

MINERAL RESOURCES OF BICOL REGION*

| PROVINCE/MUNICIPALITY BARANGAY | MINERAL COMMODITY | ESTIMATED RESERVES (In MT) | GRADE ANALYSIS |
|---------------------------------------|--------------------------------|---|---|
| CAMARINES SUR | | | |
| 1. LAGONOY | | | |
| Himagtokon | Chromite | 117,000 | 46%Cr ₂ O ₃ |
| | | (Total Reserve) | |
| Guinyangan, Manamo | Marble | 42,000,000 | |
| San Sebastian | Marble | 417,627 cu.m. mineable reserve 2,784,180 cu.m. geologic reserve | |
| Sitio Bongabong, Mipid | Iron | 300,000 | 56% Fe |
| Lagonoy (and Presentacion) | Pyrite | 5,000 | 26% FeS ₂ |
| 2. PRESENTACION | | | |
| Bulalacao | Marble | 57,828,400 cu.m. | 39.72% LOI, 6.36% SiO ₂ , 2.46% Al ₂ O ₃ , 1.45% Fe ₂ O ₃ , 50.58% CaO |
| Maangas | Marble | | See Adiangao, San Jose; Deposit contained in Maangas-Adiangao Area |
| Presentation (and Lagonoy) | Pyrite | | same deposit as in Lagonoy |
| 3. SAN JOSE | | | |
| Adiangao | Marble | 26,387,225 cu.m. geologic reserve 3,958,083 cu.m. mineable reserve | 27.60% LOI, 28.78% SiO ₂ , 4.51% Al ₂ O ₃ , 2.17% Fe ₂ O ₃ , 34.97% CaO |
| 4. SIRUMA | | | |
| Fundado La Purisima Mabuhay | White Clay (Siliceous Clay) | 99,049,239 | 2.90% LOI, 84.00% SiO ₂ , 9.57% Al ₂ O ₃ , 0.84% Fe ₂ O ₃ , 0.65% CaO, 0.80% MgO, 0.61% H ₂ O |
| Babuan | Manganese | 20,000 | 45.00% Mn |
| Fundado, Bahao | White Clay (Siliceous Clay) | 750,000 | 92.98%SiO ₂ , 1.50% Al ₂ O ₃ ,0.05-0.10% Fe ₂ O ₃ , 0.10-0.25% MgO,0.03- 0.08% CaO |
| 5. LIBMANAN | | | |
| Odoc Bical Sigamot Loba Loba | Limestone | 423,722,079 | 41.27% LOI, 1.26% SiO ₂ , 1.76% Al ₂ O ₃ , 0.63% Fe ₂ O ₃ , 52.63% CaO, 0.94% MgO, 0.71% H ₂ O |
| Poctol, Pag-Uring Nuevo | Guano | 852 | 1.16% P ₂ O ₅ ,0.21% N, 0.46% K ₂ O |
| | Phosphate Rock | 1,055 | 32.08% P ₂ O ₅ ,0.09% N, 0.39% K ₂ O |
| Sibuho | Guano | 100 | 12.60% P ₂ O ₅ ,0.01% N, 0.39% K ₂ O |
| Purikot | Guano | 32 | 24.43% P ₂ O ₅ ,0.34% N, 0.37% K ₂ O |
| Mambulo Nuevo | Guano | 53 | 35.57% P ₂ O ₅ ,0.12% N, 1.41% K ₂ O |
| Odoc | Guano | 73 | 19.88% P ₂ O ₅ ,0.13% N, 0.23% K ₂ O |

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| Duang Niog | Guano | 23 | 7.93% P ₂ O ₅ , 0.06% N, 0.38% K ₂ O |
| Busak | Guano | 20 | 15.58% P ₂ O ₅ , 0.47% N, 0.43% K ₂ O |
| | Phosphate Rock | 9 | 26.76% P ₂ O ₅ , 0.40% N, 0.28% K ₂ O |
| Tumanan | Guano | 6,404 | 13.27% P ₂ O ₅ , 0.30% N, 0.25% K ₂ O |
| | Phosphate Rock | 68,098 | 30.65% P ₂ O ₅ , 0.15% N, 0.54% K ₂ O |
| Umararan, Loba-Loba | Guano | 175 | 8.47% P ₂ O ₅ , 0.32% N, 0.06% K ₂ O |
| 6. PASACAO | | | |
| Ligua, Caranan | Guano | 638 | 10.70% P ₂ O ₅ , 0.09% N, 0.32% K ₂ O |
| Bahay | Guano | 43 | 16.69% P ₂ O ₅ , 0.68% N, 2.14% K ₂ O |
| | Rock Phosphate | 15 | 27.95% P ₂ O ₅ , 0.30% N, 1.45% K ₂ O |
| 7. LUPI | | | |
| Bangangan, San Isidro | Guano | 143 | 17.15% P ₂ O ₅ , 0.56% N, 0.86% K ₂ O |
| | Rock Phosphate | 195 | 35.61% P ₂ O ₅ , 0.19% N, 0.18% K ₂ O |
| 8. SIPOCOT | | | |
| Gaongan | Rock Phosphate | 9 | 21.86% P ₂ O ₅ , 0.15% N, 0.24% K ₂ O |
| 9. RAGAY | | | |
| Banga Caves | Guano | 12 | 18.13% P ₂ O ₅ , 0.20% N, 0.99% K ₂ O |
| Agrupacion | Guano | 90 | 16.81% P ₂ O ₅ , 0.26% N, 0.73% K ₂ O |
| | Rock Phosphate | 54 | 34.18% P ₂ O ₅ , 0.26% N |
| 10. SAN FERNANDO | | | |
| Banao, Tagpucol | Guano | 3,148 | 16.81% P ₂ O ₅ , 0.26% N, 0.73% K ₂ O |
| | Rock Phosphate | 1,561 | 34.18% P ₂ O ₅ , 0.26% N |
| 11. BALATAN | | | |
| Laganac | Cement raw materials | 2,812,374,949 | Limestone |
| Napayong | Cement raw materials | 62,400 cu.m. | Gypsum |
| Pulang-daga | Cement raw materials | 189,800,000 | Mudstone/ sandstone |
| Cabanbanan | Cement raw materials | 390,000,000 | Calcareous Clastics |

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| Laganac and Cabanbanan | Gypsum | 123.00 | |
| Cabanbanan | Guano | 8 | 1.14% P ₂ O ₅ , 0.25% N, 0.18% K ₂ O |
| Caorasan | Guano | 82 | 8.71% P ₂ O ₅ , 0.59% N, 0.75% K ₂ O |
| | Rock Phosphate | 25 | 36.25% P ₂ O ₅ , 0.29% N, 0.29% K ₂ O |
| Tumatarayo | Guano | 20 | 2.27% P ₂ O ₅ , 0.23% N, 0.11% K ₂ O |
| 12. BULA | | | |
| Caorasan | Gypsum | 39,150 | |
| 13. CARAMOAN | | | |
| San Jose | Pyrite | 164,000 | 0-10.46% FeS ₂ |
| | | 40,000 | 19.81% S |
| San Roque | Pyrite | 20,000 | 20% - 30% FeS ₂ |
| Pandanán | Guano | 3,451 | 12.53% P ₂ O ₅ , 0.31% N, 0.70% K ₂ O |
| Ili | Guano | 13 | 5.11% P ₂ O ₅ , 0.40% N, 0.15% K ₂ O |
| Tawog | Guano | 489 | 3.37% P ₂ O ₅ , 0.16% N, 0.62% K ₂ O |
| Botongan, Tirago | Guano | 47 | 1.05% P ₂ O ₅ , 0.41% N, 0.52% K ₂ O |
| Taysan, Tirago | Guano | 49 | 8.96% P ₂ O ₅ , 0.30% N, 0.26% K ₂ O |
| 14. GOA | | | |
| Hiwaclay | Sulphur | 300 | |
| Maagnas | Pyrite | 2,000 | 37.00% FeS ₂ |
| 15. BALATAN | | | |
| Caorasan | Gypsum | 10 | |
| 16. DEL GALLEGO | | | |
| Tabion Munti | Ball Clay | 15,119 | |
| Sta Rita II | Ball Clay | 3,256,000 | |
| 17. BAAO | | | |
| Bagumbayan | Perlite | 17,080,000 | |

* source: Mineral Resources of Bicol Region, August 1990 & Technical Report on Banner Mineral Commodity Program: Marble, Nov. 1994 by Vnarido, Gapuya & JMSLaud.