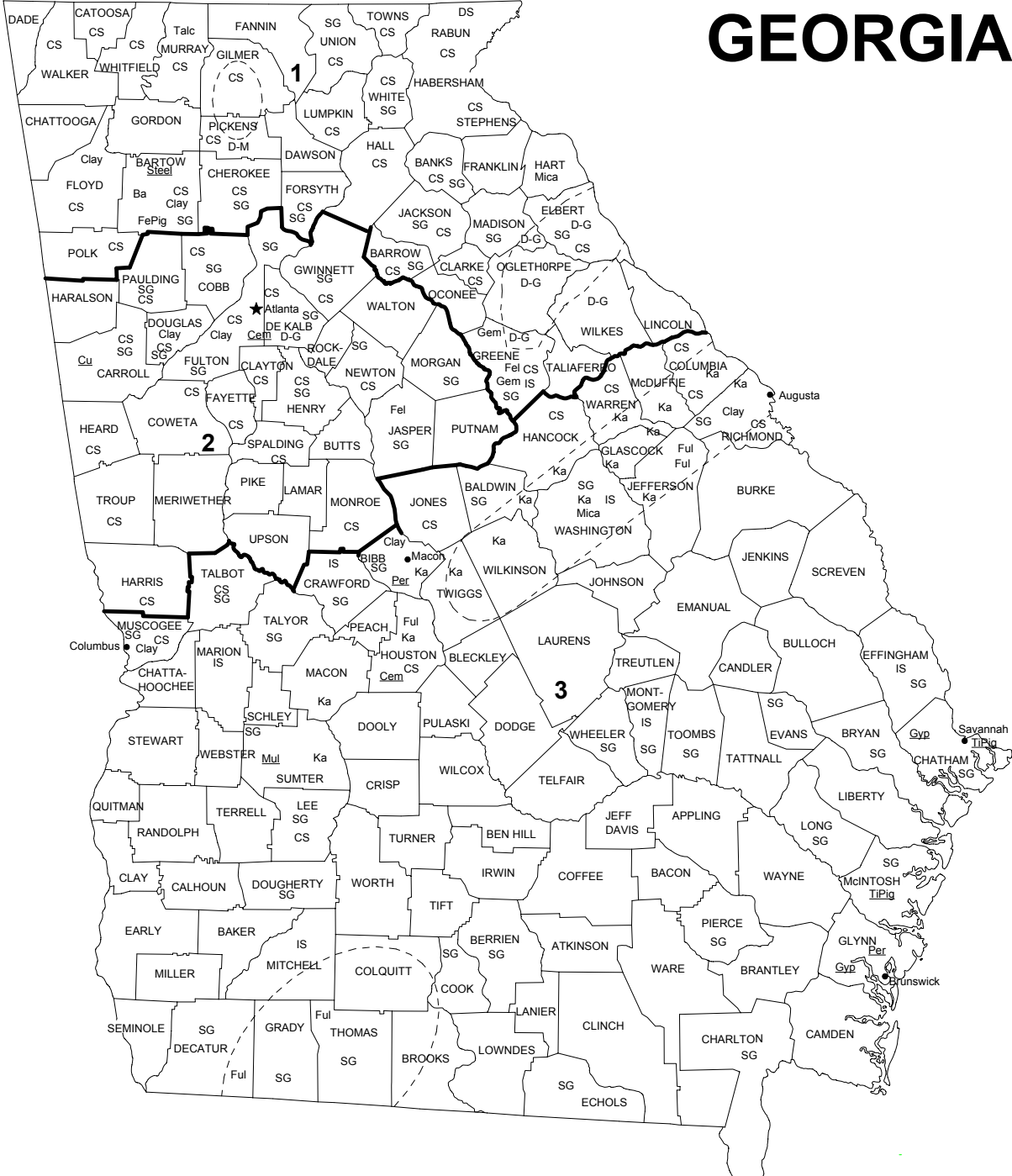
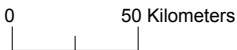


GEORGIA



LEGEND

- County boundary
- ★ Capital
- City
- 1** — Crushed stone/sand and gravel districts



**MINERAL SYMBOLS
(Major producing areas)**

Ba	Barite	DS	Dimension stone	Mica	Mica
Cem	Cement plant	Fel	Feldspar	Mul	Synthetic mullite plant
Clay	Common clay	FePig	Iron oxide pigments	Per	Perlite plant
CS	Crushed stone	Ful	Fuller's earth	SG	Construction sand and gravel
Cu	Copper plant	Gem	Gemstones	Steel	Steel plant
D-G	Dimension granite	Gyp	Gypsum plant	Talc	Talc
D-M	Dimension marble	IS	Industrial sand	TiPig	Titanium dioxide pigment plant
		Ka	Kaolin	(dashed circle)	Concentration of mineral operations

Source: Georgia Geologic Survey/U.S. Geological Survey (2001)

THE MINERAL INDUSTRY OF GEORGIA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Georgia Geologic Survey for collecting information on all nonfuel minerals.

In 2001, the estimated value¹ of nonfuel mineral production for Georgia was \$1.61 billion, based upon preliminary U.S. Geological Survey (USGS) data. This was a marginal decrease from that of 2000² and followed a 1.2% decrease from 1999 to 2000. The State, for the second consecutive year, ranked seventh among the 50 States in total nonfuel mineral production value, of which Georgia accounted for about 4% of the U.S. total.

Georgia was by far the leading clay-producing State in the Nation in 2001, accounting for about 24% of total U.S. clay production (all kinds). Kaolin remained the State's foremost nonfuel mineral commodity, accounting for about 54% of Georgia's estimated total nonfuel mineral value and, of that, nearly 92% of its clay value. Crushed stone was second, accounting for almost 29% of Georgia's nonfuel mineral value, followed by cement (portland and masonry) and fuller's earth. In 2000, increases that occurred in portland cement (up about \$9 million), fuller's earth (up \$7.6 million), crushed stone (up \$4 million), and industrial sand and gravel were not enough to offset decreases in kaolin (down \$30 million), crushed marble, iron oxide pigments, and construction sand and gravel, resulting in the net decrease for the year (table 1). All other changes were less than \$1 million, having minimal effect on the overall net total.

Based upon USGS estimates of the quantities produced in the United States during 2001, Georgia remained first among the 50 States in kaolin, fuller's earth, and iron oxide pigments (descending order of value); second of three barite-producing States; fourth in common clays and feldspar; among the top six States that produced dimension stone (fifth in 2000); and ninth in masonry cement. The State rose to second from fifth in the production of crude mica and decreased to sixth from fourth in crushed stone. Additionally, the State was a significant producer

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon 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 2001 USGS mineral production data published in this chapter are preliminary estimates as of August 2002 and are expected to change. For some mineral commodities, such as 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. Specialist contact information may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/contacts/comdir.html>; alternatively, specialists' names and telephone numbers may be obtained by calling USGS information at (703) 648-4000 or by calling the USGS Earth Science Information Center at 1-888-ASK-USGS (275-8747). All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

²Values, percentage calculations, and rankings for 2000 may differ from the Minerals Yearbook, Area Reports: Domestic 2000, Volume II, owing to the revision of preliminary 2000 to final 2000 data. Data for 2001 are preliminary and are expected to change; related rankings may also change.

of portland cement and industrial sand and gravel.

The following narrative information was provided by the Georgia Geologic Survey,³ in cooperation with representatives of Elberton Granite Association, the Georgia Mining Association, and the China Clay Producers Association. Georgia's mining industry is dominated by the kaolin and crushed stone industries. Overall, the mining industry was strong and spent millions of dollars on research and development. In support of the industry, the Georgia Mining Association sponsored a variety of mining industry-related activities. In 2001, the Association sponsored environmental and safety training and education seminars and workshops and awarded \$40,000 in college scholarships to 70 Georgia high school students. Additional information on mining in Georgia and the Georgia Mining Association is available on the Internet at URL www.georgiamining.org.

Georgia's kaolin industry was concentrated in the four members of the China Clay Producers Association: Engelhard Corp., IMERYS Pigments and Additives Group, J.M. Huber Corp., and Thiele Kaolin Co. In 2001, the Association's members announced an after tax loss of \$93 million for 2001. This represented a negative on the net investment for the industry of 10% (compared to a 1999 profit of \$33.2 million and a return of 2.7%). Struggling with its worst losses in a decade, the kaolin industry worked in an extremely difficult operating environment. In 2001, the industry employed just under 3,000 individuals—down from its peak of 4,500. Additional information on Georgia's kaolin and the China Clay Producers Association is available at URL www.kaolin.com.

The Georgia crushed stone industry is largely dependent on heavy construction, and the market is almost evenly distributed between three major sectors: residential, office, and shopping center construction; road and highway construction; and other public works projects.

Florida Rock Industries, Inc.; Hanson Aggregates East; LaFarge Construction Materials; Martin Marietta Aggregates; and Vulcan Materials Co. were the largest producers. Aggregate quarries were located in Georgia's Valley and Ridge (limestone and dolostone), Blue Ridge (metagranite and metaconglomerate), and Piedmont (granite and granitic gneiss) Provinces.

Other crushed stone manufacturers included Global Stone Corp., IMERYS Pigments and Additives Group, and J.M. Huber Corp. All three companies crush and grind either limestone or marble from Valley and Ridge or Blue Ridge underground mines. End products were used in the manufacture of various commodities, including extender for latex carpet backing, caulks, sealants, and paints. High brightness, chemically pure

³Bruce J. O'Connor, Principal Geologist, authored the text of mineral industry information submitted by the Georgia Geologic Survey.

materials are included in pharmaceuticals and are employed as a coating for high-quality papers in lieu of kaolin.

Georgia's dimension granite industry was concentrated in the five-county Elberton granite district (Elbert, Oglethorpe, Madison, Greene, and Wilkes Counties) in central eastern Georgia; however, most quarries and plants were in Elbert County. In 2001, there were approximately 45 active quarries in the district with 321 production workers and an annual payroll of \$7.2 million. The total workforce in the district, including more than 150 granite manufacturing operations, was approximately 2,400 persons with a total payroll of \$57.7 million. A shortage of skilled labor, however, was a limiting factor in granite production in the district. The association continued to assist member companies by providing wage supplements for new employees for a period of 3 months.

In 2001, Rock of Ages sold all of its numerous quarry operations in Georgia to various other companies located in the district. The sale involved 14 quarries and three manufacturing facilities in Elbert, Madison, and Oglethorpe Counties.

The demand for Elberton's monumental-grade granite experienced a continued slowdown throughout the domestic market in 2001. In addition, the district has lost more than 95% of its rough stock sales in the Asian markets to the Chinese. The volume of finished memorials being imported by brokers from India and China continues to grow and is having a serious impact on Elberton's granite producers (King, 2002).

The use of high-pressure water-cutting systems ("water jet") as a method of cutting granite within the quarries grew in popularity. Approximately 25% of the quarries in the district used this method. However, installing and operating this equipment was a significant investment. Consequently, the remaining quarries in the district continue to use the flame burner. In the manufacturing facilities, diamond saws were used exclusively for cutting the quarried blocks.

Reference Cited

King, Neil, Jr., 2002, Grave reservations—Why Dr. Su's arrival rocks Georgia town: Wall Street Journal, July 23, p. A1, A6.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1999		2000		2001 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays:						
Common	1,600	5,130	1,500	5,200	1,500	5,200
Fuller's earth	725	73,800	919	81,400	655	72,300
Kaolin	8,170	907,000	7,660	877,000	7,610	877,000
Gemstones	NA	9	NA	8	NA	8
Sand and gravel:						
Construction	7,200	30,100	6,940	28,700	7,000	29,400
Industrial	612	11,100	651	12,200	645	12,500
Stone:						
Crushed 3/ Dimension metric tons	74,200	448,000	76,500	452,000	76,000	463,000
Crushed 3/ Dimension metric tons	83,400	12,200	74,200	11,400	74,000	11,000
Combined values of barite, cement, feldspar, iron oxide pigments (crude), lime, mica (crude), stone (crushed marble)						
	XX	153,000	XX	151,000	XX	137,000
Total	XX	1,640,000	XX	1,620,000	XX	1,610,000

p/ Preliminary. NA Not available. XX Not applicable.

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

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

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

TABLE 2
 GEORGIA: CRUSHED STONE SOLD OR USED, BY KIND 1/

Kind	1999				2000			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	15 r/	8,740 r/	\$54,500 r/	\$6.24 r/	17	8,890	\$54,200	\$6.10
Dolomite	2	W	W	6.60	2	W	W	6.70
Granite	54 r/	63,800 r/	384,000	6.01	54	66,100	388,000	5.87
Marble	10	(2/)	(2/)	(2/)	6	(2/)	(2/)	(2/)
Quartzite	2	W	W	4.18	2	W	W	4.50
Total or average	XX	74,200	448,000	6.03 r/	XX	76,500	452,000	5.91

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

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Withheld from total to avoid disclosing company proprietary data.

TABLE 3
 GEORGIA: CRUSHED STONE SOLD OR USED BY PRODUCERS
 IN 2000, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:			
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	628	\$6,950	\$11.06
Filter stone	W	W	9.37
Other coarse aggregate	750	5,250	7.00
Total or average	1,380	12,200	8.85
Coarse aggregate, graded:			
Concrete aggregate, coarse	9,160	56,300	6.15
Bituminous aggregate, coarse	6,080	44,000	7.23
Bituminous surface-treatment aggregate	W	W	9.69
Railroad ballast	W	W	4.93
Other graded coarse aggregate	12,000	75,200	6.27
Total or average	27,200	176,000	6.44
Fine aggregate (-3/8 inch):			
Stone sand, concrete	3,640	20,900	5.74
Stone sand, bituminous mix or seal	W	W	6.72
Screening, undesignated	1,030	3,630	3.51
Other fine aggregate	4,100	20,800	5.07
Total or average	8,770	45,300	5.17
Coarse and fine aggregates:			
Graded road base or subbase	5,550	25,500	4.60
Unpaved road surfacing	W	W	4.63
Crusher run or fill or waste	6,990	43,500	6.22
Other coarse and fine aggregates	5,220	23,500	4.50
Total or average	17,800	92,500	5.21
Other construction materials	294	1,230	4.17
Agricultural, agricultural limestone	(3/)	(3/)	9.00
Chemical and metallurgical, cement manufacture	(3/)	(3/)	5.41
Special:			
Mine dusting or acid water treatment	2	7	3.50
Whiting or whiting substitute	363	4,200	11.57
Other fillers or extenders	(3/)	(3/)	5.79
Other miscellaneous uses and specified uses not listed	2	8	4.00
Unspecified: 4/			
Reported	17,700	105,000	5.92
Estimated	1,100	6,000	5.46
Total or average	18,800	111,000	5.89
Grand total or average	76,500	452,000	5.91

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

1/ Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

2/ Includes dolomite, granite, limestone, and quartzite; excludes marble from total to avoid disclosing company proprietary data.

3/ Withheld to avoid disclosing company proprietary data, included in "Grand total."

4/ Reported and estimated production without a breakdown by end use.

TABLE 4
 GEORGIA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2000, BY USE AND DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1 1/2 inch) 3/	257	1,730	W	W	W	W
Coarse aggregate, graded 4/	W	W	16,200	114,000	W	W
Fine aggregate (-3/8 inch) 5/	W	W	5,260	29,000	W	W
Coarse and fine aggregate 6/	W	W	10,800	57,200	W	W
Other construction materials	283	1,160	11	63	--	--
Agricultural 7/	W	W	--	--	--	--
Chemical and metallurgical 8/	W	W	--	--	W	W
Special 9/	W	W	--	--	--	--
Other miscellaneous uses and specified uses not listed	--	--	2	8	--	--
Unspecified: 10/						
Reported	3,960	23,400	2,660	16,100	11,000	65,500
Estimated	1,100	6,000	--	--	--	--
Total	22,700	129,000	35,700	226,000	18,100	96,400

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Excludes marble from total to avoid disclosing company proprietary data.

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

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

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

6/ Includes crusher run (select material or fill), graded road base or subbase, unpaved road surfacing, and other coarse and fine aggregate.

7/ Includes agricultural limestone.

8/ Includes cement manufacture.

9/ Includes mine dusting or acid water treatment, whitening or whitening substitute, and other fillers or extenders.

10/ Reported and estimated production without a breakdown by end use.

TABLE 5
 GEORGIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000,
 BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	3,050	\$12,900	\$4.24
Plaster and gunite sands	429	1,740	4.07
Concrete products (blocks, bricks, pipe, decorative, etc.)	71	547	7.70
Asphaltic concrete aggregates and other bituminous mixtures 2/	284	1,380	4.85
Unspecified: 3/			
Reported	1,460	4,930	3.36
Estimated	1,600	7,200	4.36
Total or average	6,940	28,700	4.13

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes fill.

3/ Reported and estimated production without a breakdown by end use.

TABLE 6
 GEORGIA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2000,
 BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	Districts 1 and 2		District 3	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products 2/	498	2,880	3,050	12,300
Asphaltic concrete aggregates and other bituminous mixtures 3/	7	51	278	1,330
Unspecified: 4/				
Reported	76	327	1,390	4,600
Estimated	380	1,700	1,300	5,500
Total	965	4,700	5,980	23,700

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes plaster and gunitite sands.

3/ Includes fill.

4/ Reported and estimated production without a breakdown by end use.