

African Mineral Production



1999–2003



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

BRITISH GEOLOGICAL SURVEY

African Mineral Production 1999–2003

A product of the World Mineral Statistics database

British Geological Survey report number IR/05/047

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First Published 2005

BRITISH GEOLOGICAL SURVEY

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The British Geological Survey is a component body of the Natural Environment Research Council.

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Bibliographical reference

BRITISH GEOLOGICAL SURVEY. 2005. *African Mineral Production 1999-2003*. Report number IR/05/047 (Keyworth, Nottingham: British Geological Survey.)

Front cover
Sherwood Star gold mine near Kwekwe, Zimbabwe.

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EXPLANATORY NOTES

The statistics in this publication are from a more comprehensive database that is published as *World Mineral Production 1999-2003*.

Coverage

African Mineral Production covers the majority of economically important mineral commodities. For each commodity constant efforts are made to ensure that as many producing countries as possible are reported. For some commodities, where statistics on production are not publicly available, estimates are made. Users of this compilation are advised that more statistical information than can be included in a publication of this nature is held in the BGS files and is available for consultation.

Production

Metals Mine production of many metals is expressed in terms of metal content. This is clearly indicated adjacent to the commodity description. Unless otherwise specified, metal production statistics relate to metal recovered from both domestic or imported materials, whether primary or secondary, but exclude remelted material.

Exclusion of Warranty

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Acknowledgements

Compilation of this volume of mineral statistics has been possible only by obtaining information from a very large number of organisations throughout the world, chiefly government departments and specialist national or international authorities concerned with particular sectors of the minerals or metals industries. To all these bodies the British Geological Survey expresses its grateful acknowledgement for the information made available, whether in published form or provided by direct correspondence.

Particular acknowledgement is made to the Mines Departments and other government agencies of many countries whose regular statements, yearbooks and other reports are worthy of direct consultations by readers in search of detail.

Specialist commodity organisations which have kindly allowed information to be reproduced include the International Copper Study Group, the International Lead and Zinc Study Group, the International Nickel Study Group, the International Fertilizer Industry Association Ltd, the UN Food and Agriculture Organization and the UNCTAD. In a few instances, information on specific commodities has been obtained directly from company sources. The co-operation of other members of the International Consultative Group on Non-Ferrous Metal Statistics is also gratefully acknowledged.

Information is also obtained from publications dealing with a wide range of commodities such as Minerals Bureau, *South Africa's Mineral Industry*; Mining Journal, *Mining Annual Review*; World Bureau of Metal Statistics, *World Metal Statistics*; World Bureau of Metal Statistics, UBS Warburg and Enron Metals Limited, *Metallstatistik*; publications of the United States Geological Survey.

Units

The Statistics are expressed in metric units. The following factors are given for converting to non-metric units:

tonnes \times 0.9842 = long tons
tonnes \times 1.1023 = short tons
kilograms \times 2.2046 = pounds
kilograms \times 32.1507 = troy ounces
cubic metres \times 35.3147 = cubic feet
1 tonne of crude petroleum equals on average 7 barrels of crude petroleum.
1 flask mercury = 34.5 kilograms
1 metric ton unit = 10 kilograms

Conversion of national currencies to pounds sterling has been made using the annual average factors shown for each country in *International Financial Statistics* published by the International Monetary Fund.

Symbols

... figures not available
0 quantity less than half unit shown
— nil
* estimated
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TABLE NOTES

Bauxite

- (1) Includes production of refractory bauxite

Alumina

- (1) Where possible figures show the alumina equivalent (Al_2O_3) of total hydrate produced, whether or not calcined

Antimony, mine

- (1) Includes antimony content of antimonial lead alloys

White arsenic

- (1) Includes calculated trioxide equivalent of arsenic metal produced except where this would involve double counting

Barytes

- (1) Statistics may include small quantities of witherite

Bentonite and fuller's earth

- (1) Bentonites consist of montmorillonite (one of the smectite group of clay minerals) and occur in two main varieties, calcium bentonite, the most commonly occurring, and sodium bentonite, industrially the more important
- (2) Calcium bentonite can be converted to sodium bentonite by a sodium-exchange process
- (3) In some countries calcium bentonite is known as fuller's earth, a term which is also used to refer to attapulgite, a mineralogically distinct clay mineral but exhibiting similar properties

Bismuth, mine

- (1) The figures are in some instances derived from reported bismuth content of refined and impure metal plus recoverable in ores and concentrates exported
- (2) Production for some countries may include bismuth produced from imported ores but it is thought that any resulting duplication is insignificant in the countries shown

Cadmium

- (1) Data exclude secondary metal unless otherwise stated

Coal

- (1) There is no international agreement as to the separate definition of lignite and brown coal. In some cases they are distinguished. Elsewhere both may be aggregated under one or other term

Cobalt, mine

- (1) There is frequently a considerable disparity between the cobalt content of ore raised and cobalt actually recovered
- (2) Figures relate where possible to cobalt recovered

Copper, smelter

- (1) Figures show primary metal in the form of blister and anode produced from concentrates, and may include copper produced from scrap but this is excluded when it can be separately identified

Copper, refined

- (1) Figures relate to both primary and secondary refined copper, whether electrolytic or fire refined. Metal recovered from secondary materials by remelting alone is excluded

Diamond

- (1) Production of synthetic diamond is not included
- (2) So far as possible the amounts shown include estimates for illegal production

Gold, mine

- (1) In several countries substantial amounts of gold produced in small operations are not recorded in the official statistics used when compiling these tables

Graphite

- (1) Includes all forms of amorphous and crystalline graphite but excludes synthetic material

Gypsum

- (1) Some countries produce large quantities of synthetic gypsum. Where possible, this output is excluded

Pig iron

- (1) The data include sponge iron and direct reduced iron (DRI), where these have been separately identified

Crude steel

- (1) The figures refer to crude steel and cast semi-manufactures are not included
- (2) Unless otherwise indicated, these figures include production from scrap

Lead, refined

- (1) Figures relate to both primary and secondary refined lead and include the lead content of antimonial lead. Metal recovered from materials by remelting alone is excluded

Mercury

- (1) Several countries are believed to have unrecorded production of mercury from copper electro-winning processes

Nickel, smelter/refinery

- (1) Data relate to refined nickel plus the nickel content of ferro-nickel, nickel oxide and nickel salts

Crude petroleum

- (1) The figures exclude natural gasoline

Natural gas

- (1) So far as possible the figures exclude flared or reinjected gas

Platinum group metals, mine

- (1) Wherever possible, figures relate to quantities of platinum group metals thought to be recovered from ores originating in the country stated
- (2) Figures for metal production are only given for countries where recovery is thought to be based predominantly on domestic materials or on imported materials which have not been recorded as mine production elsewhere in the table

Rare earth minerals

- (1) Figures refer to gross tonnage of concentrates

Salt

- (1) Production of refined salt is not included
- (2) Salt is known to be produced in many countries for which statistics are not available

Sillimanite minerals

- (1) A number of other countries produce sillimanite minerals but details of output are not reported

Tantalum and niobium minerals

- (1) The figures refer to gross tonnage of tantalum and niobium concentrates
- (2) Niobium and tantalum are also recovered from tin slags. This source is particularly important in the case of tantalum and in recent years is believed to have accounted for over 60% of all tantalum recovered

Titanium minerals

- (1) The figures refer to gross tonnage of titanium concentrates

Vanadium

- (1) Includes vanadium in slag products but excludes vanadium recovered as a byproduct of the refining and burning of heavy oils

Zirconium minerals

- (1) The term 'zirconium minerals' is understood to mean zircon, unless otherwise stated

STATISTICAL TABLES

Algeria

Commodity	Units	1999	2000	2001	2002	2003
Barytes	tonnes	50 510	51 925	43 020	51 773	50 000
Bentonite and fuller's earth						
Bentonite	tonnes	15 491	22 708	21 282	30 699	28 064
Fuller's earth	tonnes	2 489	3 431	3 254	3 521	*3 600
Diatomite	tonnes	2 563	2 979	2 863	3 185	2 335
Feldspar	tonnes	2 820	707	----	----	----
Gold, mine	kilograms (metal content)	...	...	----	369	365
Gypsum	tonnes	...	...	646 000	741 000	*800 000
Iron ore	tonnes	1 338 000	1 645 000	1 291 000	1 200 000	1 378 000
Pig iron	tonnes	782 895	750 384	794 715	960 000	*965 000
Crude steel	tonnes	773 696	771 614	947 040	1 091 000	1 051 000
Kaolin	tonnes	16 833	11 616	13 356	9 505	19 258
Lead, mine	tonnes (metal content)	760	510	560	690	----
Lead, refined	tonnes	6 200	5 700	6 100	6 000	*6 000
Mercury	kilograms	240 327	215 625	320 091	307 119	175 570
Crude petroleum	tonnes	56 231 000	58 585 000	57 147 000	61 487 000	*68 450 000
Natural gas	million m ³	81 425	83 244	78 240	80 367	82 829
Phosphate rock	tonnes	1 095 000	877 000	939 000	741 000	905 000
Salt						
Brine salt and sea salt	tonnes	163 748	183 723	195 000	238 000	241 000
Silver, mine	kilograms (metal content)	*1 500	*1 500	*1 500	*1 500	*1 500
Sulphur and pyrites						
Recovered (a)	tonnes (sulphur content)	16 000	12 000	7 000	19 000	19 000
Zinc, mine	tonnes (metal content)	5 200	5 500	5 700	4 500	1 450
Zinc, slab	tonnes	31 709	26 335	26 000	33 900	32 200

Note(s):

(a) From petroleum refining and/or natural gas

Angola

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	3 572 200	4 014 000	5 100 000	*5 700 000	*6 300 000
Crude petroleum	tonnes	36 700 000	36 825 000	36 469 000	44 600 000	43 600 000
Natural gas	million m ³	560	580	530	620	900
Salt	tonnes	*30 000	*30 000	*30 000	*30 000	*30 000

Note(s):

(1) Small amounts of steel are believed to be produced in Angola

Benin

Commodity	Units	1999	2000	2001	2002	2003
Salt (a)	tonnes	*15 000	*15 000	*15 000	*15 000	*15 000

Note(s):

(1) Benin may also produce crude petroleum

(a) Sea salt

Botswana

Commodity	Units	1999	2000	2001	2002	2003
Coal	tonnes	945 316	946 900	930 374	953 081	822 780
Cobalt, mine	tonnes (metal content)	332	308	325	269	294
Copper, mine	tonnes (metal content)	20 960	18 722	19 209	21 590	24 289
Gold, mine	kilograms (metal content)	8	4	2	8	8
Diamond	carats	21 263 000	24 635 000	26 190 000	28 368 000	30 412 000
Nickel, mine	tonnes (metal content)	22 898	21 446	22 454	23 896	27 400
Salt	tonnes	233 069	184 800	178 646	315 259	229 432
Sodium carbonate, natural	tonnes	233 643	191 000	251 231	283 197	234 520

Burkina Faso

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	886	589	209	390	*400
Phosphate rock	tonnes	...	...	1 010	2 350	*2 000
Salt	tonnes	*6 000	*6 000	*6 000	*6 000	*6 000

Burundi

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	-----	-----	415	483	*500
Kaolin	tonnes	1 597	1 500	-----	-----	-----
Tantalum and niobium minerals						
Columbite-tantalite	tonnes	42	31	123	72	24
Tin, mine	tonnes	13	7	4	...	9
Tungsten, mine	tonnes	...	...	...	...	33

Cameroon

Commodity	Units	1999	2000	2001	2002	2003
Primary aluminium	tonnes	90 410	86 384	80 900	67 000	77 200
Gold, mine	kilograms (metal content)	*1 000	*1 000	930	*1 000	*1 000
Crude petroleum	tonnes	4 800 000	4 500 000	4 100 000	3 700 000	3 500 000

Note(s):

(1) Small quantities of diamonds are produced in Cameroon

Cape Verde

Commodity	Units	1999	2000	2001	2002	2003
Salt	tonnes	*2 000	*2 000	*2 000	*2 000	*2 000

Central African Republic

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	430 126	461 004	449 000	415 000	*400 000
Gold, mine	kilograms (metal content)	41	40	20	20	1

Chad

Commodity	Units	1999	2000	2001	2002	2003
Crude petroleum	tonnes	-----	-----	-----	-----	2 100 000

Congo, Democratic Republic

Commodity	Units	1999	2000	2001	2002	2003
Coal						
Bituminous	tonnes	70 000	48 000	40 000	37 000	*35 000
Cobalt, mine	tonnes (metal content)	*6 000	*7 000	*8 000	*8 000	*8 500
Cobalt metal (a)	tonnes	5 180	4 320	3 199	2 149	1 200
Copper, mine	tonnes (metal content)	33 000	33 000	34 100	28 000	*55 000
Copper, smelter (b)	tonnes	31 000	33 000	25 000	10 000	8 000
Copper, refined	tonnes	29 000	29 000	-----	-----	-----
Diamond	carats	22 000 000	16 500 000	19 637 000	21 985 000	29 000 000
Gold, mine	kilograms (metal content)	207	52	*50	*50	*50
Crude petroleum	tonnes	12 500 000	13 370 000	13 180 000	12 550 000	11 670 000
Zinc, mine	tonnes (metal content)	*1 000	200	*700	-----	-----

Note(s):

- (1) Small amounts of steel and minor quantities of niobium and tantalum minerals are believed to be produced in Democratic Republic of Congo
 (2) No detailed information on the production of tantalum bearing tin slags is available but small amounts are produced in Democratic Republic of Congo

(a) Excludes white alloy and matte which are believed to be further processed in Belgium and elsewhere

(b) Including leach cathodes

Congo, Republic

Commodity	Units	1999	2000	2001	2002	2003
Crude petroleum	tonnes	12 775 737	12 667 606	12 108 033	*11 500 000	*10 800 000

Djibouti

Commodity	Units	1999	2000	2001	2002	2003
Salt	tonnes	127 283	135 933	173 099	162 266	*175 000

Egypt

Commodity	Units	1999	2000	2001	2002	2003
Primary aluminium (a)	tonnes	186 700	188 900	190 800	195 000	194 600
Coal (a)	tonnes	*250 000	*39 000	*58 000	*37 000	*35 000
Feldspar	tonnes	*330 000	*330 000	*300 000	*350 000	*350 000
Fluorspar (a)	tonnes	*500	*500	304	502	*500
Gypsum	tonnes	...	...	126 615	119 453	...
Iron ore	tonnes	*2 700 000	*2 500 000	1 843 027	2 618 065	*2 900 000
Pig iron (a)	tonnes	2 690 000	3 100 000	3 530 000	3 630 000	3 950 000
Crude steel (a)	tonnes	2 627 000	2 838 000	3 799 000	4 316 000	4 398 000
Ferro-alloys						
Ferro-silicon	tonnes	*55 000	*55 000	*55 000	*55 000	*55 000
Other ferro-alloys	tonnes	...	...	7 912	16 679	*20 000
Kaolin	tonnes	290 000	290 000	112 947	115 315	...
Crude petroleum	tonnes	38 000 000	37 000 000	32 552 000	34 925 000	*35 000 000
Natural gas (a)	million m ³	14 700	18 000	18 304	19 605	17 680
Phosphate rock (a)	tonnes	1 017 900	1 095 900	779 445	1 218 561	2 183 200
Salt	tonnes	*1 200 000	*1 200 000	1 434 000	1 341 000	...
Sulphur and pyrites						
Recovered (b)	tonnes (sulphur content)	...	60 000	3 000	78 000	*70 000
Talc	tonnes	*35 000	*35 000	36 827	45 529	*40 000
Titanium minerals						
Ilmenite	tonnes	...	66 000	66 000	69 000	...
Vermiculite	tonnes	...	...	270	380	*400

Note(s):

(1) Years ended 30 June of that stated except where footnoted

(2) Egypt produces refined copper

(3) Egypt is believed to produce diatomite and graphite

(a) Calendar year

(b) From petroleum refining and/or natural gas

Equatorial Guinea

Commodity	Units	1999	2000	2001	2002	2003
Crude petroleum	tonnes	5 000 000	5 600 000	9 000 000	11 700 000	12 300 000
Natural gas	million m ³	83	98	790	1 050	...

Eritrea

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	534	264	107	-----	9
Kaolin	tonnes	1 138	943	...	120	140
Salt	tonnes	9 368	47 498	77 835	116 268	52 414

Ethiopia

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	2 928	3 206	3 862	3 670	3 875
Gypsum	tonnes	35 983	46 798	50 500	22 500	48 058
Kaolin	tonnes	681	1 654	1 790	3 534	3 088
Salt	tonnes	56 400	56 400	61 000	61 000	61 000
Silver, mine	kilograms (metal content)	689	1 018	3 545	900	999
Sodium carbonate, natural	tonnes	4 409	3 805	7 543	3 843	*4 000
Tantalum and niobium minerals						
Tantalite	tonnes	50	66	47	55	58

Note(s):

- (1) Years ended 7 July of that stated
- (2) Ethiopia is believed to produce feldspar and platinum group metals

Gabon

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	*70	*70	*70	*70	*70
Manganese ore	tonnes	1 908 000	1 743 000	1 791 000	1 856 000	2 000 000
Crude petroleum	tonnes	17 000 000	16 400 000	15 000 000	14 700 000	12 000 000
Natural gas	million m ³	100	100	100	100	125
Uranium, mine	tonnes (metal content)	294	-----	-----	-----	-----

Ghana

Commodity	Units	1999	2000	2001	2002	2003
Bauxite	tonnes	355 261	503 824	692 620	683 654	494 716
Primary aluminium	tonnes	114 200	155 500	161 670	131 858	15 909
White arsenic	tonnes	*7 000	*3 000	-----	-----	-----
Diamond	carats	680 964	887 049	1 132 102	963 493	904 089
Gold, mine	kilograms (metal content)	78 660	78 399	70 049	69 575	70 552
Manganese ore	tonnes	638 937	895 669	1 076 666	1 135 828	1 509 432
Crude petroleum	tonnes	300 000	350 000	450 000	*450 000	...
Salt	tonnes	*50 000	*50 000	68 076	99 593	*120 000
Silver, mine	kilograms (metal content)	4 000	2 100	1 900	2 129	3 329

Note(s):

- (1) Small amounts of steel are believed to be produced in Ghana

Guinea

Commodity	Units	1999	2000	2001	2002	2003
Bauxite	tonnes	17 419 100	17 991 900	17 191 700	17 480 000	17 044 000
Alumina	tonnes (Al ₂ O ₃ content)	568 479	540 922	674 300	669 835	723 026
Diamond	carats	382 743	368 599	*360 000	491 160	666 000
Gold, mine	kilograms (metal content)	11 710	15 748	16 256	16 700	16 226
Salt	tonnes	*15 000	*15 000	*15 000	*15 000	*15 000

Ivory Coast

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	398 282	320 208	309 000	306 000	307 000
Gold, mine	kilograms (metal content)	2 967	3 444	4 700	*3 500	*400
Crude petroleum	tonnes	1 373 000	1 606 000	*2 600 000	*2 500 000	...
Natural gas	million m ³	1 395	1 323	1 230	1 382	1 285

Kenya

Commodity	Units	1999	2000	2001	2002	2003
Diatomite	tonnes	507	448	441	1 333	353
Fluorspar (a)	tonnes	93 602	100 102	118 850	85 015	80 201
Gold, mine (a)	kilograms (metal content)	990	1 243	1 545	1 477	1 543
Gypsum	tonnes	*10 000	8 416	8 200	*8 000	*8 000
Kaolin	tonnes	192	793	700	*700	*700
Lead, refined	tonnes	*1 000	*1 000	*1 000	*1 000	*1 000
Sodium carbonate, natural	tonnes	245 680	238 190	297 780	304 110	352 560
Salt (b)	tonnes	44 886	16 359	5 664	18 848	21 199
Vermiculite	tonnes	164	124	----	----	----

Note(s):

(1) Kenya is believed to produce magnesite and small amounts of steel

(a) Exports

(b) Lake salt

Lesotho

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	*1 500	*1 500	1 140	721	2 099

Liberia

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	*200 000	*170 000	155 000	80 000	60 000
Gold, mine	kilograms (metal content)	25	25	57	42	*20

Libya

Commodity	Units	1999	2000	2001	2002	2003
Gypsum	tonnes	*150 000	*150 000	*175 000	*150 000	*150 000
Pig iron	tonnes	1 302 000	1 490 000	1 060 000	1 161 000	1 300 000
Crude steel	tonnes	966 000	1 055 000	846 000	886 000	1 007 000
Crude petroleum	tonnes	62 028 000	64 919 000	63 777 000	*61 550 000	69 000 000
Natural gas	million m ³	5 200	5 880	6 180	6 210	6 400
Salt	tonnes	*30 000	*40 000	*40 000	*40 000	*40 000
Sulphur and pyrites						
Recovered (a)	tonnes (sulphur content)	*13 000	*13 000	*15 000	*15 000	*15 000

Note(s):

(a) From petroleum refining and/or natural gas

Madagascar

Commodity	Units	1999	2000	2001	2002	2003
Beryl (a)	tonnes	20	2	1	*1	*1
Chromium ores and concentrates	tonnes	-----	131 293	23 637	11 000	45 040
Gold, mine	kilograms (metal content)	8	5	0	-----	-----
Graphite	tonnes	14 516	40 328	2 013	*1 000	*2 000
Kaolin	tonnes	*110	*115	...	...	...
Mica	tonnes	54	67	90	45	*45
Salt	tonnes	26 000	26 000	26 000	26 000	*13 000

Note(s):

(a) Includes ornamental and industrial products

Malawi

Commodity	Units	1999	2000	2001	2002	2003
Coal	tonnes	43 831	34 250	34 410	43 372	47 037

Note(s):

(1) Malawi is believed to produce vermiculite

Mali

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	23 688	28 717	42 288	56 028	45 528
Salt	tonnes	*6 000	*6 000	*6 000	*6 000	*6 000

Mauritania

Commodity	Units	1999	2000	2001	2002	2003
Gypsum	tonnes	*100 000	*100 000	*100 000	*100 000	*100 000
Iron ore	tonnes	11 042 000	11 069 000	10 300 000	9 600 000	10 100 000
Salt	tonnes	*6 000	*6 000	*6 000	*6 000	*6 000

Note(s):

(1) Small amounts of steel are believed to be produced in Mauritania

Mauritius

Commodity	Units	1999	2000	2001	2002	2003
Salt (a)	tonnes	7 435	6 000	*6 000	*6 000	...

Note(s):

(a) Sea salt

Morocco

Commodity	Units	1999	2000	2001	2002	2003
Antimony, mine	tonnes (metal content)	250	----	----	----	----
Barytes	tonnes	328 945	343 557	467 056	487 626	356 394
Bentonite and fuller's earth						
Bentonite	tonnes	36 528	43 152	71 741	58 754	71 544
Fuller's earth (a)	tonnes	21 956	30 665	40 664	43 243	14 944
Coal						
Anthracite	tonnes	129 200	30 810	1 908	302	214
Cobalt, mine	tonnes (metal content)	882	1 001	1 337	1 335	1 391
Cobalt metal	tonnes	472	1 207	1 341	1 354	1 341
Copper, mine	tonnes (metal content)	7 123	6 528	5 357	4 994	4 818
Copper, smelter	tonnes	----	----	----	2 000	2 500
Feldspar	tonnes	1 112	16 052	12 015	19 402	*20 000
Fluorspar	tonnes	83 100	76 991	96 500	94 910	81 225
Gold, mine (b)	kilograms (metal content)	*450	505	1 191	2 747	1 863
Gypsum	tonnes	*450 000	*450 000	*450 000	*450 000	*400 000
Iron ore	tonnes	6 625	6 462	7 976	8 736	4 019
Pig iron	tonnes	*15 000	*15 000	*15 000	*15 000	*15 000
Lead, mine	tonnes (metal content)	80 000	82 147	76 748	62 417	39 387
Lead, refined	tonnes	65 209	66 812	58 178	71 840	61 473
Manganese ore	tonnes	29 150	25 830	13 757	18 064	*16 500
Mercury	kilograms	*10 000	*10 000	*10 000	*10 000	*10 000
Mica	tonnes	210	1 897	----	----	----
Crude petroleum	tonnes	11 300	13 000	10 100	12 800	*12 500
Natural gas	million m ³	44	50	50	49	*49
Phosphate rock	tonnes	22 767 000	19 658 000	20 724 000	21 806 000	22 877 000
Salt	tonnes	156 158	162 385	233 816	266 903	236 443
Silver, mine	kilograms (metal content)	277 900	289 000	280 700	276 800	200 430
Strontium minerals	tonnes	----	7 539	1 879	3 780	2 700
Talc	tonnes	2 975	4 069	5 844	6 708	1 959
Talc						
Pyrophyllite	tonnes	11 680	24 359	21 042	33 686	28 338
Zinc, mine	tonnes (metal content)	111 703	105 082	89 631	90 513	68 912

Note(s):

(1) Morocco is believed to produce white arsenic, wollastonite and small amounts of steel

(a) Smectite

(b) Metal production

Mozambique

Commodity	Units	1999	2000	2001	2002	2003
Bauxite	tonnes	7 883	8 130	8 597	9 119	11 793
Primary aluminium	tonnes	----	53 800	266 000	273 200	408 500
Bentonite and fuller's earth						
Bentonite	tonnes	11 187	16 418	1 611	580	684
Beryl	tonnes	...	----	1	54	78
Coal						
Bituminous	tonnes	8 573	16 115	27 600	43 512	36 742
Gold, mine	kilograms (metal content)	19	23	22	17	63
Graphite	tonnes	4 007	----	----	----	----
Salt	tonnes	*82 000	*7 000	*10 000	*80 000	*80 000
Tantalum and niobium minerals						
Tantalite	tonnes	...	----	27	47	189

Note(s):

(1) Mozambique is believed to produce rare earth minerals and perlite

Namibia

Commodity	Units	1999	2000	2001	2002	2003
White arsenic (a)	tonnes	----	----	738	852	389
Copper, mine	tonnes (metal content)	----	5 070	15 003	18 040	16 175
Copper, smelter	tonnes	----	13 488	27 718	26 670	26 306
Diamond	carats	1 632 860	1 541 647	1 487 316	1 537 505	1 454 852
Fluorspar	tonnes	57 599	66 129	81 245	81 084	79 281
Gold, mine	kilograms (metal content)	2 005	2 455	2 852	2 847	2 508
Lead, mine	tonnes (metal content)	9 886	9 797	12 827	12 088	16 112
Salt	tonnes	503 479	543 218	564 841	411 852	661 374
Silver, mine	kilograms (meta content)	----	9 300	20 400	43 600	29 000
Sulphur and pyrites						
Pyrites	tonnes (sulphur content)	----	6 000	34 491	1 874	17 145
Uranium, mine	tonnes (metal content)	2 687	2 713	2 237	3 369	2 661
Wollastonite	tonnes	347	406	284	742	497
Zinc, mine	tonnes (metal content)	37 140	32 937	37 622	41 042	58 052
Zinc, slab	tonnes	----	----	----	----	47 400

Note(s):

(1) Namibia is believed to produce feldspar, graphite and mica

(a) Output of Tsumeb Corp. only, trioxide equivalent of reported black arsenic

Niger

Commodity	Units	1999	2000	2001	2002	2003
Coal	tonnes	168 466	158 200	163 275	182 916	188 915
Gold, mine	kilograms (metal content)	21	25	30	28	30
Gypsum	tonnes	1 502	1 474	3 205	17 652	17 851
Salt	tonnes	*2 000	*2 000	*2 000	*2 000	*2 000
Uranium, mine	tonnes (metal content)	2 916	2 898	2 919	3 076	3 143

Nigeria

Commodity	Units	1999	2000	2001	2002	2003
Primary aluminium	tonnes	15 900	----	----	----	----
Barytes	tonnes	...	*5 000	*5 000	*5 000	*15 000
Coal						
Sub-bituminous	tonnes	20 000	10 000	10 000	10 000	*10 000
Gold, mine	kilograms (metal content)	*40	*52	*37	*40	*50
Kaolin	tonnes	138 000	165 765	32 090	52 352	57 587
Lead, refined	tonnes	*5 000	*5 000	*5 000	*5 000	*5 000
Crude petroleum	tonnes	87 877 000	101 299 000	99 523 000	88 874 000	106 859 000
Natural gas	million m ³	6 950	12 460	15 680	15 120	19 200
Tantalum and niobium minerals						
Tantalite	tonnes	*25	*25	*25	*25	*25
Tin, mine	tonnes (metal content)	2 208	2 760	2 870	728	801
Tin, smelter	tonnes	100	----	----	----	----

Note(s):

(1) Nigeria is believed to produce rare earth minerals and small amounts of steel

(2) No detailed information on the production of tantalum bearing tin slags is available but small amounts are produced in Nigeria

Rwanda

Commodity	Units	1999	2000	2001	2002	2003
Gold, mine	kilograms (metal content)	*10	*10	*10	*10	*10
Tantalum and niobium minerals						
Columbite-tantalite	tonnes	147	561	241	96	70
Tin, mine	tonnes (metal content)	359	400	169	197	200
Tungsten, mine	tonnes (metal content)	54	144	142	153	*150

Senegal

Commodity	Units	1999	2000	2001	2002	2003
Bentonite and fuller's earth						
Attapulgit	tonnes	139 300	148 700	121 100	176 454	176 857
Gold, mine	kilograms (metal content)	*550	*550	*550	550	*600
Phosphate rock						
Phosphate rock	tonnes	1 796 900	1 837 000	1 708 000	1 551 900	1 762 900
Aluminium phosphate (a)	tonnes	64 356	23 710	20 610	1 557	3 516
Salt	tonnes	145 000	124 000	141 000	*160 000	*150 000

Note(s):

(a) Including lime phosphates

Sierra Leone

Commodity	Units	1999	2000	2001	2002	2003
Diamond	carats	*600 000	*350 000	224 188	351 860	506 819
Salt	tonnes	1 300	4 083	2 889	1 821	1 004

Somalia

Commodity	Units	1999	2000	2001	2002	2003
Gypsum	tonnes	*1 500	*1 500	*1 500	*1 500	*1 500
Salt	tonnes	*1 000	*1 000	*1 000	*1 000	*1 000

South Africa

Commodity	Units	1999	2000	2001	2002	2003
Primary aluminium	tonnes	689 230	673 486	662 497	706 916	738 000
Antimony, mine	tonnes (metal content)	5 278	5 064	5 476	5 746	5 310
Asbestos						
Chrysotile	tonnes	18 836	18 782	13 393	13 311	----
Barytes	tonnes	2 844	1 628	----	----	----
Bentonite and fuller's earth						
Bentonite	tonnes	49 300	90 129	108 306	98 313	145 060
Attapulgit	tonnes	7 067	10 287	9 200	13 918	14 585
Chromium ores and concentrates	tonnes	6 817 050	6 662 000	5 502 010	6 435 746	7 405 391
Coal						
Anthracite	tonnes	1 919 244	1 617 969	1 607 000	1 304 965	1 206 105
Bituminous	tonnes	221 594 925	222 500 000	222 105 086	218 900 000	236 670 504
Cobalt, mine	tonnes (metal content)	306	397	373	366	271
Cobalt metal (a)	tonnes	306	397	373	366	271
Copper, mine	tonnes (metal content)	162 900	147 600	141 900	90 000	91 100
Copper, smelter	tonnes	149 300	140 000	117 200	117 000	112 000
Copper, refined	tonnes	116 400	106 400	107 000	92 000	89 300
Diamond	carats	10 014 815	10 789 976	11 162 630	10 882 614	12 673 379

South Africa continued

Commodity	Units	1999	2000	2001	2002	2003
Feldspar	tonnes	59 336	66 774	66 062	66 616	57 738
Fluorspar	tonnes	217 540	212 709	286 387	227 000	235 000
Gold, mine	kilograms (metal content)	451 200	430 778	394 757	398 258	372 766
Gypsum	tonnes	505 404	413 105	382 830	415 387	394 069
Iron ore (b)	tonnes	29 507 000	33 707 364	34 757 159	36 484 015	38 085 855
Pig iron	tonnes	7 592 000	7 818 000	7 376 000	7 525 000	7 700 000
Crude steel	tonnes	7 857 000	8 481 000	8 821 000	9 095 000	9 481 000
Ferro-alloys						
Ferro-chrome	tonnes	2 155 202	2 574 264	2 141 008	2 351 122	2 823 341
Ferro-manganese	tonnes	527 106	527 106	523 844	618 954	*615 000
Ferro-silico-manganese	tonnes	307 545	310 400	259 176	315 802	*312 000
Ferro-silicon	tonnes	105 998	108 513	107 557	141 700	*160 000
Silicon metal	tonnes	35 797	40 264	39 440	42 500	*43 000
Kaolin	tonnes	123 200	89 242	83 500	91 456	86 365
Lead, mine	tonnes (metal content)	80 191	75 262	50 771	49 444	39 941
Lead, refined	tonnes	52 000	46 000	55 000	61 000	67 000
Magnesite	tonnes	63 700	63 000	36 500	87 200	*85 000
Manganese ore						
Metallurgical	tonnes	3 092 784	3 613 154	3 239 903	3 302 129	3 484 801
Chemical	tonnes	29 210	22 273	26 241	19 516	15 837
Mica	tonnes	1 010	676	937	821	980
Nepheline syenite (d)	tonnes	82 000	...	...	...	...
Nickel, mine (e)	tonnes (metal content)	36 200	36 614	36 443	38 546	40 842
Nickel, smelter/refinery	tonnes	32 600	36 600	36 500	38 500	40 800
Perlite	tonnes	*1 200	*1 200	*1 200	*1 200	*1 200
Crude petroleum	tonnes	1 012 000	1 128 000	1 025 000	1 025 000	*780 000
Natural gas	million m ³	*2 000	*2 000	*2 000	*1 000	...
Phosphate rock	tonnes	2 956 806	2 796 225	2 419 941	2 803 265	2 642 970
Platinum group metals, mine						
Platinum	kilograms (metal content)	121 304	114 459	129 746	133 796	148 348
Palladium	kilograms (metal content)	58 164	55 818	62 142	64 244	70 946
Other platinum metals	kilograms (metal content)	37 011	36 493	36 859	41 545	46 856
Salt	tonnes	358 584	345 632	356 582	428 887	437 896
Sillimanite minerals						
Andalusite	tonnes	136 949	182 674	193 225	165 087	220 000
Silver, mine	kilograms (metal content)	151 959	144 100	109 600	113 108	87 325
Sulphur and pyrites						
Pyrites	tonnes (sulphur content)	141 427	145 650	150 184	183 004	175 621
Recovered (f) (g) (h)	tonnes (sulphur content)	122 782	157 169	238 128	316 219	438 271
Talc	tonnes	7 873	5 600	3 030	2 511	6 719
Talc						
Pyrophyllite	tonnes	13 277	11 989	14 047	15 587	14 350
Titanium minerals						
Ilmenite (i)	tonnes	*1 870 000	*1 853 000	*1 751 000	*1 649 000	*1 581 000
Rutile	tonnes	*123 000	*123 000	*122 000	*140 000	*120 000
Uranium, mine	tonnes (metal content)	919	861	903	846	758
Vanadium, mine (c)	tonnes (metal content)	17 612	18 021	18 184	25 227	27 172
Vermiculite	tonnes	217 820	208 835	160 265	210 297	182 802
Wollastonite	tonnes	200	-----	-----	...	...
Zinc, mine	tonnes (metal content)	69 733	62 703	61 221	64 173	41 239
Zinc, slab	tonnes	108 000	103 250	109 000	111 000	114 000
Zirconium minerals	tonnes	*320 000	*325 000	*262 000	*420 000	*410 000

Note(s):

- (a) Includes metal and metal contained in sulphate
- (b) Including by-product magnetite
- (c) Includes vanadium content of ferro-vanadium and vanadium pentoxide
- (d) Mostly used as aggregate
- (e) Includes metal and metal content of sulphate and concentrates
- (f) From metal sulphide processing
- (g) From petroleum refining and/or natural gas
- (h) Including production from synthetic fuels
- (i) Processed into slag. In 2003 South Africa produced an estimated 930 000 tonnes (85% TiO₂)

Sudan

Commodity	Units	1999	2000	2001	2002	2003
Chromium ores and concentrates	tonnes	48 000	28 500	20 500	14 000	37 000
Gold, mine	kilograms (metal content)	5 565	5 773	5 438	5 258	*5 500
Gypsum	tonnes	11 144	13 808	2 422	*4 000	*4 000
Crude petroleum	tonnes	3 100 000	8 600 000	10 400 000	11 500 000	12 600 000
Salt	tonnes	117 148	86 599	77 783	...	...

Swaziland

Commodity	Units	1999	2000	2001	2002	2003
Asbestos						
Chrysotile	tonnes	22 912	12 690	-----	-----	-----
Coal						
Bituminous	tonnes	426 299	378 043	*450 000	553 000	*550 000

Tanzania

Commodity	Units	1999	2000	2001	2002	2003
Coal						
Bituminous	tonnes	75 044	79 184	77 789	79 210	54 610
Copper, mine	tonnes (metal content)	-----	-----	2 645	2 700	2 200
Diamond	carats	234 800	354 388	254 271	239 761	232 273
Gold, mine	kilograms (metal content)	4 890	15 060	30 088	43 320	48 128
Gypsum	tonnes	21 195	60 000	72 000	78 650	*23 176
Phosphate rock	tonnes	7 250	5 100	4 000	*7 650	3 738
Salt	tonnes	35 893	70 000	65 000	71 200	...
Silver, mine	kilograms (metal content)	...	...	6 861	6 690	8 226

Note(s):

(1) Tanzania is believed to produce bentonite

Tunisia

Commodity	Units	1999	2000	2001	2002	2003
Barytes	tonnes	3 000	3 702	2 208	5 539	5 000
Fluorspar	tonnes	520	-----	-----	-----	-----
Gypsum	tonnes	*100 000	*100 000	*100 000	*100 000	*100 000
Iron ore	tonnes	222 200	183 300	206 500	179 200	164 000
Pig iron	tonnes	180 200	195 400	191 600	151 900	45 000
Crude steel	tonnes	231 000	229 000	238 400	200 500	86 000
Lead, mine	tonnes (metal content)	6 300	6 200	6 942	5 081	*5 000
Crude petroleum	tonnes	3 938 000	3 700 000	3 343 900	3 475 600	3 100 000
Natural gas	million m ³	300	2 000	2 530	2 386	2 700
Phosphate rock	tonnes	8 006 300	8 301 200	8 105 900	7 735 100	7 889 900
Salt (a)	tonnes	455 000	620 000	712 400	615 800	700 000
Silver, mine	kilograms (metal content)	4 000	3 700	3 650	*3 000	*3 000
Zinc, mine	tonnes (metal content)	48 900	41 200	40 098	35 692	38 000

Note(s):

(a) Sea salt

Uganda

Commodity	Units	1999	2000	2001	2002	2003
Cobalt metal	tonnes	77	411	512	*450	----
Gold, mine (a)	kilograms (metal content)	5 558	9 860	6 090	7 590	4 160
Kaolin	tonnes	...	...	...	220	----
Salt	tonnes	*5 000	*5 000	*5 000	*5 000	*5 000
Tantalum and niobium minerals						
Columbite-tantalite	tonnes	----	3	11	6	16
Tungsten, mine	tonnes (metal content)	0	----	14	52	2
Vermiculite	tonnes	----	----	100	664	1 724

Note(s):

(1) Small amounts of steel are believed to be produced in Uganda

(a) Exports

Zambia

Commodity	Units	1999	2000	2001	2002	2003
Beryl (a)	tonnes	7	7	7	7	7
Coal						
Bituminous	tonnes	127 854	168 000	*150 000	*150 000	*150 000
Cobalt, mine (b)	tonnes (metal content)	3 946	3 342	4 665	6 144	6 620
Cobalt metal	tonnes	3 946	3 342	4 665	6 144	6 620
Copper, mine	tonnes (metal content)	270 995	249 304	306 909	307 834	343 600
Copper, smelter (c)	tonnes	217 600	180 000	215 000	253 500	250 000
Copper, refined	tonnes	268 400	226 169	307 904	347 235	360 100
Gold, mine (d)	kilograms (metal content)	79	*100	*130	*150	*150
Selenium metal	tonnes	12	10	13	*11	*10
Silver, mine	kilograms (metal content)	6 076	*6 000	*6 000	*6 000	*6 000
Sulphur and pyrites						
Pyrites	tonnes (sulphur content)	26 000	21 000	25 000	----	----
Recovered (e)	tonnes (sulphur content)	52 000	52 000	52 000	52 000	52 000
Zinc, slab	tonnes	----	----	----	2 000	1 000

Note(s):

(1) Minor quantities of niobium and tantalum minerals are believed to be produced in Zambia

(a) Includes ornamental and industrial products

(b) Years ended 31 March following that stated

(c) Including leach cathodes

(d) Contained in blister copper, refinery muds and electrolytic copper

(e) From metal sulphide processing

Zimbabwe

Commodity	Units	1999	2000	2001	2002	2003
Asbestos						
Chrysotile	tonnes	87 872	151 954	118 969	167 954	130 000
Barytes	tonnes	3 140	5 032	7 464	5 233	*4 500
Chromium ores and concentrates	tonnes	653 479	668 043	722 625	725 822	666 357
Coal						
Bituminous	tonnes	4 977 355	3 986 202	4 511 447	3 938 175	3 000 000
Cobalt, mine	tonnes (metal content)	129	79	96	74	*90
Copper, mine	tonnes (metal content)	4 977	558	492	1 356	2 767
Copper, smelter	tonnes	7 000	2 000	-----	-----	-----
Copper, refined	tonnes	14 500	14 400	5 300	5 400	5 000
Diamond	carats	42 578	23 028	-----	-----	-----
Feldspar	tonnes	1 915	2 059	1 055	824	*400
Gold, mine	kilograms (metal content)	27 114	22 007	18 478	15 669	12 564
Graphite	tonnes	12 321	11 838	12 117	9 700	*8 000
Iron ore	tonnes	598 650	438 495	361 362	271 812	400 000
Pig iron	tonnes	270 000	277 000	156 000	122 000	182 000
Crude steel	tonnes	255 000	258 000	149 000	105 000	152 000
Ferro-alloys						
Ferro-chrome	tonnes	248 395	246 324	249 841	258 164	261 095
Ferro-silico-chrome	tonnes	24 760	19 631	16 848	...	...
Lead, refined	tonnes	*2 000	*1 000	*1 000	-----	-----
Lithium minerals	tonnes	36 671	37 914	36 103	29 320	24 000
Magnesite	tonnes	5 356	4 029	2 466	2 546	*2 000
Mica	tonnes	499	273	-----	-----	-----
Nickel, mine	tonnes (metal content)	9 593	5 968	8 009	7 835	9 500
Nickel, smelter/refinery	tonnes	19 800	19 600	19 500	18 900	12 700
Phosphate rock	tonnes	84 763	77 662	86 611	84 926	*90 000
Platinum group metals, mine						
Platinum	kilograms (metal content)	390	504	435	2 053	*4 400
Palladium	kilograms (metal content)	278	360	313	1 728	*3 170
Other platinum metals	kilograms (metal content)	30	40	35	416	*760
Sillimanite minerals						
Kyanite	tonnes	5 038	10 970	9 682	5 657	4 000
Silver, mine	kilograms (metal content)	5 396	3 799	3 449	3 219	700
Sulphur and pyrites						
Pyrites	tonnes (sulphur content)	23 300	29 000	21 700	19 000	19 000
Talc	tonnes	1 081	989	1 273	1 024	*700
Tantalum and niobium minerals						
Columbite-tantalite	tonnes	3	4	23	26	4
Vermiculite	tonnes	12 844	16 215	9 104	21 494	20 016

Note(s):

(1) Zimbabwe is believed to produce bentonite and selenium metal