



2014 Minerals Yearbook

AFRICA



Base modified from ESRI ArcGIS online world countries (generalized) map data, 2017
 Mercator Auxiliary Sphere projection
 World Geodetic System 1984 datum

Figure 1. Map of the sub-Saharan region of Africa. The countries covered in this report (with the exception of Cabo Verde, which is not shown) are labeled on the map; bordering countries are shown in gray and not labeled.

THE MINERAL INDUSTRIES OF AFRICA

By Thomas R. Yager, James J. Barry, Omayra Bermúdez-Lugo, Mowafa Taib,
Lloyd M. Trimmer III, Glenn J. Wallace, and David R. Wilburn

Africa is richly endowed with mineral resources and ranks first or second in quantity of world reserves of bauxite, chromite, cobalt, industrial diamond, manganese, phosphate rock, platinum-group metals (PGMs), rutile, soda ash, and zirconium. The 51 independent nations and other territories of sub-Saharan Africa and adjacent islands covered in this volume encompass a land area of 24.3 million square kilometers, which is more than twice the size of the United States, and were home to 976 million people in 2014 (table 1; fig. 1, facing page). Nigeria had a population of 177.5 million in 2014; Ethiopia, 97 million; the Democratic Republic of the Congo [Congo (Kinshasa)], 74.9 million; South Africa, 54 million; and Tanzania, 51.8 million (table 1). For many of these countries, mineral exploration and production constitute significant parts of their economies and are important to future economic growth (Bedinger, 2015a, b; Bolen, 2015; Bray, 2015; Corathers, 2015; Jasinski, 2015; Loferski, 2015; Olson, 2015; Papp, 2015; Shedd, 2015).

The mineral industry was an important source of export earnings for many African nations in 2014. To promote exports, groups of African countries have formed numerous trade blocs, which include the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC), the Economic Community of Central African States, the Economic Community of West African States (ECOWAS), the Mano River Union, the Southern African Development Community (SADC), and the West African Economic and Monetary Union. Angola and Nigeria were members of the Organization of the Petroleum Exporting Countries (OPEC). The African Union, which had 54 African countries as members, was formed to accelerate socioeconomic integration and promote peace, security, and stability on the continent.

African countries played a significant role in the mineral imports of the United States for several commodities, including bauxite, ilmenite, rutile, titaniferous slag, and vanadium. In 2014, Mozambique accounted for 61% of the United States ilmenite imports by volume; South Africa, 57% of natural rutile imports, 49% of titanium slag imports, and 36% of vanadium pentoxide imports; and Guinea, 24% of bauxite imports (Bedinger, 2016, p. 78.12; Bray, 2016; Polyak, 2016).

The Kimberley Process Certification Scheme (KPCS) was established in 2003 to reduce the trade in conflict diamond. As of late December 2014, the following African countries had met the minimum requirements of the KPCS: Angola, Botswana, Cameroon, the Republic of the Congo [Congo (Brazzaville)], Congo (Kinshasa), Côte d'Ivoire, Ghana, Guinea, Lesotho, Liberia, Mali, Mauritius, Namibia, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, and Zimbabwe. Côte d'Ivoire was readmitted to the KPCS in 2014. A ban was placed on diamond exports from the Central African Republic by Kimberley Process (KP) members in May 2013 after a takeover of the Government by rebel forces prevented KP monitors from

verifying diamond certification; the ban was still in effect at the end of 2014 (Penney, 2013).

The U.S. Geological Survey (USGS) acknowledges and expresses its sincere appreciation to the following Government agencies, international institutions, and private research organizations for providing mineral production statistics, basic economic data, and mineral exploration and other mineral-related information:

- For mineral production statistics—
- Angola—Ministry of Geology and Mines,
 - Botswana—Department of Mines,
 - Burkina Faso—Ministry of Mines and Energy,
 - Kenya—Ministry of Mining,
 - Liberia—Bureau of Economic Forecast and Mining Concession Appraisal,
 - Malawi—Department of Mines,
 - Mauritius—Statistics Mauritius,
 - Mozambique—National Directorate of Mines,
 - Namibia—Ministry of Mines and Energy,
 - Niger—Ministry of Mines and Industrial Development,
 - Seychelles—Seychelles Energy Commission,
 - South Africa—Department of Mineral Resources,
 - Swaziland—Central Statistical Office,
 - Tanzania—Ministry of Energy and Minerals,
 - Togo—Head Office of Mining and Geology, and
 - Zimbabwe—Minerals Marketing Corporation.

For basic economic data—the International Monetary Fund.

For exploration and other mineral-related information—Metals Economics Group (MEG) in Canada.

General Economic Conditions

In 2014, the real gross domestic product (GDP) of sub-Saharan Africa increased by 5.8% compared with an increase of 5.7% in 2013 (table 2). The worldwide GDP increased by 3.4% in 2014. In Sierra Leone, the GDP increased by 4.6% in 2014 compared with the high growth levels of 20.7% in 2013 and 15.2% in 2012. High growth rates in 2012 and 2013 were mostly attributable to the opening of iron ore mines; the lower growth rate in 2014 was partially attributable to decreased iron ore production. South Sudan's GDP increased by 2.9% in 2014 compared with an increase of 29.3% in 2013 and a decrease of 52.4% in 2012; recent volatility was attributable to the shutdown and resumption of crude petroleum production.

GDP growth in African petroleum-exporting countries is projected to be at or about 3.8% in 2015 and 4.3% in 2016. In low-income petroleum-importing countries, GDP growth is expected to be at or about 5.8% in 2015 and 6.6% in 2016. GDP growth is likely to be at or about 2.7% in 2015 and 2.9% in 2016 in middle-income petroleum importing countries (International Monetary Fund, 2015, p. 37).

Investment Data

In South Africa, numerous producers were planning new mines and plants and capacity expansions of existing operations for andalusite, cement, chromite, coal, copper, diamond, ferrochromium, ferromanganese, ferrovandium, fluorspar, gold, ilmenite, iron ore, manganese ore, nickel, pig iron, PGMs, phosphate fertilizers, rare-earth elements, rutile, silicomanganese, tin, titanium metal, uranium, vanadium, zinc, zircon, and zirconium metal. Projects included the extension of the life of the Venetia diamond mine, which was estimated to cost \$2.1 billion, and a new silicon, titanium, and zirconium metal plant that was estimated to cost \$2 billion.

Other African countries had substantial planned investments in new mineral projects. For the Kamoa copper project in Congo (Kinshasa), capital costs in the first phase of the project were estimated to be \$1.4 billion, and in the second phase, an additional \$3.5 billion. The Liganga iron ore and steel project in Tanzania had an estimated cost of \$1.7 billion. Kamoa and Liganga could start production in 2019.

Mozambique and Tanzania had proposed liquefied natural gas projects (LNG) with estimated costs of \$26 billion and more than \$20 billion, respectively. The estimated capital cost of the Zambeze coal project in Mozambique was \$3.3 billion. A proposed petroleum refinery in Uganda had an estimated cost of \$2.5 billion. The refinery in Uganda was expected to start in 2018, and the Zambeze project, by 2023. The LNG plants in Mozambique and Tanzania could start in 2019 and between 2020 and 2022, respectively.

Legislation

In April 2014, the Government of Burundi and the International Tin Research Institute (ITRI) started the ITRI Tin Supply Chain Initiative (iTSCI) certification scheme for domestically produced tantalum, tin, and tungsten to meet end users' requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act, which contains provisions concerning the use of minerals to finance military operations in eastern Congo (Kinshasa). The Government of Rwanda and Provincial governments in Congo (Kinshasa) also participated in iTSCI.

The Government of Mozambique passed a new mining law with provisions relating to domestic beneficiation, local content, and environmental impact assessments in 2014. The Government of Mozambique also passed tax laws with new royalty rates and a new petroleum law. The Government of Rwanda passed a new mining law that established new licensing requirements. The Government of Côte d'Ivoire also passed a new mining code that set more stringent criteria for the issuance of exploration and mining licenses and established a longer license period.

Exploration

Exploration activity, as defined by exploration budgets reported by SNL Metals & Mining (SNL), decreased to about \$1.7 billion in 2014 from about \$2.4 billion in 2013 (SNL Metals & Mining, 2014). Based on site data compiled by the

USGS, active gold and silver projects that were being explored in 2014 accounted for approximately 43% of the reported African exploration projects; copper, 17%; iron ore, 9%; diamond, 5%; lead or zinc, 5%; PGMs, 5%, and other minerals, 11%. Early-stage exploration projects accounted for about 56% of the 2014 activity; producing projects, about 23%; feasibility-stage projects, about 11%; and developing projects, about 10%.

Exploration activity, in terms of the number of active sites, increased to 389 sites in 2014 from 342 sites in 2013. Exploration was focused primarily in, in descending order based on the number of sites, South Africa, 64; Burkina Faso, 29; Congo (Kinshasa) and Mali, 27 each; Tanzania, 24; Namibia, 22; Botswana, 19; Ghana, 18; Zambia, 16, and Guinea, 13. Activity also took place at 130 sites in 22 other countries. Table 3 highlights exploration information for 18 selected sites.

Although the number of exploration sites increased in 2014, Africa's mining sector faced a number of challenges in 2014 that has affected the mineral exploration budgets on the continent. In addition to the uncertain global macroeconomic environment and lack of investor capital, exploration and development was particularly affected by the lack of transportation and energy infrastructure and power shortages, labor strikes in South Africa, and the effects of the Ebola outbreak in West Africa. Other factors that influenced the level of activity included conflict, corruption, and illegal mining; inadequate or confusing regulations; and a lack of reliable geologic data (Davenport, 2014). The World Bank announced a plan to initiate a \$1 billion program to map Africa's mineral resources beginning in 2014 (Jacobsen, 2014).

The Ebola outbreak in West Africa appeared to have had a short-term effect on mineral exploration and production in West Africa during 2014. The affected region included Guinea, Liberia, Nigeria, and Sierra Leone, and neighboring countries (Côte d'Ivoire, Mali, and Senegal) were placed on alert for the disease. The region included 39 producing mines; copper, gold, and iron ore exploration was ongoing in the region (Killorn, 2014). Many companies reduced activity or temporarily evacuated personnel. Based on SNL data, the 2014 mineral exploration budget allocation for the four countries directly affected by the Ebola outbreak was \$84 million, or 49% less than the \$166 million allocation for 2013. Budgets in surrounding countries also showed a reduction from \$352 million in 2013 to \$178 million in 2014 (SNL Metals & Mining, 2014). The reported decline in exploration allocation, although likely affected by the Ebola outbreak, could also be attributable to other factors, such as the weak global investment climate.

Commodity Overview

In tables 5 through 20, estimates for the production of major mineral commodities for 2016 and beyond have been based upon supply-side assumptions, such as announced plans for increased production, new capacity construction, and bankable feasibility studies. The outlook tables in this summary chapter show historic and projected production trends; therefore, no indication is made about whether the historic data are estimated or reported and revisions are not identified. Data on individual

mineral commodities in tables in the individual country chapters are labeled to indicate estimates and revisions. The outlook segments of the mineral commodity tables are based on projected trends that could affect current (2014) producing facilities and on planned new facilities that operating companies, consortia, or Governments have projected to come online within indicated timeframes. Forward-looking information, which includes estimates of future production, exploration and mine development, cost of capital projects, and timing of the start of operations, are subject to a variety of risks and uncertainties that could cause actual events or results to differ significantly from expected outcomes. Projects listed in the following section are presented as an indication of industry plans and are not a USGS prediction of what will take place.

Metals

Aluminum and Bauxite and Alumina.—Production.—Africa's bauxite production increased by about 5% in 2014 compared with that of 2013. In 2014, production increased at the Sangaredi Mine in Guinea and at the Sierra Minerals Mine in Sierra Leone. Guinea accounted for about 89% of Africa's bauxite production in 2014; Sierra Leone, 6%; and Ghana, 4% (table 5). In 2014, Africa's share of world bauxite production was 7.5% (table 4).

Africa's production of refined aluminum decreased by 4% in 2014. Most of the decrease was attributable to the closure of South Africa's Bayside smelter. South Africa accounted for about 51% of Africa's aluminum output in 2014; Mozambique, 39%; and Cameroon, 6% (table 6). Africa accounted for 2.5% of the world's aluminum production in 2014 (table 4).

Outlook.—Africa's bauxite production is likely to increase by an average of about 19% per year from 2014 to 2020. Most of the increase would be attributable to increased production in Guinea, where the GAC Mine is likely to start by 2016; the Dian-Dian, the F.A.R., and the Koumbia projects, by 2017; and Somalu License No. 216, by 2019 or 2020. The Friguia Mine is also planned to reopen by 2017. Output from the Sierra Minerals Mine in Sierra Leone is also expected to increase by 2016 (table 5).

The production of refined aluminum is expected to decrease by 5% by 2016 and subsequently to remain unchanged until at least 2020. Output in South Africa is likely to decrease with the closure of the Bayside smelter (table 6).

Chromium.—South Africa was the world's leading producer of chromite. In 2014, Africa produced about 14.6 million metric tons (Mt) of chromite, which was 50.5% of the world's chromite production. South Africa accounted for 96% of Africa's production of chromite and Zimbabwe, 3% (table 4; fig. 2, which follows the tables at the end of this chapter).

Cobalt.—Production.—In 2014, Africa's cobalt mine production increased by about 9% compared with that of 2013. Increased production in Congo (Kinshasa) was attributable to numerous mines, including the Etoile, the KTO, the Mutanda, the Ruashi, and the Tenke Fungurume Mines. At the Mukondo Mountain Mine, output decreased substantially in 2014. Production increased at the Ambatovy nickel-cobalt mine in Madagascar. In 2014, Congo (Kinshasa) accounted for 83% of

Africa's cobalt mine production; Zambia, 7%; and Madagascar, nearly 5% (table 7). Africa's share of world cobalt mine production was 53.2% in 2014 (table 4; fig. 2).

Outlook.—Africa's cobalt mine production is expected to increase by an average of between 6% and 7% per year from 2014 to 2020. Congo (Kinshasa) is likely to account for most of the increase in output because of the opening of the Metalkol project in 2017 and the Musonoi Mine in 2019, and the expansion of the Etoile Mine by 2016. Other contributions to increased mined cobalt in Congo (Kinshasa) would be increased output at the Mutanda, the Ruashi, and the Tenke Fungurume Mine. Production is expected to decrease at the Luiswishi and the Mukondo Mountain Mines. In Madagascar, the Ambatovy Mine and refinery were expected to reach 90% of capacity in 2016. Output is also likely to increase in South Africa and Zambia (table 7).

Copper.—Production.—Africa's copper mine production increased by nearly 4% in 2014 compared with that of 2013. In 2014, Congo (Kinshasa) accounted for 51% of Africa's copper mine production; Zambia, 35%; and Eritrea and South Africa, 4% each (table 8). Africa's share of world copper mine production was 10.1% in 2014 (table 4). Most of the production increase in Congo (Kinshasa) was attributable to artisanal miners and smaller commercial-scale operations; output also increased at the Frontier, the Kinsevere, the KOV, the KTO, and the Mutanda Mines. Production decreased at the Dikulushi, the Etoile, the Kipoi, and the Tenke Fungurume Mines. In Eritrea, mining from a copper-rich zone at the Bisha Mine increased in 2014.

Zambia's copper mine production decreased in 2014 because of reduced output at the Kansanshi, the Konkola, the Lumwana, and the Mopani Mines. In Botswana, decreased production at the Phoenix, the Selebi-Phikwe, and the Thakudu Mines more than offset increased production from the Boseto Mine.

Africa's production of refined copper increased by about 11% in 2014. In Congo (Kinshasa), production increased at the Kinsevere, the Luilu, the Luita, the Mutanda, the Ruashi, and the Tenke Fungurume solvent extraction-electrowinning plants. The Kipoi plant also opened in 2014. Output decreased in South Africa and Zambia. In 2014, Congo (Kinshasa) accounted for 60% of Africa's refined copper production; Zambia, nearly 35%; and South Africa, 5% (table 9).

Outlook.—Africa's copper mine production is expected to increase by an average of between 4% and 5% per year from 2014 to 2020. In Congo (Kinshasa), the expansion of the Usoke Avenue plant and the opening of the Metalkol project are planned to be completed in 2016 and 2017, respectively. Other contributions to increased production of mined copper in Congo (Kinshasa) would include increased output from the Kinsevere, the Kipoi, and the Mutanda Mines and the opening of the Kamoia Mine (table 8).

South Africa's production of mined copper is expected to increase because of the Lift II project at the Palabora Mine starting in 2016 and expansions at PGM mines. In Uganda, the reopening of the Kilembe Mine is planned for 2015. Output is also expected to increase in Zambia.

Copper mine production is likely to decrease temporarily in Botswana because of the closure of the Boseto Mine in 2015. The opening of the Ghanzi project is planned for 2018.

In Eritrea, the depletion of a copper-rich zone at the Bisha Mine is expected to be partially offset by the opening of the Asmara North project in 2016 (table 8).

The production of refined copper is expected to increase by an average of about 4% per year from 2014 to 2020. In Congo (Kinshasa), the expansion of the Usoke Avenue plant and the opening of the Metalkol project are planned to be completed in 2016 and 2017, respectively. Other contributions to increased production of refined copper in Congo (Kinshasa) would include increased output from the Kinsevere, the Kipoi, the Luita, and the Mutanda plants.

In Namibia, the Tschudi project was planned to start production by 2016. South Africa's production of refined copper is expected to increase because of the Lift II project starting in 2016. Zambia's output is also likely to increase (table 9).

Gold.—Production.—Africa's gold mine production was about 581,000 kilograms in 2014, which was an increase of about 2% compared with that of 2013. Since 2005, the long-term decline in South Africa's production has been more than offset by the increased output in Burkina Faso, Congo (Kinshasa), Côte d'Ivoire, Ethiopia, Ghana, Sudan, and other countries (table 10). Africa's share of world gold mine production was 17.8% in 2014 (table 4; fig. 2).

South Africa accounted for 26% of Africa's gold production in 2014; Ghana, 16%; Sudan, 13%; Mali and Tanzania, 7% each; Burkina Faso, 6%; and Congo (Kinshasa), 5%. South Africa's share of continental gold production decreased to 26% from 56% in 2005 because of rising production costs associated with deeper underground operations and increased production in other countries (table 10).

In 2014, the increase in Africa's gold production was primarily attributable to Congo (Kinshasa). Output increased at the Kibali, the Namoya, and the Twangiza Mines. In Burkina Faso, higher production levels at the Bissa, the Essakane, and the Mana Mines contributed to increased national output. Côte d'Ivoire's production increased because of the opening of the Agabou Mine. In Guinea, the closure of the Kiniero Mine was more than offset by increased production from the Lefa and the Siguiri Mines (table 10).

The decrease in South Africa's production was attributable to numerous mines in 2014, including the Cooke, the Doornkop, the Driefontein, the Joel, the Kopanang, the Masimong, the Mponeng, and the South Deep Mines. Production increased at the Beatrix, the Kloof, the Kusasalethu, the Moab Khotsong, and the Phakisa Mines.

In Tanzania, decreased output from artisanal miners and the closure of the Golden Pride Mine more than offset increased production at the Bulyanhulu, the Buzwagi, the Geita, and the North Mara Mines. Production by Kenya's artisanal gold miners decreased sharply in 2014. In Eritrea, production decreased at the large-scale Bisha Mine. Output also decreased at large-scale mines in Botswana and Niger (table 10).

Outlook.—Gold mine production in Africa is expected to increase by an average of more than 3% per year from 2014 to 2020. The increase is likely to be primarily attributable to countries in West Africa. In Mali, the opening of the Yanifola project by 2017 and increased production from the Kalana and the Syama Mines by 2018 is expected to more than offset

the closure of the Morila Mine. Côte d'Ivoire's production is likely to increase because of the opening of the Yaoure Mine by 2018. The expansions of the Ity Mine and the Tongon Mine are planned by late 2017 and 2020, respectively (table 10).

Gold production is also expected to increase in other West African countries, including Burkina Faso, Ghana, Guinea, and Senegal. Burkina Faso's production is likely to increase because of the opening of the Karma Mine by 2016 and the Hounde project by 2017. Output is also expected to increase at the Essakane and the Mana Mines. Guinea's production is likely to increase because of the startup of the Tri-K and the Kourousa projects by 2018 and 2020, respectively. The outlook for Senegal is for increased output because of the opening of the OJVG project and the expansion of the Sabodala Mine by 2020. Ghana's production could increase modestly because of expansions at the Ahafo and the Edkian Mines and the startup of the Wa Gold project in 2018 (table 10).

In eastern Africa, Tanzania's production is likely to increase until 2017 and to subsequently decrease. Increased output would be attributable to the expansions of the North Mara and the Bulyanhulu Mines by 2015 and 2016, respectively. The opening of the Singida Mine is expected to be in 2019. The closures of the Tulawaka Mine in 2017 and the Buzwagi Mine in 2019 would cause production to decrease after 2017. In Ethiopia, increased production is likely to be attributable to the opening of the Sakaro Mine in 2015 and the Jilay and the Tulu Kapi Mines in 2017. Eritrea's production is expected to increase because of the opening of the Asmara North and Zara projects in 2016. Increased output in Congo (Kinshasa) would be attributable to the Kibali, the Namoya, and the Twangiza Mines (table 10).

In southern Africa, a modest upward trend in South Africa's production is expected between 2016 and 2020. Output at the South Deep Mine could increase starting in 2016. The reopening of the Burnstone Mine and the startup of the West Rand tailings retreatment project are planned for 2018. The openings of new PGM mines between 2016 and 2020 also are expected to contribute to increased gold production. The Masimong and the Tau Lekoa Mines are planned to shut down in 2018, and the Unisel Mine, in 2020. Namibia's output is likely to increase because of the opening of the Otjikoto Mine in late 2014. Gold production could also increase substantially in Zimbabwe by 2020 because of the opening of the Redwing Mine (table 10).

Several African countries that had only artisanal gold production in 2014 are likely to open large-scale gold mines in the near future. The opening of the New Liberty and the Dugbe 1 projects in Liberia were planned for 2016. Other new mines opening include the Fair Bride Mine in Mozambique by 2016, the Borguené project in Cameroon and the Passendro Mine in the Central African Republic by 2018, and the Boamahun Mine in Sierra Leone by 2020 (table 10).

Iron and Steel.—Production.—Africa's production of crude steel decreased by more than 6% in 2014 compared with that of 2013. The decrease was attributable to reduced output at the Newcastle plant in South Africa. In 2014, South Africa accounted for 82% of regional crude steel production; Nigeria, more than 6%; Kenya, 5%; and Tanzania, 2% (table 12). Africa's share of world crude steel production amounted to less than 1% in 2014 (table 4).

Outlook.—Crude steel production is expected to increase by about 10% per year from 2014 to 2020. Increased output from the Vanderbijlpark plant and the opening of a new plant near Richards Bay or Witbank by 2020 is likely to substantially increase South Africa's production. In Uganda, the Sukulu phosphate and iron ore project could start producing steel in 2018. The opening of the Liganga iron ore mine and its associated steel plant in Tanzania could take place in 2019. In Ethiopia, the Toussa plant is expected to start production by 2016. Production also could increase in Zimbabwe (table 12).

Iron Ore.—*Production.*—In 2014, the iron content of ore produced in Africa was 73.3 Mt compared with 68.4 Mt in 2013. Increased production in South Africa was attributable to the Kolomela, the Mapochs, the Sishen, and the Thabazimbi Mines. In Liberia, output increased because of the opening of the Bong Mine in 2014. Production also increased in Mauritania. In Sierra Leone, production decreased because the Marampa and the Tonkolili Mines were placed on care-and-maintenance status. South Africa was the leading iron ore producer in Africa and accounted for 70% of continental output; Sierra Leone, 14%; Mauritania, 12%; and Liberia, 4%. In 2010, Liberia and Sierra Leone did not mine iron ore (table 11).

Outlook.—The iron content of ore produced in Africa is expected to increase to about 150 Mt in 2020. Most of the increase is likely to be attributable to West African countries. In Guinea, the opening of the Kalia Mine was planned for 2018, and that of the new mines in Blocks 3 and 4 near Simandou and the Nimba project, for 2020. Liberia's production is likely to increase because of the expansion of the Western Range project by 2018 and increased output from the Bong Mine. In Sierra Leone, the Tonkolili Mine could reach full capacity by 2020 after reopening in 2016. Mining could start at the Agbaja project in Nigeria in 2018 (table 11).

Other African countries are also likely to increase regional iron ore production. Mauritania's output is expected to more than double because of the expansions of the Guelb el Rhein, the Kedia d'Idjill, and the M'Haoudat Mines and the startup of the Askaf, the Guelb el Aouj, and other projects. Mining is planned to start at the Avima Mine in Congo (Brazzaville) in 2018. In Uganda, production at the Sukulu phosphate and iron ore project also could start in 2018. Mining could start at the Tete project in Mozambique and at the Liganga Mine in Tanzania in 2019 (table 11).

In South Africa, large-scale mining is expected to start at the Bushveld and the Ironveld projects in 2018 and 2020, respectively. The expansion of the Palabora Mine is likely to be completed in 2016, and that of the Kolomela Mine, in 2017. The total iron content of South Africa's production would decrease because of the closure of the Mapochs Mine in 2015 and the Thabazimbi Mine in 2016, and reduced output at the Sishen Mine, which has higher ore grades than Bushveld or Ironveld.

Guinea, Congo (Brazzaville), and Liberia did not produce iron ore in 2010; their shares of Africa's iron ore production by 2020 are expected to be 29%, 9%, and 6%, respectively. South Africa's share is likely to decrease to 30% from 69% in 2014 (table 11).

Manganese.—Africa had several globally significant producers of manganese ore. In 2014, the manganese content of Africa's manganese ore production was 8 Mt, which was about

44.9% of the world's total production. South Africa accounted for 68% of Africa's manganese content; Gabon, 23%; and Ghana, 5% (table 4; fig. 2).

Nickel.—*Production.*—Africa's nickel mine production increased by nearly 10% in 2014 compared with that of 2013. In South Africa, increased output at PGM mining operations more than offset decreased output at the Nkomati Mine. Production increased at the Ambatovy Mine in Madagascar. Nickel mining also increased in Zimbabwe. In Botswana, output decreased at the Phoenix and the Selebi-Phikwe Mines. South Africa accounted for 42% of Africa's nickel mine production in 2014; Madagascar, 33%; Zimbabwe, 13%; and Botswana, 12% (table 13).

Outlook.—Nickel mine production is expected to increase by an average of between 8% and 9% per year from 2014 to 2020. In South Africa, nickel production is likely to increase at existing PGM mining operations and to start at new PGM mining operations, including the Bakubung, the Platreef, the Waterberg, and the Western Bushveld projects. In Madagascar, the Ambatovy Mine and refinery were planned to reach 90% of capacity in 2016. The Enterprise Mine in Zambia could open by 2016, and the Munalu Mine could reopen by 2017. By 2020, Zambia's share of Africa's nickel mine production could be 18%. The shares of other countries were likely to decrease in spite of increased output (table 13).

Platinum-Group Metals.—*Production.*—From 2013 to 2014, Africa's production of platinum and palladium decreased by 29% and 21%, respectively. In South Africa, decreased palladium and platinum production in 2014 was mostly attributable to a labor dispute that affected the three leading producers. Decreased production in Botswana was attributable to the Phoenix Mine. PGM production also decreased in Zimbabwe. South Africa, which was the continent's dominant producer of PGMs, accounted for 88% and 84% of the production of platinum and palladium, respectively, in 2014 (tables 14, 15).

Outlook.—Africa's mine production of platinum is expected to increase by an average of between 10% and 11% per year from 2014 to 2020, and mine production of palladium, by nearly 10% per year. In South Africa, the expansion at the Pilanesburg Mine is likely to be completed by 2016; the Mogalakwena Mine, by 2019; and the Bokoni, the Impala, and the Marula Mines, by 2020. Increased output is also expected from the Amandelbult, the Booyensdal, the Marikana, the Modikwa, the Rustenburg, the Tharisa, the Union, and the Zondereinde Mines. The openings of the Styldrift Mine and the Western Bushveld joint venture are planned for 2016; the Bakubung Mine, for 2018; the Platreef project, for 2019; and the Waterberg Mine, for 2020. Output in Zimbabwe would increase because of the expansion of the Zimplats operations by 2016 and the reopening and ramp-up of the Bimba Mine to full capacity by 2018 (tables 14, 15).

Tin.—*Production.*—In 2014, Africa's tin mine production increased by about 35% compared with that of 2013. Output increased at artisanal and small-scale mining operations in Congo (Kinshasa) and Rwanda. In 2014, Congo (Kinshasa) accounted for 60% of Africa's tin mine production, and Rwanda, 35% (table 16). Africa did not produce refined tin in 2014 (table 17).

Outlook.—Tin mine production is expected to increase by an average of between 8% and 9% per year from 2014 to 2020 (table 16). In Congo (Kinshasa), the first and second phases of the Bisie project are planned for 2017 and 2020, respectively. Production is expected to decrease in Rwanda.

By 2020, total refined tin production in Africa is expected to reach more than 11,000 metric tons (t), of which 80% would be produced in Congo (Kinshasa), and 20%, in Rwanda. In Congo (Kinshasa), a new plant is expected to open in Bisie by 2020. Rwanda's production is expected to restart in 2015 with the reopening of a plant at Karuruma (table 17).

Industrial Minerals

Diamond.—*Production.*—In 2014, Africa's share of world diamond production, by volume, was 52.8% (table 4; fig. 2). Africa's diamond production decreased by about 9% in 2014 compared with that of 2013 (table 18). The decrease was primarily attributable to decreased output from the Marengé diamond fields in Zimbabwe. In Congo (Kinshasa), artisanal diamond miners decreased their output. Angola's diamond production also decreased. South Africa's production remained nearly unchanged; increased output at the Finsch and the Voorspoed Mines was offset by decreased output from the Cullinan, the Kimberley Surface, and the Venetia Mines.

In Botswana, production increased at the Damtshaa, the Jwaneng, and the Orapa Mines. Namibia's production increased because of the Debmarine operations. In Tanzania, output increased at the Williamson Mine. Production by artisanal miners increased in Ghana.

Botswana accounted for 38% of Africa's diamond output, by volume, in 2014; Congo (Kinshasa), 23%; Angola, 14%; South Africa, 12%; Zimbabwe, 7%; and Namibia, 3%. Large-scale mining operations were predominant in Angola, Botswana, Lesotho, Namibia, and South Africa (table 18).

In 2014, the global value of rough diamond production amounted to \$16.5 billion, of which Africa accounted for at least 57%. Botswana accounted for 25% of the value of global rough diamond output; Angola and Namibia, 9% each; South Africa, 8%; Zimbabwe, 3%; Lesotho, 2%; and Congo (Kinshasa), 1% (Diamond Intelligence Briefing, 2015).

Outlook.—The production of rough diamond in Africa is expected to increase by an average of 1% per year from 2014 to 2020. The increase would be primarily attributable to the reopening and expansion of large-scale diamond mining at Tshibwe in Congo (Kinshasa). Artisanal diamond production in Congo (Kinshasa) is also expected to increase. In South Africa, the reopening of the Lace Mine by late 2015 and the expansion of the Cullinan Mine by 2018 would contribute to increased production. The expansion of the Williamson Mine in Tanzania is planned for 2017. The Akwatia Mine in Ghana could be in production by 2018. Production is also expected to increase in Angola and Lesotho (table 18).

Botswana's output is likely to decrease because of reduced production at the Orapa Mine, which would more than offset the reopening of the Lerala Mine in 2016. In Zimbabwe, mining at Marengé is expected to continue to decrease. By 2016,

Zimbabwe's diamond output is likely to decrease by about 75% (table 18).

Lithium.—*Production.*—Zimbabwe was Africa's only producer of lithium minerals. In 2014, production at the Bikita Mine was estimated to have remained unchanged (table 19).

Outlook.—Lithium mineral production at the Bikita Mine is likely to remain stable between 2014 and 2020 (table 19).

Mineral Fuels and Related Materials

Coal.—*Production.*—Africa's coal production increased by more than 3% in 2014. Output increased in Botswana, Mozambique, South Africa, and Zimbabwe. In South Africa, production increased at numerous mines, including the Brandspruit, the Inyanda, and the Twistdraai Mines; mining started at Kangala in 2014. The increase in Mozambique's production was attributable to the Moatize Mine. Output also increased at the Morupule Mine in Botswana and the Entuba Coalfields in Zimbabwe. South Africa, which was the dominant coal producer in Africa, accounted for 94% of regional coal output; Mozambique, 3%; and Zimbabwe, 2% (table 20). Africa accounted for 3.7% of the world's total anthracite and bituminous coal production in 2014 (table 4).

Outlook.—Africa's coal production is expected to increase by nearly 4% per year from 2014 to 2020. South Africa is likely to be responsible for the majority of the increase; its production could increase to nearly 300 Mt by 2020 (table 20). The opening of the Welgemeend Mine is expected by 2015; the Moabsveld Mine, by 2016; the Klippoortjie, the New Clydesdale, the T-Project, and the Welstand Mines, by 2017; the Belfast, the Boikarabelo, the Braakfontein, the Brakfontein, and the Koudelager Mines, by 2018; the Argent, the Berenice Cygnus, the Makhado, the Nooitgedacht, the Springboklaagte, and the Zonnebloem Mines, by 2019; and the Thabametsi Mine, by 2020. The expansion at the Tweefontein Mine is planned by 2015, and the Goedgevonden Mine, by 2020. The Kangala Mine is expected to ramp up to full capacity by 2016; the Manangu Mine, by 2017; and the Grootegeluk Mine, by 2018.

Mozambique was the second-ranked coal producer in Africa in 2014. The expansions of the Benga, the Chirodze, and the Moatize Mines are expected to be completed by 2020. The Ncondezi Mine is likely to start up by 2019.

In Tanzania, the opening of the Edenville Mine is likely to take place in 2018, and the Kibo and the Mchuchuma Mines, in 2019. The expansion of the Ngaka Mine was planned for 2019. Botswana's production is expected to increase because of the opening of the Mmamabula West and the Sese Mines in 2019. The Morupule Mine could reach full capacity by 2018. Coal mining is likely to increase in Congo (Kinshasa) because of the expansion of the Luena Mine by 2019 and also in Ethiopia (table 20).

Uranium.—Africa had several globally significant producers of uranium. In 2014, Africa produced more than 9,700 t of U₃O₈, which was 15.2% of the world's production. Niger accounted for 49% of Africa's production of U₃O₈; Namibia, 39%; and South Africa, 7% (table 4; fig. 2).

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TABLE 1
AFRICA: AREA AND POPULATION IN 2014

Country	Area ¹ (square kilometers)	Estimated population ² (thousands)
Angola	1,246,700	24,228
Benin	112,622	10,598
Botswana	581,730	2,120
Burkina Faso	274,200	17,589
Burundi	27,830	10,817
Cameroon	475,440	22,773
Cape Verde	4,033	514
Central African Republic	622,984	4,804
Chad	1,284,000	13,587
Comoros	2,235	770
Congo (Brazzaville)	342,000	4,505
Congo (Kinshasa)	2,344,858	74,877
Côte d'Ivoire	322,463	22,157
Djibouti	23,200	876
Equatorial Guinea	28,051	821
Eritrea	117,600	5,110
Ethiopia	1,104,300	96,959
Gabon	267,667	1,688
Gambia, The	11,300	1,928
Ghana	238,533	26,787
Guinea	245,857	12,276
Guinea-Bissau	36,125	1,801
Kenya	580,367	44,864
Lesotho	30,355	2,109
Liberia	111,369	4,397
Madagascar	587,041	23,572
Malawi	118,484	16,695
Mali	1,240,192	17,086
Mauritania	1,030,700	3,970
Mauritius	2,040	1,261
Mayotte	374 ³	208 ³
Mozambique	799,380	27,216
Namibia	824,292	2,403
Niger	1,267,000	19,114
Nigeria	923,768	177,476
Reunion	2,512 ³	793 ³
Rwanda	26,338	11,342
Sao Tome e Principe	964	186
Senegal	196,722	14,673
Seychelles	455	91
Sierra Leone	71,740	6,316
Somalia	637,657	10,518
South Africa	1,219,090	54,002
South Sudan	644,329	11,911
Sudan	1,861,484	39,350
Swaziland	17,364	1,269
Tanzania	947,300	51,823
Togo	56,785	7,115
Uganda	241,038	37,783
Zambia	752,618	15,721
Zimbabwe	390,757	15,246
Total	24,296,243	976,095
World total	148,940,000	7,259,692

¹Source: U.S. Central Intelligence Agency, The World Factbook 2016.

²Source: The World Bank, 2016 World Development Indicators Database.

³Source: Embassy of France in Washington, DC.

TABLE 2
AFRICA: GROSS DOMESTIC PRODUCT^{1,2}

Country	Gross domestic product in 2014 based on purchasing power parity		Real gross domestic product growth rate (percent)		
	Gross value (billion dollars)	Per capita (dollars)	2012	2013	2014
	Angola	177.3	7,271	5.2	6.8
Benin	21.6	2,039	4.6	6.9	6.5
Botswana	34.6	16,454	4.5	9.9	3.2
Burkina Faso	29.4	1,687	6.5	6.6	4.0
Burundi	8.0	865	4.4	4.5	4.7
Cameroon	67.9	3,013	4.6	5.6	5.9
Cape Verde	3.3	6,422	1.1	1.0	1.8
Central African Republic	2.9	609	4.1	-36.0	1.0
Chad	29.6	2,627	8.9	5.7	6.9
Comoros	1.2	1,533	3.0	3.5	2.0
Congo (Brazzaville)	57.8	729	7.1	8.5	9.2
Congo (Kinshasa)	28.4	6,635	3.8	3.3	6.8
Côte d'Ivoire	71.7	3,101	10.7	8.7	7.9
Djibouti	2.9	3,062	4.8	5.0	6.0
Equatorial Guinea	28.6	36,790	5.7	-6.5	-0.3
Eritrea	8.2	1,266	7.0	3.1	5.0
Ethiopia	145.2	1,644	8.7	9.9	10.3
Gabon	32.9	17,996	5.3	5.6	4.3
Gambia, The	3.1	1,605	5.6	4.8	-0.2
Ghana	109.7	4,186	9.3	7.3	4.0
Guinea	14.8	1,230	3.8	2.3	1.1
Guinea-Bissau	2.5	1,457	-1.8	0.8	2.5
Kenya	133.0	3,093	4.6	5.7	5.3
Lesotho	5.6	2,893	5.3	3.6	3.4
Liberia	3.7	886	8.2	8.7	0.7
Madagascar	34.1	1,445	3.0	2.3	3.3
Malawi	19.6	1,112	1.9	5.2	5.7
Mali	33.4	2,117	-0.8	2.3	7.5
Mauritania	15.8	4,370	5.8	6.4	6.6
Mauritius	23.5	18,689	3.2	3.2	3.6
Mozambique	30.9	1,136	7.2	7.1	7.4
Namibia	24.0	10,898	5.1	5.7	6.4
Niger	18.1	1,060	11.9	5.3	7.1
Nigeria	1,052.9	6,054	4.3	5.4	6.3
Reunion	NA	NA	NA	NA	NA
Rwanda	18.9	1,719	8.8	4.7	7.0
Sao Tome e Principe	0.6	3,165	4.5	4.0	4.5
Senegal	34.1	2,346	4.5	3.6	4.3
Seychelles	2.3	25,102	3.7	5.0	6.2
Sierra Leone	12.6	2,016	15.2	20.7	4.6
Somalia ³	1.4	128	2.6	2.6	NA
South Africa	707.3	13,097	3.6	2.5	1.9
South Sudan	23.5	2,064	-52.4	29.3	2.9
Sudan	159.7	4,283	-3.4	3.9	3.3
Swaziland	10.6	8,332	3.0	2.9	2.5
Tanzania	128.2	2,742	5.1	7.3	7.0
Togo	10.2	1,433	5.9	5.4	5.4
Uganda	75.3	1,944	2.6	4.0	4.9
Zambia	59.9	3,811	7.6	5.1	5.0
Zimbabwe	27.4	2,067	10.6	4.5	3.9
Total	3,548	3,635 ⁴	4.4 ⁵	5.7 ⁵	5.8 ⁵
World total	109,143	15,034 ⁴	3.5	3.3	3.4

NA Not available.

¹Source: International Monetary Fund, World Economic Outlook Database, April 2016.

²Gross domestic product listed may differ from that reported in individual country chapters owing to differences in the source or date of reporting.

³Source: United Nations data 2013.

⁴Equals gross domestic product ÷ population.

⁵Equals annual change in regional gross domestic product.

TABLE 3
SELECTED SIGNIFICANT AFRICAN EXPLORATION SITES IN 2014

Country	Type ¹	Site	Commodity ²	Company	Resource ^{2,3}
Burkina Faso	F	Bombore	Au	Orezone Gold Corp.	4.6 Moz Au (D).
Do.	P	Essakane	Au	Iamgold Corp.	3.9 Moz Au (R).
Do.	F	Houde	Au	Endeavor Mining Corp.	2.1 Moz Au (R).
Do.	P	Mana (Siou)	Au	SEMAFO, Inc.	2.8 Moz Au (R).
Do.	F	Yaramoko	Au	Roxgold Inc.	850,000 oz Au (ID).
Congo (Kinshasa)	E	Kipushi	Zn, Cu	Ivanhoe Mines Ltd.	2.8 Mt Zn, 389,000 t Cu (D).
Côte d'Ivoire	E	Mt. Yaoure	Au	Amara Mining plc.	4.4 Moz Au (D).
Eritrea	P	Bisha	Au, Ag, Cu, Zn	Nevsun Resources Ltd.	547,000 oz Au, 33.6 Moz Ag, 451,000 t Cu, 1 Mt Zn (R).
Ghana	P	Bibiani	Au	Resolute Mining Ltd.	834,000 oz Au (D).
Do.	P	Wassa	Au	Golden Star Resources Ltd.	1.5 Moz Au (R).
Mali	P	Tabakoto	Au	Endeavor Mining Corp.	794,000 oz Au (R).
Namibia	D	Otjikoto (Wolfshag)	Au	B2Gold Corp.	1.3 Moz Au (PR).
Senegal	E	Dalafin	Au	Stratex Int'l. plc	Data not released.
South Africa	D	Platreef	PGM, Au, Cu, Ni	Ivanhoe Platinum Ltd.	26 Moz PGM, 2 Moz Au, 364,000 t Cu, 728,000 t Ni (D).
Do.	E	Waterberg	Pt, Pd, Rh, Au, Cu, Ni	Platinum Group Metals Ltd.	8.7 Moz Pt, 17.7 Moz Pd, 369,000 oz Rh, 2.3 Moz Au, 287,000 t Cu, 517,000 t Ni (IF).
Sudan	E	Block 14 (Galat Sufar)	Au	Orca Gold Inc.	1.6 Moz Au (D).
Tanzania	E	Niaka Hill	Ni	IMX Resources Ltd.	118,000 t Ni (D).
Do.	E	Panda Hill	Nb	Cradle Resources Ltd.	223,000 t Nb ₂ O ₅ (ID).

Do. Ditto.

¹D—Approved for development; E—Active exploration; F—Feasibility work ongoing or completed; P—Exploration related to existing producing operation.

²Abbreviations used in this table for commodities include the following: Ag—silver; Au—gold; Cu—copper; Nb—niobium; Ni—nickel; Pd—palladium; PGM—platinum-group metals; Pt—platinum; Rh—rhodium; Zn—zinc. Abbreviations used in this table for units of measure include the following: Moz—million troy ounces; Mt—million metric tons; oz—troy ounces; t—metric tons.

³Based on 2014 data reported from various sources; D—demonstrated (measured + indicated); ID—indicated; IF—inferred; PR—probable; R—proven + probable. Resource data not verified by the U.S. Geological Survey.

TABLE 4
AFRICA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2014¹
(Thousand metric tons unless otherwise specified)

Country	Metals										
	Aluminum		Chromite, mine output, gross weight	Cobalt, mine output, Co content (metric tons)	Copper, mine output, Cu content	Gold, mine output, Au content (kilograms)	Iron and steel		Lead, mine output, Pb content (metric tons)	Manganese ore, mine output, Mn content	
	Bauxite	Metal ²					Iron ore, gross weight	Steel, crude			
Angola	--	--	--	--	--	--	--	--	--	--	
Benin	--	--	--	--	--	--	--	--	--	--	
Botswana	--	--	--	196 ³	38 ⁴	958 ⁵	--	--	--	--	
Burkina Faso	--	--	--	--	--	36,200 ^{6,7}	--	--	1,100 ^e	23 ^e	
Burundi	--	--	--	--	--	500 ^e	--	--	--	--	
Cameroon	--	93	--	--	--	1,500 ^{e,8}	--	--	--	--	
Cape Verde	--	--	--	--	--	--	--	--	--	--	
Central African Republic	--	--	--	--	--	60 ^{e,8}	--	--	--	--	
Chad	--	--	--	--	--	--	--	--	--	--	
Congo (Brazzaville)	--	--	--	--	--	150 ^e	--	--	--	--	
Congo (Kinshasa) ^e	--	--	--	62,000 ⁹	1,030 ¹⁰	31,000	--	--	--	--	
Côte d'Ivoire	--	--	--	--	--	17,350 ⁶	--	--	--	148	
Djibouti	--	--	--	--	--	--	--	--	--	--	
Equatorial Guinea	--	--	--	--	--	--	--	--	--	--	
Eritrea	--	--	--	--	89	840	--	--	--	--	
Ethiopia	--	--	--	--	--	11,600	--	--	130 ^e	--	
Gabon	--	--	--	--	--	1,012 ¹¹	--	--	--	--	
Gambia, The	--	--	--	--	--	--	--	--	--	--	
Ghana	835 ^{e,13}	38	--	--	--	90,754 ¹⁴	--	--	--	1,863 ¹²	
Guinea	17,258 ¹⁵	--	--	--	--	16,955 ¹⁴	--	--	--	418 ^e	
Kenya	--	17 ^e	--	--	--	200	--	--	410 ^e	--	
Lesotho	--	--	--	--	--	--	--	--	--	--	
Liberia	--	--	--	--	--	598 ⁸	5,250 ^{e,16}	--	--	--	
Madagascar ^e	--	--	130	3,400	--	--	--	--	--	--	
Malawi	--	--	--	--	--	--	--	--	--	--	
Mali	--	--	--	--	--	39,724 ⁶	--	--	--	--	
Mauritania	--	--	--	--	33	9,625	14,000	10 ^e	--	--	
Mauritius	--	--	--	--	--	--	--	--	--	--	
Mozambique	3	567	--	--	--	197 ¹⁷	--	--	--	--	
Namibia	--	--	--	--	5	1,938 ¹⁸	--	--	11,200	51 ^e	
Niger	--	--	--	--	--	732 ^{19,20}	--	--	--	--	
Nigeria ^e	--	--	--	--	--	6,000	--	520	13,000	--	
Reunion	--	--	--	--	--	--	--	--	--	--	
Rwanda	--	--	--	--	--	--	--	15	--	--	
Senegal	--	--	--	--	--	6,588	--	--	--	--	
Seychelles	--	--	--	--	--	--	--	--	--	--	

See footnotes at end of table.

TABLE 4—Continued
AFRICA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2014¹

(Thousand metric tons unless otherwise specified)

Country	Metals										
	Aluminum		Chromite, mine output, gross weight	Cobalt, mine output, Co content (metric tons)	Copper, mine output, Cu content	Gold, mine output Au content (kilograms)	Iron and steel		Lead, mine output, Pb content (metric tons)	Manganese mine output, Mn content	
	Bauxite	Metal ²					Iron ore, gross weight	Steel, crude			
Sierra Leone	1,161 ²¹	--	--	--	--	43 ²²	17,689 ²²	--	--	--	--
Somalia	--	--	--	--	--	--	--	--	--	--	--
South Africa	--	745	14,038	2,800 ^e	88	151,622	80,759	6,600 ^e	29,348	5,400	--
South Sudan	--	--	--	--	--	--	--	--	--	--	--
Sudan	--	--	61	--	--	73,300	--	--	--	1	--
Swaziland	--	--	--	--	--	--	603	--	--	--	--
Tanzania	26	--	--	18 ^e	--	40,481	--	--	--	--	--
Togo	--	--	--	--	--	20,583 ²³	89	--	--	--	--
Uganda	--	--	--	--	--	20	42 ^e	67 ^e	--	--	--
Zambia ^e	--	--	--	5,500 ¹⁰	708	4,800 ¹⁰	--	58	--	45	--
Zimbabwe	--	--	408	358 ²⁴	8	15,385	--	15 ^e	--	--	--
Total	19,300	1,460	14,640	74,000	2,000	581,000	118,000	7,800	55,000	8,000	--
Share of world total	7.5%	2.5%	50.5%	53.2%	10.0%	17.8%	3.4%	0.4%	0.9%	44.9%	--
United States	NA	1,710	--	--	1,360	210,000	56,700	88,200	379,000	--	--
Share of world total	NA	2.9%	--	--	6.8%	6.4%	1.6%	5.0%	6.4%	--	--
World total	259,000	58,500	29,000	139,000	20,000	3,270,000	3,490,000	1,750,000	5,930,000	17,800	--

See footnotes at end of table.

TABLE 4—Continued
AFRICA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2014¹

(Thousand metric tons unless otherwise specified)

Country	Metals—			Industrial minerals				Mineral fuels and related materials			
	Continued Zinc, mine output, Zn content (metric tons)	Cement, hydraulic	Diamond, natural (thousand carats) ²⁵	Graphite (metric tons)	Phosphate rock, gross weight	Coal, anthracite and bituminous	Petroleum, crude (thousand 42-gallon barrels)	Uranium, U ₃ O ₈ content (metric tons)			
Angola	--	2,000 ^e	8,791 ^{26,27}	--	--	--	624,880 ²⁸	--			
Benin	--	1,396	--	--	--	--	--	--			
Botswana	--	260 ^e	24,677 ²⁹	--	--	1,712	--	--			
Burkina Faso	65,000	403	--	--	--	--	--	--			
Burundi	--	70 ^e	--	--	--	--	--	--			
Cameroon	--	1,300	4 ⁸	--	--	--	26,463	--			
Cape Verde	--	--	--	--	--	--	--	--			
Central African Republic	--	--	32 ^{26,30}	--	--	--	--	--			
Chad ^e	--	200	--	--	--	--	35,000 ³¹	--			
Congo (Brazzaville)	--	460 ^e	53	--	--	--	91,522	--			
Congo (Kinshasa)	14,584	330	14,953 ³²	--	--	--	8,355	--			
Côte d'Ivoire	--	193	1 ²⁶	--	--	--	7,000 ^e	--			
Djibouti	--	400 ^e	--	--	--	--	--	--			
Equatorial Guinea	--	--	--	--	--	--	102,000 ^e	--			
Eritrea	--	260 ^e	--	--	--	--	--	--			
Ethiopia	--	5,400 ^e	--	--	--	--	--	--			
Gabon	--	180 ^{e,33}	NA	--	--	--	84,425 ³⁴	--			
Gambia, The	--	--	--	--	--	--	--	--			
Ghana	--	3,000 ^{e,35}	242 ²⁶	--	--	--	37,202	--			
Guinea	--	500	164 ^{30,36}	--	--	--	--	--			
Kenya	--	5,883	--	--	--	--	--	--			
Lesotho	--	--	346	--	--	--	--	--			
Liberia	--	295 ³⁷	78 ^{28,38}	--	--	--	--	--			
Madagascar	--	240 ^e	--	--	--	--	130	--			
Malawi	--	450 ^e	--	5,316	--	120	--	435			
Mali	--	--	--	--	--	--	--	--			
Mauritania	--	770 ^e	--	--	--	--	2,200	--			
Mauritius	--	--	--	--	--	--	--	--			
Mozambique	--	1,502	--	--	--	7,900 ^e	--	--			
Namibia	156,292	731	1,918	--	--	--	--	3,838			
Niger	--	21	--	--	--	256	6,256 ²⁰	4,800			
Nigeria ^e	--	19,800	--	--	--	100	798,542 ¹⁰	--			
Reunion	--	--	--	--	--	--	--	--			
Rwanda	--	140 ^e	--	--	--	--	--	--			
Senegal	--	4,899	--	--	806	--	192 ³⁹	--			

See footnotes at end of table.

TABLE 4—Continued
AFRICA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2014¹

(Thousand metric tons unless otherwise specified)

Country	Metals—			Industrial minerals			Mineral fuels and related materials			
	Continued Zinc, mine output, Zn content (metric tons)	Cement, hydraulic	Diamond, natural (thousand carats) ²⁵	Graphite (metric tons)	Phosphate rock, gross weight	Coal, anthracite and bituminous	Petroleum, crude (thousand 42-gallon barrels)	Uranium, U ₃ O ₈ content (metric tons)		
Seychelles	--	--	--	--	--	--	--	--		
Sierra Leone	--	336 ²²	620 ^{26,40}	--	--	--	--	--		
Somalia	--	--	--	--	--	--	--	--		
South Africa	26,141	12,070	8,060	--	2,011	261,399	--	668		
South Sudan	--	--	--	--	--	--	--	58,035		
Sudan	21 ^e	3,478	--	--	--	--	--	42,400		
Swaziland	--	--	--	--	--	178	--	--		
Tanzania	--	2,809	253 ⁴¹	--	20 ^e	254	--	--		
Togo	--	1,677 ⁴²	(43)	--	1,086	--	--	--		
Uganda	--	2,141	--	--	--	--	--	--		
Zambia	--	2,190	--	--	--	159	--	--		
Zimbabwe ^e	--	1,300	4,772 ¹⁰	6,853 ¹⁰	9	5,783 ¹⁰	--	--		
Total	262,000	77,100	64,964	12,169	4,000	278,000	1,920,000	9,740		
Share of world total	1.8%	1.8%	52.8%	1.1%	1.6%	3.7%	5.9%	15.2%		
United States	832,000	77,400	--	--	23,500	1,020,000	3,160,000	2,260		
Share of world total	5.9%	1.8%	--	--	10.4%	13.5%	9.7%	3.5%		
World total	14,200,000	4,270,000	123,000	1,070,000	244,000	7,560,000	32,600,000	64,000		

^eEstimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits. NA Not available. -- Zero or zero percent.

¹Totals may not add owing to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of September 22, 2016.

²Primary and secondary production.

³Smelter product was granulated nickel-copper-cobalt matte.

⁴Mostly ore milled. Includes some product from direct smelting ore; that is, ore not reported as milled.

⁵Reported as bullion; historically included silver estimated to be about 2%.

⁶Does not include artisanal mining production.

⁷Production is estimated to fluctuate between 1,000 and 10,000 kilograms per year.

⁸From artisanal mining.

⁹Includes mine production and reprocessed tailings.

¹⁰Reported figure.

¹¹Represents production from the Bakoudu Mine only.

¹²As reported by the International Manganese Institute.

¹³Figure based on bauxite shipments as reported by the Ghana Chamber of Mines.

¹⁴Does not include artisanal and small-scale mining output.

¹⁵Data are for wet-basis ore estimated to be 13% water reduced to dry basis estimated to be 7% water.

¹⁶Direct-shipping ore.

¹⁷Does not include unreported production; total output of gold was estimated to be roughly 600 to 900 kilograms per year.

¹⁸Does not include gold recovered as a byproduct of copper mining.

TABLE 4—Continued
AFRICA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2014¹

- ¹⁹Includes artisanal and small-scale mining production.
- ²⁰Reported by Institut National de la Statistique.
- ²¹Production in dry metric tons.
- ²²Source: Bank of Sierra Leone.
- ²³Data reported by Government of Togo as gold exports that predominantly include artisanal gold mine production transiting Togo from neighboring countries and, to a lesser extent, domestic artisanal mine production. Data may include gold from other than artisanal sources.
- ²⁴Reported by the Zimbabwe National Statistics Agency.
- ²⁵Gemstones and industrial diamond.
- ²⁶Source: Kimberley Process Certification Scheme.
- ²⁷Approximately 90% gem and 10% industrial grade.
- ²⁸Source: BP p.l.c.
- ²⁹Assumed to contain about 70% gem and near gem.
- ³⁰Production is approximately 70% to 80% gem quality.
- ³¹Includes reported crude shipments from the Doba basin in Chad, which was metered on a floating storage-and-offloading vessel that was located offshore Kribi, Cameroon.
- ³²An estimated 20% of total diamond is gem quality; the majority of production is from artisanal mining.
- ³³Includes cement produced from imported clinker.
- ³⁴As reported by the Organization of the Petroleum Exporting Countries.
- ³⁵All from imported clinker.
- ³⁶Includes artisanal production.
- ³⁷Reported by the Central Bank of Liberia.
- ³⁸Estimated to be approximately 60% gem quality.
- ³⁹Crude petroleum values have been converted from metric tons to 42-gallon barrels using a conversion factor of 7.4 barrels of crude petroleum per metric ton.
- ⁴⁰Approximately 80% gem and 20% industrial grade.
- ⁴¹Estimated to represent 85% gem-quality or semigem-quality and 15% industrial-quality stones. Does not include smuggled artisanal production.
- ⁴²Reported by Banque Centrale des Etats de l'Afrique de l'Ouest .
- ⁴³Less than ½ unit or ½ percent.

TABLE 5
AFRICA: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 2005–2020¹

(Thousand metric tons)

Country	2005	2010	2013	2014	2016 ^e	2018 ^e	2020 ^e
Ghana	727	595	827	835	800	800	800
Guinea	14,600	15,900	16,887	17,258	20,300	39,700	53,400
Mozambique	10	9	7	3	5	5	5
Sierra Leone	--	1,090	616	1,161	1,300	1,300	1,300
Tanzania	2	39	34	26	26	26	26
Total	15,300	17,600	18,400	19,300	22,000	42,000	56,000

^eEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 6
AFRICA: HISTORIC AND PROJECTED PRIMARY AND SECONDARY ALUMINUM METAL PRODUCTION, 2005–2020¹

(Thousand metric tons)

Country	2005	2010	2013	2014	2016 ^e	2018 ^e	2020 ^e
Cameroon	87	76	75	93	60	60	60
Ghana	--	--	37	38	40	40	40
Kenya ²	2	13	18	17	17	17	17
Mozambique	555	557	562	567	560	560	560
Nigeria	--	21	2	--	--	--	--
South Africa	846	807	822	745	700	700	700
Total	1,730	1,470	1,520	1,460	1,400	1,400	1,400

^eEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

²Egypt produced primary and secondary refined aluminum; primary production in all other African aluminum-producing countries, with the exception of Kenya, which also produced secondary refined aluminum.

TABLE 7
AFRICA: HISTORIC AND PROJECTED COBALT MINE PRODUCTION, 2005–2020¹

(Metal content in metric tons)

Country	2005	2010	2013	2014	2016 ^e	2018 ^e	2020 ^e
Botswana	326	272	248	196	200	200	200
Congo (Kinshasa)	24,500	60,000	56,000	62,000	64,000	72,000	86,000
Madagascar	--	--	2,600	3,400	4,200	5,900	5,900
South Africa	400	1,800	2,800	2,800	2,800	3,000	3,600
Zambia	9,300	8,648	5,919	5,500	5,500	9,600	12,500
Zimbabwe	281	79	319	358	370	400	400
Total	35,900	70,800	67,900	74,300	77,000	91,000	109,000

^eEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 8
AFRICA: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 2005–2020¹

(Metal content in thousand metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Botswana	31	48	51	38	11	15	45
Congo (Kinshasa)	97	420	970	1,030	930	1,200	1,500
Eritrea	--	--	22	89	43	65	44
Mauritania	--	37	38	33	45	45	45
Namibia	10	--	5	5	17	18	19
South Africa	89	103	77	88	84	84	93
Tanzania	4	6	15	18	19	19	16
Uganda	--	--	--	--	6	12	12
Zambia	447	672	760	708	780	820	860
Zimbabwe	3	5	8	8	8	8	8
Total	680	1,290	1,950	2,020	1,900	2,300	2,600

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 9
AFRICA: HISTORIC AND PROJECTED REFINED COPPER METAL PRODUCTION, 2005–2020¹

(Thousand metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Congo (Kinshasa)	--	261	685	890	800	1,000	1,200
Namibia	--	--	--	--	17	17	17
South Africa	99	81	81	79	81	81	83
Zambia	399	528	568	510	510	570	600
Zimbabwe	7	5	3	3	3	3	3
Total	508	875	1,340	1,480	1,400	1,700	1,900

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 10
AFRICA: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 2005–2020¹

(Metal content in kilograms)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Benin ²	--	--	--	--			
Botswana	2,709	1,774	1,205	958	1,000	1,000	1,000
Burkina Faso ³	625	22,939	32,713	36,200	34,800	41,100	44,200
Burundi	--	300	400	500	500	500	500
Cameroon ²	1,000	1,600	1,600	1,500	1,500	4,800	4,800
Central African Republic ²	15	59	60	60	100	5,000	5,000
Chad	150	(4)	(4)	(4)	(4)	(4)	(4)
Congo (Brazzaville)	120	150	150	150	150	150	150
Congo (Kinshasa)	7,200	12,000	17,000	31,000	37,000	41,000	41,000
Côte d'Ivoire ³	1,335	5,310	12,758	17,350	20,000	26,100	29,800
Equatorial Guinea	200	(4)	(4)	(4)	(4)	(4)	(4)
Eritrea	25	50	3,008	840	2,200	5,200	5,200
Ethiopia	4,376	6,773	12,581	11,600	13,000	18,000	19,000
Gabon ²	300	--	1,136	1,012	1,000	900	910
Ghana ³	66,852	76,332	89,224	90,754	78,200	85,600	92,200
Guinea ³	25,097	15,217	15,147	16,955	17,100	18,800	21,300
Kenya	616	2,355	2,100	200	200	200	200
Liberia ²	27	666	600	598	4,800	7,600	7,600
Madagascar	10	46	--	--	--	--	--
Mali ³	44,230	38,653	41,392	39,724	41,000	51,500	48,300
Mauritania	--	8,305	9,513	9,625	10,000	15,000	20,000
Mozambique	63	106	198	197	500	1,300	1,300
Namibia ⁵	2,703	2,675	1,960	1,938	6,750	8,300	8,300
Niger	4,962	1,950	1,150	732	700	1,000	1,500
Nigeria	30	3,718	5,200	6,000	6,400	6,400	6,400
Rwanda	10	3	--	--	--	--	--
Senegal	600	4,381	6,445	6,588	7,800	9,000	10,900
Sierra Leone ⁶	53	270	98	43	100	100	3,100
South Africa	294,671	188,702	160,016	151,622	150,000	156,000	158,000
Sudan	3,625	26,317	70,000	73,300	80,000	80,000	80,000
Swaziland	--	--	--	--	200	600	600
Tanzania	47,270	39,448	42,534	40,481	44,000	46,000	42,000
Togo ⁷	6,179	10,452	21,086	20,583	21,000	21,000	21,000
Uganda	46	4	5	20	20	20	20
Zambia	440	3,410	5,210	4,800	4,200	4,200	4,000
Zimbabwe	14,024	9,619	14,001	15,385	15,000	25,000	27,000
Total	530,000	484,000	569,000	581,000	600,000	680,000	710,000

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

²From artisanal mining.

³Excludes production from artisanal mining.

⁴Gold is produced, but available information was inadequate to make reliable estimates of output.

⁵Does not include gold produced as a byproduct of copper mining.

⁶From artisanal mining for the years 2005 and 2010 only.

⁷May include artisanal gold production from neighboring countries; however, available information was inadequate to make reliable estimates of the output that originated from these countries.

TABLE 11
AFRICA: HISTORIC AND PROJECTED BENEFICIATED IRON ORE PRODUCTION, 2005–2020¹

(Fe content in thousand metric tons)

Country	Average grade	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Congo (Brazzaville)	61%	--	--	--	--	--	6,700	13,400
Guinea	37% to 55%	--	--	--	--	--	2,800	43,200
Kenya	60%	--	17	--	--	--	--	--
Liberia	34% to 61%	--	--	2,800	3,000	3,300	5,100	9,600
Mauritania	59% to 72%	7,000	7,500	8,125	8,645	11,100	15,800	21,700
Mozambique	50%	--	--	--	--	--	--	500
Nigeria	36% to 56%	20	23	--	--	--	540	2,500
Sierra Leone	58% to 65%	--	--	11,900	10,300	5,800	8,700	11,600
South Africa	62% to 65%	24,900	36,900	45,000	51,000	42,900	44,800	45,100
Swaziland	44.5%	--	--	561	268	400	530	530
Tanzania	52%	--	--	--	--	--	--	1,000
Togo	30%	--	NA	24	27	27	30	30
Uganda	61% to 67%	--	2	1	26	26	140	360
Zimbabwe ²	51%	185	--	--	--	--	--	--
Total	XX	33,900	44,400	68,400	73,300	64,000	85,000	150,000

^cEstimated. NA Not available. XX Not applicable. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

²Average iron content for Zimbabwe prior to 1996 was 61%; since 1996, the average grade has been 51%.

TABLE 12
AFRICA: HISTORIC AND PROJECTED CRUDE STEEL PRODUCTION, 2005–2020¹

(Thousand metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Congo (Kinshasa)	110	NA	NA	NA	NA	NA	NA
Ethiopia	60	150	130	130	730	1,700	1,700
Kenya	--	290	400	410	410	410	410
Mauritania	1	5	9	10	15	20	25
Nigeria	100	100	450	520	540	540	540
Rwanda	NA	15	15	15	15	15	15
South Africa	9,494	7,617	7,254	6,600	8,100	8,100	9,100
Tanzania	NA	190	180	190	200	200	1,000
Uganda	30	59	64	67	70	170	370
Zambia	--	40	55	58	58	58	58
Zimbabwe	107	14	15	15	500	750	1,200
Total	9,900	8,480	8,570	8,020	11,000	12,000	14,000

^cEstimated. NA Not available. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 13
AFRICA: HISTORIC AND PROJECTED NICKEL MINE PRODUCTION, 2005–2020¹

(Metal content in metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Botswana	39,335	24,931	22,848	14,958	16,000	16,000	16,000
Madagascar	--	--	31,000	43,000	57,000	63,000	63,000
South Africa	42,392	39,960	51,208	54,956	59,000	60,000	75,000
Zambia	--	2,482	--	--	4,800	27,000	38,000
Zimbabwe	8,556	6,200	12,962	16,633	17,000	18,000	19,000
Total	90,400	73,600	118,000	130,000	150,000	180,000	210,000

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 14
AFRICA: HISTORIC AND PROJECTED PALLADIUM MINE PRODUCTION, 2005–2020¹

(Metal content in kilograms)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Botswana	NA	3,328	1,740	1,120	1,200	1,200	1,200
South Africa	82,961	82,222	76,008	58,410	87,000	90,000	105,000
Zimbabwe	3,879	6,916	10,153	10,138	10,000	14,000	16,000
Total	86,800	92,500	87,900	69,700	98,000	105,000	120,000

^cEstimated. NA Not available.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 15
AFRICA: HISTORIC AND PROJECTED PLATINUM MINE PRODUCTION, 2005–2020¹

(Metal content in kilograms)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Botswana	NA	560	280	190	250	250	250
Ethiopia	--	8	--	--	--	--	--
South Africa	163,711	147,790	137,024	93,991	148,000	157,000	173,000
Zimbabwe	4,834	8,639	13,066	12,483	13,000	16,000	20,000
Total	169,000	157,000	150,000	107,000	160,000	170,000	190,000

^cEstimated. NA Not available. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 16
AFRICA: HISTORIC AND PROJECTED TIN MINE PRODUCTION, 2005–2020¹

(Metal content in metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Burundi	4	12	13	32	40	40	40
Congo (Kinshasa)	4,400	8,000	4,500	6,500	5,400	13,500	14,400
Niger	14	6	--	--	--	--	--
Nigeria	1,300	160	390	460	500	500	500
Rwanda	170	3,300	3,100	3,800	2,600	2,600	2,600
Tanzania	--	--	--	--	40	40	40
Uganda	--	32	18	31	30	30	30
Total	5,890	11,500	8,020	10,800	8,600	17,000	18,000

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 17
AFRICA: HISTORIC AND PROJECTED TIN METAL PRODUCTION, 2005–2020¹

(Metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Congo (Kinshasa)	--	--	--	--	--	--	9,000
Nigeria	25	--	--	--	--	--	--
Rwanda	200	--	--	--	1,100	2,200	2,200
Total	230	--	--	--	1,100	2,200	11,000

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

TABLE 18
AFRICA: HISTORIC AND PROJECTED DIAMOND PRODUCTION, 2005–2020¹

(Thousand carats)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Angola	7,079	8,362	9,360	8,791	8,900	9,000	9,200
Botswana	31,890	22,019	23,190	24,677	20,700	20,800	21,100
Cameroon	12	6	3	4	4	4	4
Central African Republic	383	302	152	32	50	150	300
Congo (Brazzaville)	--	381	56	53	70	70	70
Congo (Kinshasa)	35,207	16,964	16,827	14,953	20,000	23,000	23,000
Côte d'Ivoire	300	--	--	--	15	50	100
Gabon	(2)	NA	NA	NA	NA	NA	NA
Ghana	1,013	334	169	242	200	100	440
Guinea	549	374	202	164	220	230	230
Lesotho	52	105	414	346	450	600	600
Liberia	NA	27	54	78	70	70	70
Namibia	1,902	1,693	1,689	1,918	1,900	1,900	1,900
Sierra Leone	669	438	609	620	640	660	660
South Africa	15,776	8,868	8,129	8,060	8,800	9,800	10,000
Tanzania	220	80	171	253	300	400	400
Togo	41	(2)	(2)	(2)	(2)	(2)	(2)
Zimbabwe	251	8,435	10,412	4,772	1,100	1,200	1,200
Total	95,300	68,400	71,400	65,000	63,000	68,000	69,000

^cEstimated. NA Not available. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

²Less than 1 unit.

TABLE 19
AFRICA: HISTORIC AND PROJECTED LITHIUM PRODUCTION, 2005–2020

(Metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Zimbabwe	1,100	47,000	50,000	50,000	50,000	50,000	50,000

^cEstimated data are rounded to no more than three significant digits.

TABLE 20
AFRICA: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 2005–2020¹

(Thousand metric tons)

Country	2005	2010	2013	2014	2016 ^c	2018 ^c	2020 ^c
Botswana	985	988	1,496	1,712	2,400	3,200	6,200
Congo (Kinshasa)	120	--	4	4	4	1,600	2,500
Ethiopia	--	20	20	30	40	150	200
Malawi	52	65	98	120	80	70	70
Mozambique	3	38	6,343	7,900	8,300	19,000	30,000
Niger	182	247	242	256	260	260	260
Nigeria	8	119	86	100	110	110	110
South Africa	244,940	254,522	256,563	261,399	251,000	267,000	298,000
Swaziland	222	146	257	178	150	150	150
Tanzania	31	(2)	129	254	380	810	5,200
Zambia	240	96	149	159	200	220	260
Zimbabwe	2,891	2,500	3,114	5,783	6,500	6,500	6,500
Total	250,000	259,000	269,000	278,000	270,000	300,000	350,000

^cEstimated. -- Negligible or no production.

¹Estimated data and totals are rounded to no more than three significant digits.

²Less than 1 unit.

Sub-Saharan Africa region

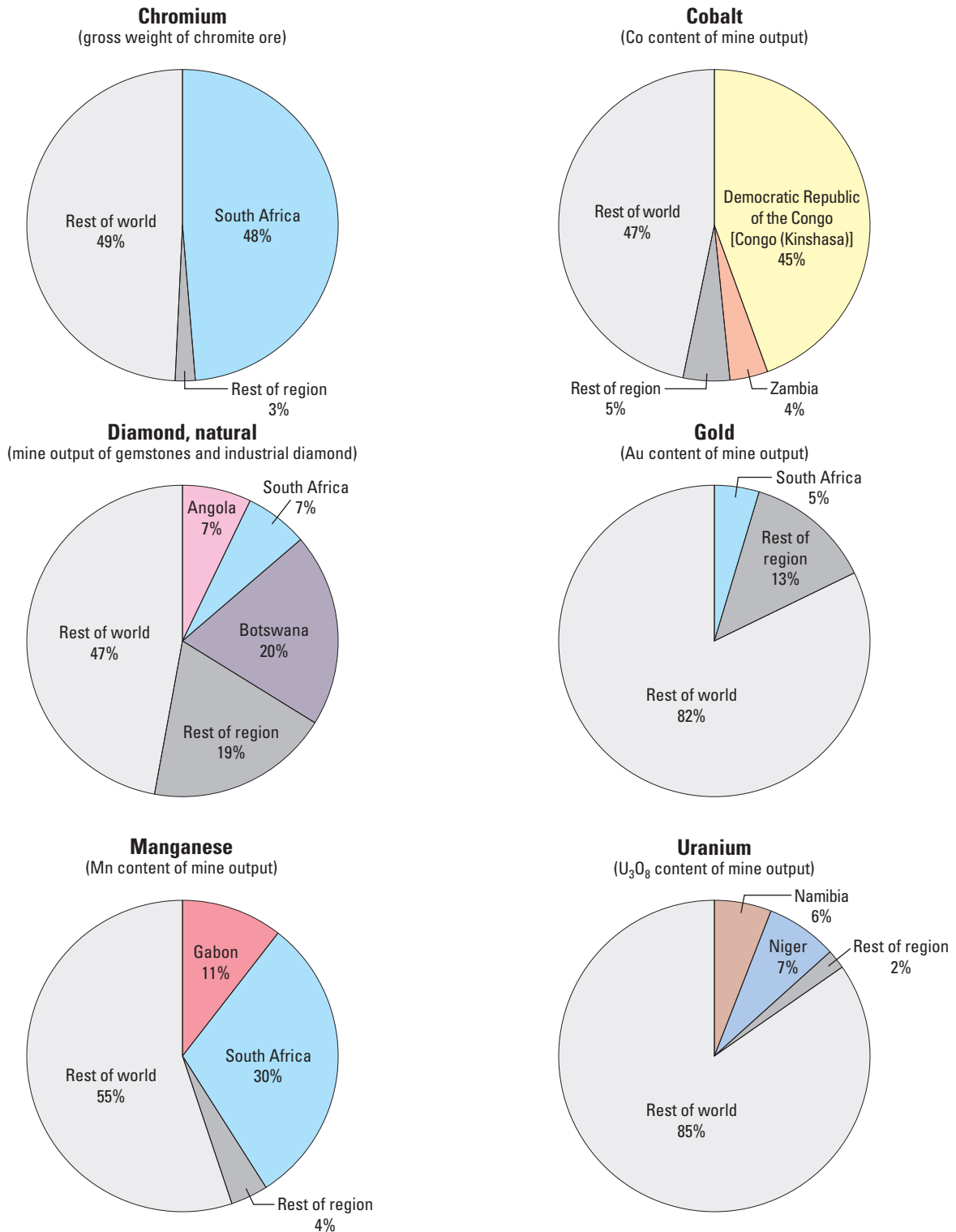


Figure 2. Pie charts showing percentage of world production of selected mineral commodities by countries of the sub-Saharan region of Africa in 2014. Individual countries of the region are labeled if they accounted for at least 3% of world production. Data are from table 4. Percentages are rounded and may not add to 100%. Also, percentages may differ from those reported in individual country chapters owing to differences in source or date of reporting.