

# THE MINERAL INDUSTRY OF GEORGIA

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the Georgia Geologic Survey, Environmental Protection Division, Georgia Department of Natural Resources, for collecting information on all nonfuel minerals.**

Georgia decreased in rank from fifth to sixth nationally in total nonfuel mineral production value<sup>1</sup> in 1996, according to the U.S. Geological Survey (USGS). The estimated value was more than \$1.7 billion, representing a more than 1% increase from the value of 1995. This followed a 9.7% increase in value in 1995 from that of 1994 (based on final 1995 data). The State accounted for about 4.5% of the U.S. total nonfuel mineral production value.

Georgia was by far the leading clay-producing State in the Nation, accounting for nearly 25% of U.S. total clay production. The State's clays included those of kaolin, common, and fuller's earth. Kaolin remained Georgia's foremost nonfuel mineral commodity in 1996, accounting for nearly 61% of the State's estimated total nonfuel mineral value and, of that, about 92% of its clay value. In 1996, kaolin production and value dropped off about 1%, after having risen about 10% the previous year. Crushed stone, which accounts for more than 23% of the State's nonfuel mineral value, provided the largest portion of the State's increase in 1996, rising 14% in value from that of 1995. Compared with 1995, other mineral commodities that increased in value were portland cement, construction sand and gravel, masonry cement, barite, feldspar, iron oxide pigments, and gemstones. Decreases occurred in kaolin, dimension stone, fuller's earth, common clays, and crude mica.

Based on USGS estimates of the quantities of minerals produced in the United States during 1995, Georgia remained first among the 50 States in fuller's earth; second in dimension stone and barite; third in iron oxide pigments and third of five crude mica-producing States; fifth in common clays and feldspar; and ninth in masonry cement. While Georgia rose from seventh to sixth in crushed stone, significant quantities of portland cement and industrial sand and gravel continued to be produced in the State.

The following narrative information was provided by the Georgia Geologic Survey<sup>2</sup> (GGS), in cooperation with representatives of the Georgia Mining Association, the Georgia Crushed Stone Association, and the Eberston Granite Association. According to the GGS, the economic boom created by the Centennial Olympic Games had a significant impact on Georgia's mining industry in 1996. The Olympics spurred growth for the construction industry which in turn increased sales of aggregate products such as sand, gravel and crushed stone. These products were used

extensively in residential, commercial, and industrial building construction. They were also used in community, State, and federal construction projects such as roads, highways, dams, railroad beds, bridges, airports, tunnels, and water systems.

Employment was stable throughout the mining industry and the average annual pay of mining workers continued to rise. According to a U.S. Department of Labor report, Georgia's mining industry had the highest average annual pay of any private employment sector in the State at \$38,172. This represented a 5.2% increase from that of 1994. The mining industry employed more than 8,500 people in the State.

According to the sources above, the general economic outlook for the mining industry for 1997 was projected to be very stable. Companies mining feldspar and marble were predicting a slight increase in sales and capital investments. Although the kaolin industry could have a small decline in sales, employment throughout the mining industry was anticipated to remain steady.

Some of the major legislative and policy issues of interest to the industry in 1996 included matters entailed with environmental regulation, legal, regulatory, and tax reform, and a variety of land use amendments. Protecting the industry with an effective government program was a key objective of the GMA. One of the big legislative questions that will face the General Assembly in 1997 is an expected reduction in revenue of some \$500 million, a result of Governor Miller's rollback of the sales tax on groceries. Deregulation will be a hot legislative issue for the mining industry in 1997. Lawmakers will involve themselves further in the deregulation of energy production such as natural gas, in an effort to transition in a "reasonable way" to a competitive market arena.

Kaolin was mined and processed in "Middle" (east-central) Georgia, especially between Macon and Augusta. It recently became the largest volume commodity handled by the port of Savannah due to increasing demand for kaolin in the foreign markets of Europe, Indonesia, Japan, and South Korea. U.S. producers of paper and paint use large volumes of kaolin to manufacture their products. With more than 4,400 Georgians employed in the mining and processing of kaolin, it is the State's most important mineral product.

In 1996, shipments of crushed stone totaled an estimated 64 million metric tons<sup>3</sup> compared to the previous record

high shipments of 61 million tons in 1995. Much of this production was due to the 1996 Olympics and some decrease was thought possible for 1997. However, some other construction projects that had been delayed because of the Olympics were expected to go forward and 1997 highway spending was expected to be higher than in 1996. Highway construction accounted for about one-third of crushed stone sales.

Georgia's dimension granite industry includes Elbert, Oglethorpe, Madison, Greene, and Wilkes Counties; however, most quarries and plants are in Elbert County. As of yearend 1996, there were 40 active quarries with 365 production workers. The total payroll was \$6.8 million in 1995-96. Production in 1996 was steady with little change in volume as local markets remained stable or better. However, sales to historically favorable markets, such as Japan and South Korea, showed significant declines in 1996 due to increasing competition from Chinese producers who ship finished products that undercut U.S. finishers. This decline has been somewhat offset by increased sales to Canada, but this is not a large market at present.

A coalition of Georgian and other American dimension stone producers petitioned the U.S. Customs Office to modify the classification of imported stone products in order to separately identify memorial monuments and markers. The classification was approved. This will aid American companies in evaluating foreign competition because it will allow these products to be differentiated from other imported stone products.

There was increased interest in using water jet cutting in quarrying. Several companies were leasing this cutting equipment; however, it still made up less than one-third of

the cutting equipment used in the industry. The manufacturing and finishing side of the industry remained strong and was primarily focused on monument production. Considerable investment has been made in automated diamond sawing and polishing equipment. Activity in the curbstone market remained steady with large quantities of substandard monument stone sold for curbing in New England.

Two major problems in the dimension granite industry centered around the issues of rural development encroachment and the shortage of skilled labor. Cremation has not had a major impact on the dimension stone market. However, there was little prospect for major long-term growth because of little market diversification outside the traditional monument and cemetery stone markets.

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 1996 USGS mineral production data published in this chapter are estimates as of February 1997. For some commodities, e.g., construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset and request Document # 1000 for a telephone listing of all mineral commodity specialists, or call USGS information at (703) 648-4000 for the specialist's name and number. This telephone listing may also be retrieved over the Internet at: <http://minerals.er.usgs.gov/minerals/contacts/comdir.html> .

<sup>2</sup>Bruce J. O'Connor, Supervisory Geologist, authored the text submitted by the Georgia Geologic Survey. He may be reached at the same address and telephone and fax numbers as Dr. McLemore.

<sup>3</sup>All tons are metric tons unless otherwise specified.

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN GEORGIA 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

| Mineral   | 1994       |              | 1995     |           | 1996 p/  |           |
|---|------------|--------------|----------|-----------|----------|-----------|
|   | Quantity   | Value        | Quantity | Value     | Quantity | Value     |
| Clays   | 9,960 3/   | 1,060,000 3/ | 10,600   | 1,160,000 | 10,500   | 1,140,000 |
| Gemstones   | NA         | 51           | NA       | 51        | NA       | W         |
| Sand and gravel:  |            |              |          |           |          |           |
| Construction  | 5,520      | 19,800       | 5,780    | 23,100    | 6,460    | 27,100    |
| Industrial  | 440        | 7040         | 574      | 7,060     | 574      | 7,060     |
| Stone:  |            |              |          |           |          |           |
| Crushed   | 54,600     | 331,000      | 60,600   | 373,000   | 63,800   | 399,000   |
| Dimension metric tons   | 200,000 4/ | 19,100 4/    | 132,000  | 27,700    | 153,000  | 27,200    |
| Combined value of barite, bauxite (1994-95), cement, clays [fire (1994)], feldspar, iron oxide pigments (crude), mica (scrap), and stone [dimension marble and miscellaneous (1994)], and value indicated by symbol W | XX         | 115,000      | XX       | 109,000   | XX       | 118,000   |
| Total   | XX         | 1,550,000    | XX       | 1,700,000 | XX       | 1,720,000 |

p/ Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Excludes certain clays; kind and value included with "Combined value" data.

4/ Excludes certain stones; kind and value included with "Combined value" data.

TABLE 2  
 GEORGIA: CRUSHED STONE 1/ SOLD OR USED BY PRODUCERS  
 IN 1995, BY USE 2/

| Use                                    | Quantity<br>(thousand<br>metric tons) | Value<br>(thousands) | Unit<br>Value |
|--|---------------------------------------|----------------------|---------------|
| Coarse aggregate (+1 1/2 inch):        |                                       |                      |               |
| Riprap and jetty stone                 | 780                                   | \$6,970              | \$8.94        |
| Filter stone                           | 321                                   | 2,380                | 7.42          |
| Other coarse aggregate                 | W                                     | W                    | 8.22          |
| Coarse aggregate, graded:              |                                       |                      |               |
| Concrete aggregate, coarse             | 7,530                                 | 45,900               | 6.10          |
| Bituminous aggregate, coarse           | 9,190                                 | 59,000               | 6.43          |
| Bituminous surface-treatment aggregate | W                                     | W                    | 5.09          |
| Railroad ballast                       | 1,520                                 | 6,300                | 4.15          |
| Other graded coarse aggregate          | W                                     | W                    | 6.92          |
| Fine aggregate (-3/8 inch):            |                                       |                      |               |
| Stone sand, concrete                   | 1,740                                 | 10,400               | 6.01          |
| Stone sand, bituminous mix or seal     | 1,710                                 | 8,590                | 5.01          |
| Screening, undesignated                | 1,120                                 | 6,320                | 5.65          |
| Other fine aggregate                   | W                                     | W                    | 3.89          |
| Coarse and fine aggregates:            |                                       |                      |               |
| Graded road base or subbase            | 4,200                                 | 21,400               | 5.10          |
| Unpaved road surfacing                 | W                                     | W                    | 5.18          |
| Terrazzo and exposed aggregate         | W                                     | W                    | 6.08          |
| Crusher run or fill or waste           | 6,030                                 | 30,200               | 5.02          |
| Other construction materials           | 4,680                                 | 29,500               | 6.31          |
| Chemical and metallurgical:            |                                       |                      |               |
| Cement manufacture                     | (3/)                                  | (3/)                 | (3/)          |
| Lime manufacture                       | (3/)                                  | (3/)                 | (3/)          |
| Special: Other fillers or extenders    | (3/)                                  | (3/)                 | (3/)          |
| Unspecified: 4/                        |                                       |                      |               |
| Actual                                 | 19,800                                | 133,000              | 6.72          |
| Estimated                              | 1,090                                 | 6,940                | 6.39          |
| Total                                  | 60,600                                | 373,000              | 6.14          |

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

1/ Includes calcareous marl, granite, limestone, limestone-dolomite, marble, and quartzite.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Withheld to avoid disclosing company proprietary data; included in "Total."

4/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3  
 GEORGIA: CRUSHED STONE SOLD OR USED, BY KIND 1/

| Kind            | 1994               |                                 |                   |            | 1995               |                                 |                   |            |
|-----------------|--------------------|---------------------------------|-------------------|------------|--------------------|---------------------------------|-------------------|------------|
|                 | Number of quarries | Quantity (thousand metric tons) | Value (thousands) | Unit value | Number of quarries | Quantity (thousand metric tons) | Value (thousands) | Unit value |
| Limestone 2/    | 11                 | 5,090                           | \$31,000          | \$6.09     | 16                 | 7,360                           | \$46,000          | \$6.25     |
| Marble          | 8                  | W                               | W                 | 7.29       | 7                  | W                               | W                 | 6.84       |
| Calcareous marl | 1                  | W                               | W                 | 4.20       | 1                  | W                               | W                 | 3.91       |
| Granite         | 50 r/              | 47,500 r/                       | 289,000 r/        | 6.08       | 51                 | 51,300                          | 315,000           | 5.57       |
| Quartzite       | 7 r/               | W                               | W                 | 6.00 r/    | 1                  | W                               | W                 | 6.50       |
| Total           | XX                 | 54,600                          | 331,000           | 6.07       | XX                 | 60,600                          | 373,000           | 6.14       |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes "Limestone-dolomite," reported with no distinction between the two.

TABLE 4  
 GEORGIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1995, BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

| Use                               | District 1 |         | District 2 |         | District 3 |        |
|-----------------------------------|------------|---------|------------|---------|------------|--------|
|                                   | Quantity   | Value   | Quantity   | Value   | Quantity   | Value  |
| Construction aggregates:          |            |         |            |         |            |        |
| Coarse aggregate (+1 1/2 inch) 2/ | W          | W       | 690        | 5,960   | W          | W      |
| Coarse aggregate, graded 3/       | W          | W       | 11,000     | 67,100  | W          | W      |
| Fine aggregate (-3/8 inch) 4/     | W          | W       | 3,470      | 19,500  | W          | W      |
| Coarse and fine aggregate 5/      | 3,030      | 16,800  | (6/)       | (6/)    | W          | W      |
| Other construction materials      | 5,070      | 33,300  | 1,670      | 12,400  | 5,880      | 31,800 |
| Chemical and metallurgical 7/     | (6/)       | (6/)    | --         | --      | --         | --     |
| Special 8/                        | (6/)       | (6/)    | --         | --      | --         | --     |
| Unspecified: 9/                   |            |         |            |         |            |        |
| Actual                            | (6/)       | (6/)    | (6/)       | (6/)    | 7,520      | 50,400 |
| Estimated                         | 1,090      | 6,940   | --         | --      | --         | --     |
| Total                             | 18,700     | 121,000 | 28,500     | 169,000 | 13,400     | 82,200 |

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes filter stone, riprap and jetty stone, and other coarse aggregate.

3/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

4/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

5/ Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, and crusher run (select material or fill).

6/ Withheld to avoid disclosing company proprietary data; included in "Total."

7/ Includes cement and lime manufacture.

8/ Includes other fillers or extenders.

9/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5

GEORGIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1995,  
BY MAJOR USE CATEGORY 1/

| Use   | Quantity                  | Value       | Value   |
|---|---------------------------|-------------|---------|
|   | (thousand<br>metric tons) | (thousands) | per ton |
| Concrete aggregate (including concrete sand)                | 3,150                     | \$13,200    | \$4.19  |
| Plaster and gunite sands                                    | 440                       | 1,610       | 3.65    |
| Concrete products (blocks, bricks, pipe, decorative, etc.)  | 110                       | 643         | 5.85    |
| Asphaltic concrete aggregates and other bituminous mixtures | W                         | W           | 13.20   |
| Fill  | W                         | W           | 2.77    |
| Snow and ice control  | W                         | W           | 4.97    |
| Other   | 194                       | 891         | 4.59    |
| Unspecified: 2/   |                           |             |         |
| Actual  | 692                       | 2,050       | 2.96    |
| Estimated   | 1,190                     | 4,740       | 3.97    |
| Total or average  | 5,780                     | 23,100      | 4.00    |

W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6

GEORGIA: CONSTRUCTION SAND AND GRAVEL 1/ SOLD OR USED IN 1995,  
BY USE AND DISTRICT 2/

(Thousand metric tons and thousand dollars)

| Use   | District 2 |       | District 3 |        |
|---|------------|-------|------------|--------|
|   | Quantity   | Value | Quantity   | Value  |
| Concrete aggregate and concrete products 3/ | 498        | 2,820 | 3,200      | 12,600 |
| Other miscellaneous uses 4/                 | 60         | 236   | 134        | 655    |
| Unspecified: 5/                             |            |       |            |        |
| Actual                                      | --         | --    | 692        | 2,050  |
| Estimated                                   | 232        | 998   | 962        | 3,740  |
| Total                                       | 790        | 4,060 | 4,990      | 19,000 |

1/ Production reported in District 1 was included with "District 2" to avoid disclosing company proprietary data.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Includes plaster and gunite sands.

4/ Includes asphaltic concrete aggregates and other bituminous mixtures, fill, and snow and ice control.

5/ Includes production reported without a breakdown by end use and estimates for nonrespondents.