----------------|----------------|----------|-----------|-----------|--------------|--------|----------|------|--------|---------|----------|---------------|-----------|--------|-----------|---------------|-----------|
| | | | Monimorillonite | Sericite/Mont. | Chlorite | Muscovite | Amphibole | Pyrophyllite | Albite | Feldspar | Talc | Garnet | Epidote | Diopside | Orthopyroxene | Aluminite | Pyrite | Magnetite | Chalcocpyrite | Magnetite |
| KR2 - 008 | Lumintao R. | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | do | do | do | do |
| KR2 - 014 | do | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| KR2 - 081 | Manila area | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| KR2 - 103 | Ogos R. | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| KR2 - 107 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| KR2 - 115 | do | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| SR2 - 095 | Napsian | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| SR2 - 106a | Naigan R. | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| SR2 - 106b | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| SR2 - 126 | Mason dep. | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| SR2 - 133 | Manamburao dep. | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| SR2 - 149 | Chialawood dep. | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 086 | Lasaka dep. | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 087 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 091 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 094 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 098 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 099 | do | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| TR2 - 200 | Puerto Galera | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| YR2 - 037b | Paluan R. | • | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Remarks : ○ : abundant ◎ : common • : rare

Table A-5 Inventory Table

(1)

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|--|--|-------------------|--------|---|--|--------------------|--|------------|--|--|---|
| 1* | Binaybay | 13°22'42"~24°36"N 120°54'24"~58'24"E Binaybay, Ori. Upstream of Binaybay R. | Gold | Placer | 10km along Binaybay R. | Fluvial dep. | Native Au | 0.5 ~ 1 g/man/day | - | Matrix filling the interstices between large boulders is rich in gold. Gold may come from the Halcon Metamorphics. | 30 mins ride from San Teodoro and 20 mins hike. | Ore reserve estimation is difficult because of its peculiar occurrence. |
| 2* | San Jose | 12°30'N, 121°07'E San Jose, Occ. Upstream of Labangan R. | Gold | Placer | 2km along Labangan R. | Fluvial dep | Native Au | 0.2 ~ 0.5 g/man/day | - | do | 30 mins ride from San Jose. A jeepable road leads to the panning site. | do |
| 3* | San Andres | 13°10'N, 121°05'E Naujan, Ori. Upstream of Bukayao R. | Copper | Vein | 3 outcrops within 3.5km w: No.1, 0.5~2.0m No.2, 1.0m No.3, 2.0m | Mica schist (Halcon M.) | Py-Cp-Po-Po-Qz | (BMG) Cu (RP-Japan) Layang R. 5.99% Dacdan Ck 1.86% W=0.10m Bukayao Grand Cu:0.15~0.37% R. 0.95~5.95% Bukayao Munt 4.69~9.92% | sil, py | Massive sulphide veins occur along schistosity | 3 hrs hike along river from Villacervesa | A detailed survey is needed to know the amount of reserve. |
| 4* | Mindoro Consol Mining Corp. (Masnon Dep.) | 13°01'15"N, 121°14'30"E Socorro, Ori. 25km W. of Pinamalayan | Copper | Vein | 4 outcrops in 50mx40m Massive sulphide lens w: 0.15~0.3m | Serpentized peridotite (Ultramafic complex) | Py-Cp-Po-Mc-Chl | (BMG) Cu (RP-Japan) O.C. No.1 2.95% 2 4.06% 3 4.38% 4 2.39%~2.77%(w=0.27m) | none | Massive sulphide lenses are developed along faults and sheared zone. | 1 hour ride from Pinamalayan to Pataubatu and 1.5 days hike by Pula R. | Three deposits are located in an area of 4kmx1km. Extension of each deposit has not yet been confirmed. |
| 4* | do (Manamburao dep.) | 13°01'20"N, 121°14'E do | Copper | Vein | 4 outcrops in 600m x 200m Qz. vein w: 0.2 ~ 2.2m | Basalt (Lumintao F.) | Py-Cp-Hm | (BMG) Cu (RP-Japan) O.C. No.5 0.38% 6 0.17%~2.21%(w=1.10m) 7 0.27% 8 11.41% 9 0.17%~2.12%(w=0.20m) | none | Sulphide veinlets and dissemination are in quartz vein | do | |
| 4* | do (Chialawood dep.) | 13°01'30"N, 121°15'E do | Copper | Vein | 2 outcrops 700m apart (1) sheared zone w: 0.2m (2) Qz. vein and massive sulphide lens w: 1.6m | Serpentized peridotite and Basalt (Lumintao F.) | Cp-Py Cp-Py-Po-Hm | (BMG) Cu (RP-Japan) O.C. No.10 10.20%~15.33%(w=0.15m) 11 1.39 Au 5.47g/t 12 2.35 | chl | (1) Chalcopyrite vein along sheared zone. (2) Massive sulphide lenses occur in hematite rich gossan. | do | |
| 5* | Zion Expl. Corp. | 13°00'N, 121°16'E Socorro, Ori. 22km W. of Pinamalayan | Copper | Vein | (1) Massive sulphide lens w: 0.1 ~ 0.3m (2) Qz. lens w: 0.5m | Serpentized peridotite, basalt and slate (Lumintao F.) | Po-Py-Cp-Qz | Cu: 0.49% Cu: 0.42% | none | Massive sulphide lenses occur in peridotite, and Qz lenses with Py and Cp dissemination, in volcanics and sediments. | 4 hrs hike from Pataubatu to Banbanon Ck., a branch of Mayo R. | small scale? |
| 6 | Acliang & Pajo | 12°45'N, 121°15'30"E Bongabong, Ori. Middle courses of Bongabong R. | Copper | Vein | ? | Ser-Chl-Amph-schist (Halcon M.) | Cp-Po-Py | N.D. | ? | Sulphide veins and stringers are along the schistosity. Py and Cp disseminate in biotite quartz diorite. | 1 hr ride from Bongabong bridge and a half day hike in the river. | Ore floats were collected but showing has not been checked by the survey team. |
| 7 | Balao | 13°24'~25'N, 120°45'E Abra de Illog, Occ. 5~6km SE of Abra de Illog | Copper | Vein | w: 0.02 ~ 0.2m | Hb-diorite | Py-Cp | Au: 1.0 g/T Cu: 0.14 ~ 0.18% | ? | Py and rare Cp are in Qz veinlets and stringers. Green hornfels and garnet skarn are produced around diorite body. | ? | |
| 8 | Buraboy | 12°59'27"N, 121°07'24"E Sablayan, Occ. Upstream of Magasawangtubig R. | Copper | Vein | w: 0.2m Mineralized zone: 2m | Ser. schist (Halcon M.) | Py-Cp-Qz | N.D. | ? | Mineralization along schistosity | ? | |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|---------------------------------------|---|-------------------|----------------|--|---|------------------------|---|------------|--|---|--|
| 9 | Amico Copper Co. | 12°28'N, 121°11'E San Jose, Occ. 5.7km E of Hagdaman Peak. | Copper | Vein | Very small | Interbedded sandstone, silty shale and mudstone (Sablayan G.) | Py-Cp | Cu: 0.04 ~ 0.05% | ? | Sulphide veinlets, pockets and dissemination in the calcareous concretions in the shale. | ? | Outcrops could not be found. |
| 10 | Blueridge Mining Corp. | 12°49'30"N, 121°17'30"E Bongabong & Bansud Ori. 1.8km WSW of Bansud | Nickel | Residual | ? | Ultramafic complex | Nickeliferous laterite | Geochemical samples Ni: 0.80~2.95% | serp. | Secondary enrichment of Ni (and Co) in the ultramafic rocks. | ? | |
| 11* | Victoria Mineral and Industrial Corp. | 13°25'N, 120°30'E Paluan, Occ. 4km E of Paluan | Chromite Nickel | Residual | Laterite thickness av. 1m (0.24% Ni) | Serpentinite (Ultramafic complex) | Cr. | (RP-Japan) Stockpile Cr : 30.71% Ni : 0.07% | serp. | Chromite floats of cobble ~boulder size are in the laterite soil. | 30 mins hike from the Mamburao-Paluan highway | Outcrops could not be found, small scale? |
| 12* | San Vicente | 13°24'N, 120°40'E Abra de Illog, Occ. 8km SW of Abra de Illog. | Chromite | Ortho-magnetic | Small lens (5~6 bodies) maximum size L: 3m, W: 0.1~0.5m Horizontal extension is more than 30m judging from distribution of outcrop and floats. | Harzburgite (Ultramafic complex) | Cr. | (RP-Japan) Cr ₂ O ₃ : 29.11% Al ₂ O ₃ : 19.99% | serp. | Ore bodies occur in sheared zone of harzburgite, trending N60 ~65 E with 70S~75N dip. Ore is massive and rich in almina. | 10 mins ride and 20 mins hike from the Mamburao-Abra de Illog highway | stock-pile 3T and floats 8T, 9 trenches Ore reserve may not exceed 100T. |
| 13 | Igoso | 13°17'N, 120°30'E Igoso, Occ. 12km NW of Mombulao | Nickel | Residual | very small | Ultramafic complex | Nickeliferous laterite | N.D. | serp. | Secondary enrichment of Ni in the ultramafic rocks. | 0.5km hike from the Mamburao-Paluan highway | No information could be gotten. |
| 14* | Aglubang | 13°05'N, 121°09'E Sablayan Occ. Near Villacervesa | Nickel | Residual | Ore reserve: 49 MT, (0.94% Ni) Thickness: 3~11m (av. 5.5m) | Ultramafic complex | Nickeliferous laterite | Ni: 0.94% (RP-Japan) check samples 0.46% | serp. | Laterite covers almost all the slope and floats of the ultramafic rocks. | 30 mins hike from Villacervesa. | Explored by Anglo Philippine Oil Corp, Eagle Pass & Aglubang prospect are included in this area. |
| 15 | Barabon | 13°04'N, 120°45'30"E Sta Cruz, Occ. 3km E of Sta Cruz. | Chromite | Ortho-magnetic | Lenticular W: 0.3 ~ 0.8m L: ? | Ultramafic complex | Cr. | N.D. | serp. | Chromite deposit occurs along thrust faults in the ultramafic rocks in the shape of pad and lens with steep dip. | 10 mins ride from Sta Cruz. | Outcrops could not be found, very small ? |
| 16* | Paragpagan | 13°03'N, 120°50'E Sta Cruz, Occ. 12km E of Sta Cruz | Nickel | Residual | L: 1400m W: 800m Thickness: 0.3~6.0m | Harzburgite (Ultramafic complex) | Nickeliferous laterite | (BMG and others) Laterite Ni: 0.82% Laterite sand Ni: 0.79% (RP-Japan) 2.66% 1.82% | serp. | Secondary enrichment of Ni in the ultramafic rocks | 1 hr hike from the Sablayan-Mamburao highway. | Ore reserve: 4~5MT |
| 17* | Sibakoy | 12°57'30"N, 120°58'E Sablayan, Occ. 25km NE of Sablayan | Chromite | Ortho-magnetic | Float | Lherzolite (Ultramafic complex) | Cr | High grade ore float | ? | Not clear | 1 hr ride along Rayusan R. from Sablayan and 6 hrs hike | Outcrops could not be found. |
| 18 | Baletero | 13°29'N, 120°56'E Puerto Galera, Ori. 2.5km SW of Puerto Galera | Iron | Contact | Thickness: 2m | Schist, Marble (Halcon M.) | Mt-Hn-Spec-Mn | N.D. | ? | Iron body, paralleled to the schistosity, is formed by replacement of marble in the schist. | ? | No information on the deposit could be collected. |
| 19 | Batalong Bato | 13°28'21"N, 120°55'30"E Puerto Galera, Ori. 4km SW of Puerto Galera | Iron | Contact | Thin layer of Mt. Floats Ø max. 1m | Marble (Halcon M.) | Mt. | N.D. | ? | Floating are in limited amount. | ? | do |
| 20 | Savoran | 13°27'N, 120°54'47"E Puerto Galera, Ori. 8km SW of Puerto Galera | Iron | Contact | No.1 W: 1.0m No.2 W: 0.01m | Mica schist (Halcon M.) | Hm-Mt-Lm-Mn | N.D. | ? | Ore bodies tend to parallel to the schistosity. | ? | do |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrences | Accessibility | Remarks | |
|-----|-----------------------------|--|-------------------|---------------------|--|--|--------------------|--|----------------------------|---|--|--|--|
| 21 | Binaybay | 13°21'24"N, 121°00'E Binaybay Baco, Ori. 12km W of Baco | Iron | Contact | Floats (max. 1.5m in size) localized in 15mx15m | Schist and marble (Halcon M.) | Hm-Mt | Fe: 61.19% | skarn | Floats or blocky concentration An adit exploration suggests the block concentration was connected to an ore body underneath. | ? | No information were collected in Binaybay. | |
| 22 | Tibano | 13°21'00"N, 120°54'24"E Mamburao, Ori Upstream of Malaylay R. | Iron | Contact | Massive iron blocks: W: 8m Floats: av. 1m in 1500x50m | Skarn (Halcon M.) | Mt-Py-Mn | Fe: 66.74% | skarn | Iron deposit occurs in skarn at the contact between meta quartz diorite and schist. | ? | | |
| 23 | Bulos | 13°20'N, 120°51'08"E Puerto Galera, Ori. Upstream of Malaylay R. | Iron | Contact | Iron block: av. 1.5m | Marble, (Sablayan G.) | Mt-Hm | N.D. | ? | Iron block | ? | | |
| 24 | Lagnas | 13°19'21"N, 120°52'30"E Puerto Galera, Ori. Upstream of Malaylay R. | Iron | Vein, Dissemination | Extention: 1,300m | Basalt, Phyllite (Sablayan G.) | Mt-Hm | Fe: 30~53% | skarn | Four ore bodies crop out probably along a pre-ore fault of a N70W direction, which has controlled mineralization in this area. | ? | | |
| 25 | Dayap | 13°16'40"N, 120°49'36"E Mamburao, Ori. Upstream of Pagbahanan R. | Iron | Contact | Outcrop, Thickness No.1=6m No.2=8m No.3=70m | Schist, Skarn (Halcon M.) | Mt-Py | (BMC) Fe: 67.37% | (RP-Japan) Float 50.48% | skarn | The biggest ore body (No.3) is composed of five layers of Mt-skarn. | 3 hrs ride along Pagbahanan R. in dry season and 4 hrs hike. | |
| 26 | Camarong | 13°27'38"N, 120°50'30"E Abra de Illog, Occ. Camarong R. | Iron | Contact | Iron blocks (ϕ 1.5m) are concentrated along a 2.5m length | Xenolith of Limestone in gneiss (Halcon M.) | Mt-Py | Fe: 49.21% | ? | Iron floats are found along on N80E direction on the southern slope. | ? | No information was obtained. | |
| 27 | Barayao | 13°24'12"N, 120°48'58"E Abra de Illog, Occ. Head water of Obala R. | Iron | Contact | L: 5m W: 15m | Marble, Gneiss Schist (Halcon M.) | Mt | N.D. | skarn | Similar to Dayap (25). Mt veins and pockets in garnet-epidote skarn, which is developed near the contact between gneiss and schist. | ? | | |
| 28 | Little Baguio | 13°22'13"N, 120°49'18"E Abra de Illog, Occ. 15km SE of Abra de Illog | Iron | Contact | 2 float areas: No.1 Cobble size Mt in a small scale No.2 Iron blocks (ϕ 1m) | Marble, (Sablayan G.) | Mt-Hm | N.D. | skarn | The deposit is composed of two float areas. Several tunnels were drivn. | ? | | |
| 29* | Nagsabongan | 13°22'12"N, 120°48'36"E Abra de Illog, Occ. Headwater of Mamburao R. | Iron | Contact | Extention: L: 200m+ Thickness Upper, W: 20m+ Lower, W: 50m+ | Marble, (Sablayan G.) | Mt-Hm | Shipping grade >60% Fe (RP-Japan) No.1 O.C. Fe: 61.36% No.2 O.C. Fe: 60.82% | skarn | There are two outcrops. Bedded (?) in Ringstone striking N60 E with 40° N dip. | 2 days hike from Abra de Illog by trail or from Cabacao by Mamburao R. | Ore reserve is over 1MT. Elizalde Co. explored by means of dip needle, trench and drilling. No record has remained. | |
| 30* | Lasala | 13°21'N, 120°47'E Abra de Illog, Occ. Upstream of Mamburao R. | Iron | Contact | Extention: Ore outcrops and floats are chiefly observed in an area of 130m(EW)x 100m(NS). | Marble, Skarn (Sablayan G.) | Hm-Mt-Py-Cp | (RP-Japan) Banded Fe: 28.23% Massive Fe: 49.09% | skarn | The deposits occur under the river bed on the western slope where epidote skarn is developed. | do | Ore reserve is hard to estimate because of poor exposure. Mayorga Miniga Corp. explored by dip needle, pit (2), trench (22), tunnel (2) and diamond drilling. | |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|-----------------------------|--|-------------------|-----------|--|--|--------------------|--|------------|--|---|---|
| 31 | Aglobogon | 13°20'25"N, 120°49'E Abra de Ilog, Occ. Headwater of Malaylay R. | Iron | Contact | Unknown | Marble, Phyllite (Sablayan G.) | Hm-Mt | N.D. | skarn | Mt has replaced marble along bedding planes as a lens. | ? | |
| 32* | Lapa-ao | 13°18'54"N, 120°47'E Abra de Ilog, Occ. Upstream of Mamburao R. | Iron | Contact | L: 350m+ Thickness: 44m, 46m, 28m (3 layers) | Limestone, Dolostone Phyllite (Mansalay F.) | Mt | (RP-Japan) No.1 O.C. Fe: 52.77% No.2 O.C. 54.00% | skarn | Ore bodies are probably stratiformed, trending N50W, 60S. The ore always contains a little amount of skarn, often showing a banded structure. Ore bodies are covered by the Sablayan limestone. | Two days going up along Mamburao River from Cabacao. | Reserve is over 10MT, when it continues 100m towards depth. |
| 33* | Taoga (Filhispano Inc.) | 12°37'30"N, 121°19'45"E Mansalay, Ori. 18km NW of Mansalay | Barite | Vein | Outcrops No.1 W: 0.50m No.2 W: 1.20m | Sandstone (Mansalay F.) | Ba-Py-Qz | (RP-Japan) BaSO ₄ : 83.79% | py, sil | Barite veins trend N45E~N120E with a dip of 55~70S. | A logging road of 80km from Mansalay reaches the mine site. | Reserve may be some thousands ton. |
| 34 | Wigan | 12°33'N, 121°25'E Mansalay, Ori. 4km NW of Mansalay | Barite | Vein | Outcrop: 10x15m | Sandstone (Mansalay F.) | Ba | N.D. | ? | Barite is exposed in several pits from 0.5–1.0m deep. Floats (φ: few cm) are scattered around the ridge. | ? | |
| 35* | Mansalay Mining Corp. | 12°31'43"~12°33'29"N 121°21'03"~121°24'08"E Mansalay, Ori. 7km WNW of Mansalay | Barite | Vein | W: 1.2~1.9m H: 3m L: 17.5m | Sedimentary rock (Mansalay F.) | Ba | N.D. | py, chl | The vein striking N50W dipping 78S. | 30 mins hike from logging road. | SE extension of the vein is recommended to be checked. |
| 36* | Mansiol point | 12°28'30"N, 121°25'45"E Mansalay, Ori. 6km SSW of Mansalay | Barite | Vein | W: 1.6m (Max.) L: 90m (Float zone) | Sandstone (Mansalay F.) | Ba | N.D. | none | Barite floats are scattered in a N 25E direction. | 20 mins hike from the Bulalacao –Mansalay highway. | Reserve is probably 1~2x10 ⁴ T above sea level. |
| 37 | Ligwayan | 13°26'41"N, 120°54'31"E Puerto Galera, Ori. 8.5km SSW of Puerto Galera. | Feldspar | Dike Sill | Outcrops: No.1, L: 25~30m No.2, L: 8, H: 1.5m No.3, W: 1.5m | Gneiss, schist (Halcon M.) | Fd-Clay | N.D. | ? | Deposit is composed of friable feldspar, clay or quartz-feldspathic schist. | ? | |
| 38 | Wawa | 13°27'35"~28'07"N 120°36'06"~37'03"E Abra de Ilog, Occ. 12km WNW of Abra de Ilog. | Talc | Lens | No importance | Talc schist in serpentinite (Halcon M.) | Tc | N.D. | ? | Talc schist are discontinuous lenses in serpentinite. | ? | |
| 39 | Metropolitan Mining Corp. | 13°27'30"~13°29'N 120°48"~120°49"E Abra de Ilog, Occ. 12km WNW of Abra de Ilog. | Talc | ? | ? | Marble Schist (Halcon M.) | Te-Cal | N.D. | ? | Talc may have been contamination from the interlayered schist and/or developed in the marble. stockpile : 130T | ? | |
| 40 | Amico Copper Co. | 12°28'N, 121°11'E San Jose, Occ. 19km NE of San Jose | Gypsum | Vein | Very small W: 1~10mm | Calcareous sediments (Sablayan G.) | Gy | N.D. | ? | Selenite appears to represent minute bedding planes and fracture fillings in the sediments. | ? | |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|------------------------------------|--|----------------------------------|------------|--|--|--------------------|--|------------|---|--|---|
| 41 | Allitaytayan | 13°26'30"N, 121°09'E San Jose, Occ. 13.5km NE of San Jose | Gypsum | Vein | Very small | Shale (Sablayan G.) | Gy | N.D. | ? | Thin veins of selenite disperse in the weathered shale. | 30 mins ride and 3km's hike from San Jose | No information was obtained. |
| 42* | Mansalay Mining Corp. | 12°31'43"~33'29"N 121°21'03"~24'08"E Mansalay, Ori. 7km WNW of Mansalay | Silica | Bedded | Outcrops: No.1 W: 1~3m 400ha No.2 W: 1~2m, L: 200m No.3 W: 2.5m, L: 15m | Arkose (Mansalay F.) | Qz | Average of 16 samples SiO ₂ : 74.5~86.8% | none | Bedded arkose bed in the Mansalay F. | Near the logging road to Taoga Brite mine. | As arkose is highly indurated, a study on quartz grain separation is needed from the technical and economical points of view. |
| 43* | Falcon Mineral Inc. | 12°33'N, 121°25'N Mansalay, Ori. 3km NW of Mansalay | Silica | Bedded | H: 20m+, | Arkose (Mansalay F.) | Qz | (RP-Japan) Refined stockpile SiO ₂ : 82.40% | none | do | 30 mins ride from Mansalay | |
| 44* | Mananao | 13°30'20"N, 120°35'E Paluan, Occ. 14km NE of Paluan | Gravita, (construction material) | Beach sand | L: 1km W: 20m H: 0.3m | Metamorphic rocks, segregated quartz (Halcon M.) | Qz, rock gravel | — | none | The beach sand is composed of quartz, mica schist, phyllite and green schist. | 1.5 hrs from Wawa by boat. | Gravita and quartz gravel are being collected by sieve and hand picking. |
| 45* | Maria Cristina Chemical Industries | 13°29'30"N, 120°39'40"E Abra de Illog, Occ. 8km NW of Abra de Illog. | Silica | Beach sand | L: 1.2km, W: 20m H: 0.3m Positive reserve: 3,600T | Metamorphic rocks, segregated quartz (Halcon M.) | Qz | Qz± 20% | none | Deposits consist of Qz-sand, pebble, cobble and boulders. | 0.5 hr from Wawa by boat. | do |
| 46* | Mamburao | 13°15'N, 120°37'22"E Mamburao, Occ. 4km NE of Mamburao | Silica | Beach sand | 1km along the beach | — | Qz | Qz < 30% | none | The beach sand is composed of Qz, Sh, Hb, Chl, Mt, Serp. fragments in the order of abundance. | Near Mamburao | Study is needed from an economic point of view. |
| 47* | Barahan | 13°01'N, 120°46'E Sta Cruz, Occ. 7.5km SSE of sta cruz. | Silica | Beach sand | 2~3km along the beach. | — | Qz | Qz± 40% | none | Components are Qz± slate > green rock (10%) > basalt > mica schist > Mt. Grain size of sand is getting bigger toward depth. | A jeepable road is leading to this place. | |
| 48* | Marblecraft | 13°29'N, 120°55'E Puerto Galera, Ori. 5km SW of Puerto Galera | Marble | Bedded | L: 2km+(E-W) Thickness: 200m± | Pelitic schist (Halcon M.) | Marble | Good Quality | recrust. | Marble occurs in pelitic schist, striking E-W, dipping 0~20 N. | There is a truck road of about 10km long from Puerto Galera to mine site. | Marble craft Inc. reopened operation in April, 1983 Workers: 16 men |
| 49* | Dulangan | 13°28'N, 120°58'E Dulangan, Ori. 1km W of Dulangan | Marble | Bedded | Reserve: 110MT (provincial data, 1981) | Schist (Halcon M.) | Marble | Good Quality | recrust. | Marble are interbeded in green schist and mica schist. | Near the highway | Operating: 2m ³ /day |
| 50* | Mente Cristy Mining Co. | 13°14'N, 120°49'E Mamburao, Occ. Upstream of Pagbahan R. | Jade | Vein | W: 2m | Limestone (Mansalay F.) | Jade | Good Quality | ser. | Champion jade vein with 2m wide occurs in limestone. All in all, there are 7 parallel veins, but others are in a low grade or on a small scale. | From the Sablayan-Mamburao highway 1.5hrs ride along Pagbahan River in the dry season. | Operating Workers: 30 men stock pile: about 10T |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|-----------------------------|---|-------------------|----------------|---|---|--------------------|--|------------|---|---|--|
| 51* | Napisan Bulalacao | 12°22'38"N, 121°18'03"E Bulalacao, Ori. 9km NW of Bulalacao | Coal | Bedded | Thickness: 0.4~2.5m+ coal seams with 0.25m thick are 4. Reserve: 6,776,000T | Sandstone, shale (Sablayan G.) | Coal | (RP-Japan) Samples taken from 3 outcrops show 11,587~12,652 BTU/lb, corresponding to high volatile C bituminous coal. | none | Coal measures consist of a heterogeneous succession of clastic materials, at least 10 coals and few impure limestone, shales and clay. | Near the Bulalacao— Mansalay highway | Recently explored by BMG and CDCP. Some problems on the development may exist such as, (1) poor quality (2) steeply inclined (3) folded |
| 52* | Siay Bulalacao | 12°21'57"N, 121°21'40"E Bulalacao, Ori. 5km NE of Bulalacao | Coal | Bedded | Thickness: 1.4m, 1.0m 0.2m, 0.2m Reserve: 460,000T | Sandstone, shale (Sablayan G.) | Coal | (RP-Japan) Two samples show 11,447 and 12,814 BTU/lb. (subbituminous -B, High-volatile C bituminous) | none | Seven or more coal seams with a 10cm+ thickness may present. 1 seam in Siay and 1 seam in Tambangan occur in mudstone or siltstone. | 20 mins ride and 30 mins hike from the above highway | Same problems as above are considered. |
| 53* | Alitaytayan | 12°26'30"N, 121°09'E San Jose, Occ. 13.5km NW of San Jose | Coal | Bedded | 2 seams : upper: 0.6m thick lower: 1.05m thick, 18m extention | Sandstone, carbonaceous shale (Sablayan G.) | Coal | (RP-Japan) 12,624 BTU/lb (High-volatile C bituminous) | none | Two seams occur in interbeds of sandstone and carbonaceous silty sediments. | 30 mins ride and 3km hike from San Jose | Small scale ? |
| 54* | Mariti | 13°26'N, 121°31'E Paluan, Occ. 5km NE of Paluan | Chromite | Ortho-magmatic | 0.7mx0.7m | Serpentinite | Cr. | (RP-Japan) Cr_2O_3 : 40.31% | serp. | Massive ore deposit in small ultramafic (serpentinite) body. | 30 mins ride and 1hr hike from Paluan | Small scale ? |
| 55* | Mariil | 13°24'15"N, 120°28'45"E Paluan, Occ. 3km SE of Paluan | Chromite | Ortho-magmatic | Unknown (three ore deposits) | harzburgite ≥ dunite gabbro, microdiorite A scale of Ultramafic complex is 2.5km(E-W) x1.5km(N-S) | Cr. | (RP-Japan) Stockpile Cr_2O_3 : 50.50% 45.82% Float Cr_2O_3 : 48.93% | serp. | Not clear. The chromite ore is found as a gravel or breccia (cobble ~ pebble size) along the creek. | 20 mins ride and 20 min hike from Paluan. | Stockpile : 2T Small scale ? |
| 56* | Igoso | 13°16'45"N, 120°30'30"E Igoso, Occ. 10km NW of Mamburao | Chromite | Ortho-magmatic | No.1: 0.4x1.9x6.0m No.2: unknown | Dunite A scale of ultra. body is 2.5km (NE-SW)x 20km(NW-SE) | Cr. | (RP-Japan) massive Cr_2O_3 : 43.00% banded Cr_2O_3 : 34.14%, 38.85% | serp. | Layered, disseminated and massive. | 30 mins hike the Paluan— Mamburao highway | Pit, Trench: 23 stock pile (No.2 outcrop): 10T Some extension and new deposits can be expected. |
| 57* | Liw liw | 13°12'30"N, 120°40'45"E Mamburao, Occ. 8.5km E of Mamburao | Chromite | Ortho-magmatic | Four outcrops: No.1, 0.1~0.2x3.0x1.5m 15T No.2, 0.1x2.0x8m No.3, 0.1~0.4x3.0x12m 5T No.4, 0.05x1.0x5m | Harzburgite A scale of ultra. body is 8km(EW)x 1~3km(N-S) | Cr. | (RP-Japan) Stockpile (massive) Cr_2O_3 : 40.31%, 36.50% | serp. | Layered and massive probably removed by shear, occurring in harzburgite near the boundary of dunite. Disseminated and massive. | 30 mins ride and 10 mins hike from Mamburao | Stockpile: 20T Geochemical anomaly was obtained on the east side. |
| 58* | Pintin | 12°58'30"N, 120°53'E Sta Cruz, Occ. 19km SE of Sta Cruz | Chromite | Ortho-magmatic | Unknown | Harzburgite A scale of ultra. body is 40km(N-S)x 9km (E-W) | Cr. | (RP-Japan) floats (massive) Cr_2O_3 : 50.03% 53.55% | serp. | Not clear. The chromite ore is found as a breccia (float) in the laterite soil. | 1hr ride and 1hr hike from Sablayan. | Stock pile: 10T Geochemical anomaly occur in the eastern part of ultra. body |
| 59* | Ogos | 13°04'30"N, 121°06'30"E Sta Cruz, Occ. 29km W of Pinamalayan. | Chromite | Ortho-magmatic | Thickness: 4.9m | Dunite A scale of ultra. body is 22km (E-W) x10km (N-S) | Cr. | (RP-Japan) Margin (disseminated) Cr_2O_3 : 29.99% Middle (dis~dense) 31.39% Center (dense spotted) 28.28% Top (weathered sandy) 37.05% | serp. | Layered, massive and disseminated ore | 1 day hike along the Ogos River from Villacveresa. | Horizontal extension and new ore deposits can be much expected. |

| No. | Name of Deposit or Prospect | Location | Mineral Commodity | Type | Extension | Host Rock | Mineral Assemblage | Ore Grade | Alteration | Occurrence | Accessibility | Remarks |
|-----|-----------------------------|---|-------------------|----------------|--|---|--------------------|---|---------------|--|--|--|
| 60* | Banus | 12°52'24"N, 121°16'48"E Bongabong, Orl. 26km NW of Bongabong. | Chromite | Ortho-magmatic | L: 2m+ W: 0.5m+(total) | Harzburgite (Ultramafic complex) | Cr. | (RP-Japan) massive Cr_2O_3 : 34.50% disseminated Cr_2O_3 : 27.08% | serp. | The ore occurs in sheared zone in harzburgite. The sheared zone is striking N30E and dipping 20S. The ore consists of massive and disseminated ore with a lenticular form. | 22km by logging truck and 4km on foot from Bulbongan, 4km N of Bansud. | Heavy mineral distribution indicates high potential for other new chromite deposits. |
| 61* | Ak Ak | 13°01'15"N, 120°48'E Abra de Illog, Occ. 14km SE of Abra de Illog. | Iron | Contact | L: 10m W: 5m | Limestone (Sablayan G.) | Mt | Outcrop (massive) Fe: 51.55% | skarn | Bedded ? in limestone (N40W, 20S) | 2 days hike along trail from Abra de Illog or along Mamburao River from Cabacao. | Small scale |
| 62* | Tiraea | 13°21'50"N, 120°49'E Abra de Illog, Occ. 15km SE of Abra de Illog | Iron | Contact | L: 7m W: 5m | Limestone (Sablayan G.) | Mt | (RP-Japan) Float (massive) Fe: 59.73% | skarn (weak) | Bedded, striking N50E, dipping 70E | 3 days hike from Abra de Illog or Cabacao. | Trenching: 7m small scale |
| 63* | Cobanga-on | 12°19'25"N, 120°47'30"E Abra de Illog, Occ. Upstream of Mamburao R. | Iron | Contact | Small lenses (7 bodies) maximum size L: 3m W: 2m max float is 7x7x2m in size | Marble, phyllite green phyllite (Mansalay F.) Diorite | Mt, Hm(Cp) | (RP-Japan) Fe=55.36% | skarn | The deposit consists of many small lenticular ore bodies and occurs in limestone lens-bearing green phyllite. | Two days going up along Mamburao river from Cabacao. | Reserve may be small because limestone is poorly developed in this area. |
| 64* | Aglubang | 12°59'25"N, 121°10'E Sablayan, Occ. 35km W of Pinamalayan | Copper | Bedded ? | Floated (7 pcs.) max. 3x2x1m in size. | Phyllitic schist? | Py-(Cp)-Qz | (RP-Japan) Float (massive) Cu : 0.40% Pb : 0.71% Zn : 8.52% | Strata-bound? | 1 day hike along Aglubang River from Villacervesa. | New bedded cupriferous pyrite deposits can be expected. | |
| 65* | Polela | 12°23'N, 121°20'45"E Bulalakao, Orl. 6km N of Bulalakao | Gypsum | Vein | W: 1~2cm L: < 5m ? | Siltstone (Sablayan G.) | Gy | N.D. | none | Fissure-filling | Near the Mansalay-Bulalakao highway | Very small scale |

* : checked deposits or prospects in Phase I or II

Abbreviation : Cp : Chalcopyrite, Py : Pyrite, Po : Pyrrhotite, Bo : Bornite, Cc : Chalcocite, Mc : Marcasite, Cr : Chromite, Mt : Magnetite, Hm : Hematite, Spec : Specularite, Lm : Limonite, Chl : Chlorite, Epi : Epidote, Qz : Quartz, Hb : Hornblende, Ser : Sericite, Mn : Manganese, Tc : Talc, Gy : Gypsum, sil : Silification, py : Pyritization, serp : Serpentization, O.C. : Outcrop, N.D. : No Data