



# 2014 Minerals Yearbook

---

## RUSSIA

---

# THE MINERAL INDUSTRY OF RUSSIA

By Elena Safirova

In 2014, Russia was ranked among the world's leading producers or was a leading regional producer of such mineral commodities as aluminum, antimony, arsenic, asbestos, bauxite, boron, cadmium, cement, coal, cobalt, copper, diamond, diatomite, gallium, gemstones, germanium, gold, graphite, gypsum, indium, iron ore, lead, lime, magnesium compounds and metals, mica (flake, scrap, and sheet), molybdenum, natural gas, nickel, nitrogen, palladium, peat, petroleum, phosphate rock, pig iron, platinum, potash, rare earths, rhenium, selenium, silicon, silver, steel, sulfur, tellurium, titanium sponge, tungsten, uranium, vanadium, and vermiculite (BP p.l.c., 2015; Anderson, 2016a, b; Apodaca, 2016a–c; Bedinger, 2016; Bray, 2016a–d; Brininstool, 2016; Corathers, 2016; Crangle, 2016a–c; Edelstein, 2016; Fenton, 2016; Flanagan, 2016; Gambogi, 2016; George, 2016a, b; Guberman, 2016a–c; Jasinski, 2016a, b; Jaskula, 2016; Kuck, 2016; Loferski, 2016; Olson, 2016a–c; Polyak, 2016a–c; Schnebele, 2016; Shedd, 2016a, b; Tanner, 2016; Tolcin, 2016a, b; Tuck, 2016; van Oss, 2016; Willett, 2016; World Nuclear Association, 2016).

## Minerals in the National Economy

In 2014, the rate of growth of Russia's real gross domestic product (GDP) was 0.6%, which was a decrease compared with the 1.3% GDP rate of growth in 2013; in 2014, the nominal GDP increased to 71.41 trillion rubles (\$1.78 trillion).<sup>1</sup> The exchange rate of the Russian ruble to the United States dollar decreased significantly during 2014, and the nominal dollar value of the GDP decreased by 11%. Mining and quarrying contributed 6.3 trillion rubles (\$157 billion), or 10.3%, to the total value added in the economy in 2014, and the total value of output from mining and quarrying in current prices was 10.29 trillion rubles (\$256 billion), or 14.4% of the GDP. The value of coke and petroleum production was 7.3 trillion rubles (\$182 billion), or 10.2% of the GDP, and the value of metallurgy and finished metals production was 4.57 trillion rubles (\$114 billion), or 6.4% of the GDP. The value of chemical production was 2.1 trillion rubles (\$52.4 billion), or 2.9% of the GDP, and the value of output of other nonmetallic mineral products was 1.25 trillion rubles (\$31.3 billion), or 1.8% of the GDP (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

During 2014, the value of mining and quarrying output increased by 1.4%. The value of mining and quarrying of fuel and energy products increased at a slightly slower rate (by 1.4%) than did the value of mining and quarrying of nonenergy minerals, which increased at a rate of 1.6%. Among the nonmining industrial sectors, the value of metallurgy and finished metal products increased by 0.6%; the value of the production of coke and petroleum products increased by 5.7%;

and the value of chemical products increased by 0.1%. The value of output of other nonmetal mineral products decreased by 1.8% (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

## Government Policies and Programs

In 2014, the Government of Russia used legislative, regulatory, and economic methods to stimulate the mineral sector of the economy and to manage mineral resources. In November, the Ministry of Natural Resources and Environment (Minprirody) approved a new methodology to determine the payments for natural resources. The methodology was previously approved by other relevant Government agencies. The new rates of payment would depend on the size of the license area, the type of mineral, and the economic and geographic conditions of the area where the deposit is located; the duration of work, including exploration and mining; the degree of previous exploration; the density of resources; the level of risk; and the depth of productive strata. All these factors combined would determine the so-called adjustment coefficient that varied between 0 and 1. For example, the deposits located far from transportation infrastructure and those located in Arctic deserts were assigned a coefficient of zero. The coefficient would increase every year, depending on the type of work conducted, such as exploration, assessment, construction, or exploitation of the deposit. Previously, the payment rates were determined according to the 2002 regulations, which used parameters whose values were difficult to determine at the early stages, especially during exploration, and led to highly subjective payment rates (Mineral.ru, 2014a; MinerJob.ru, 2014h).

In 2014, several important developments took place at OAO Rosgeologiya Holding Co., which was a strategic stock company that was 100% owned by the Government. Rosgeologiya was created in 2011 to streamline and increase Government participation in exploration for mineral resources; 37 Government-owned geologic exploration companies located in 30 Russian regions were consolidated under one state company, and the integration continued throughout 2014. Over the years, the geologic exploration companies of Rosgeologiya had discovered more than 1,000 deposits, including the Astrakhanskoye and the Kovykinskoye natural gas deposits, the Tengizskoye petroleum deposit, and the Sukhoy Log gold deposit (MinerJob.ru, 2014c; Prime.ru, 2014b).

In January, the Scientific and Technical Advisory Committee of Rosgeologiya discussed the general development strategy of the holding company through 2020. The strategy included a gradual increase of Rosgeologiya's market share of geologic exploration in Russia, implementation of an aggressive investment program, and consolidation of exploration assets. In May, the final version of the strategy document was approved by the Board of Directors. The first order of business was an upcoming consolidation of companies within Rosgeologiya's

<sup>1</sup> Where necessary, values have been converted from Russian rubles (RUB) to U.S. dollars (US\$) at an annual average exchange rate of RUB40.118=US\$1.00 for 2014 and RUB33.165=US\$1.00 for 2013. All values are nominal, at current prices, unless otherwise stated.

regions. The reorganization was expected to eliminate duplication of functions within the holding company, to prevent internal conflicts of interest, and to provide opportunities for systematic analysis and synthesis of information obtained by companies with different specializations and expertise. For example, OAO Petersburg Complex Geologic Expedition, OAO Northwest Geology, and OAO Severkvartssamotsvety were to form the Northwestern Geologic Union, which would be a new consolidated unit of Rosgeologiya. The leadership of the new unit was expected to develop a new financial and management model for the consolidation process and for the work after the reorganization (MinerJob.ru 2014c; Prime.ru, 2014b).

In August, the Expert Committee of the Government suggested giving Rosgeologiya the status of a special agency responsible for mineral exploration on the national level and for the replenishment of the resource base of the entire country. Prior to this change, Rosgeologiya had operated on the exploration market in the same capacity as other market participants. The Expert Committee pointed out that Rosgeologiya could not be held accountable for replenishment of national resources if it continued to operate as a free-market agent that faced uncertainty and dependence on the Government's actions and changes in the country's laws. The committee stated that comprehensive regional geologic exploration in many countries was performed by government entities because such activities were not likely to result in profits. Therefore, the Expert Committee suggested that Rosgeologiya should be assigned the functions of a special agency for the development of geologic exploration and replenishment of mineral resources. The committee emphasized that the new functions of the holding company would require changes in the current laws as well as changes in the long-term investment program and the current strategy of the holding company (Mineral.ru, 2014m).

In February, the Government decided to give Rosgeologiya 100% minus one share of OAO Zarubezhgeologiya, which was a Government organization specializing in mineral exploration abroad, as payment for additional stock offerings of Rosgeologiya. In 2014, Rosgeologiya conducted negotiations for potential mineral exploration in Africa, both on land and on the continental shelf. Rosgeologiya also planned to conduct mineral exploration in South America and Southeast Asia (Mineral.ru, 2014k).

In 2014, the Government of the Russian Federation considered stimulation of the country's geologic exploration activity as one of its key functions. The Government used traditional regulation, economic incentives, and Government investment to achieve this goal. According to the Minprirody's data, in 2013, private investment in exploration reached 307.4 billion rubles (about \$9.27 billion), which was a 37% increase compared with the investment in 2012. Of this amount, the investment in exploration for hydrocarbons increased by about 50%, to 268 billion rubles (\$8.08 billion), and the investment in exploration for nonhydrocarbon mineral resources decreased by about 30%, to 39.4 billion rubles (about \$1.19 billion). The Government announced that an increase in reserves (defined as the positive difference between new exploration and extraction) was achieved for coal, gold, iron ore,

natural gas, petroleum, and uranium. Also, the Government revenue from the licensing auctions amounted to 160 billion rubles (\$4.82 billion) (Mineral.ru, 2014u).

In July, Minprirody significantly simplified the process of obtaining exploration licenses for unexplored deposits; that is, the deposits for which there was no information about reserves or the P1 plus P2 resources (similar to "inferred resources" in U.S. Geological Survey terminology) as well as those that were not on the Government's lists of deposits suggested for exploration. According to the new rules, applicants for exploration and assessment licenses for nonhydrocarbon mineral resources who intended to conduct proposed work using their own funds would only need to fill out an electronic application. The requirement to include such areas on the lists for prospective exploration also was removed. According to the new rules, no applicant could apply for more than three lots, and the size of each lot could not exceed 100 square kilometers (km<sup>2</sup>). The early results of the new rules showed a significant increase in demand for exploration licenses. As of September, applications had been submitted for about 80 licenses, including 33 for exploration for precious metals (predominantly alluvial gold), 8 for nonferrous metals, 3 for coal, and 1 for ferrous metals. According to Minprirody, only about 15 exploration license applications had been submitted during all of 2013 (Mineral.ru, 2014d, e, q).

The Government also tried to introduce economic measures to stimulate exploration. In particular, Minprirody proposed excluding expenditures on exploration from the tax on extraction of mineral resources (NDPI) and from the calculation of the basis for the tax on profits. According to the Ministry's calculations, those measures would likely increase total petroleum reserves (which would include new discoveries of petroleum) by 2 billion metric tons through 2035. These measures would also likely increase annual petroleum production by 400 million metric tons (Mt). According to Minprirody, Russian companies invested much less in mineral exploration than did companies in other countries and transnational companies, which could be explained partially by Russia's large identified reserves, which appeared to be sufficient to maintain production at current levels for decades. The lack of investment in mineral exploration, nevertheless, could risk future production and also could reduce Government revenues (Mineral.ru, 2014j).

The Government also supported exploration through investment. In 2014, the Government announced that it planned to invest at least 320 billion rubles (about \$7.98 billion) in mineral exploration during the next 6 years. In 2013, the Federal Government spent about 32 billion rubles (about \$965 million) on mineral exploration and planned to spend about 35 billion rubles (about \$872 million) in 2014. In 2014, the Government-funded exploration for petroleum and natural gas focused on several zones in Eastern Siberia and Western Siberia and the Caspian region, which the Government considered most promising. In particular, the Government selected five zones, three of which were located in Western Siberia (the Karabashskaya, the Gydansko-Khatangskaya, and the Yugansko-Koltogorskaya zones), as well as Argishsko-Chunskaya in Eastern Siberia and Ozinsko-Altatinskaya in the Caspian

geologic province. These five zones were selected from a list of 24 zones with the goal to maximize the probability for discovery of large- and medium-size deposits of petroleum and natural gas. The Government planned to spend about 65 billion rubles (about \$1.6 billion) on exploration for hydrocarbon resources in these zones during the next 7 years; the plan included drilling more than 1,000 wells across a 618,000-km<sup>2</sup> area. At the same time, federally funded exploration would be reduced in the traditional areas of hydrocarbon production, such as Khanty-Mansiyskiy Avtonomnyy Okrug (HMAO), the Northern Caucasus, and the Povolzhye. The Government expected that exploration in these developed regions would be conducted by private companies (Mineral.ru, 2014i; Pronedra.ru, 2014g).

In 2014, Minprirody had several initiatives related to the study and development of nontraditional sources of hydrocarbons in different stages. In June, a bill on the liberalization of access to the hydrocarbon resources located in the continental shelf, which was developed by Minprirody, was approved by the legislation committee of the Government. According to the bill, the companies that received access to exploration in the continental shelf prior to adoption of the law on strategic deposits would be able to obtain extraction licenses for the deposits they discovered. As a result, the Government would eliminate the risk of loss of invested funds for the companies that invested in exploration and would create a stimulus to encourage exploration and investment in marine water areas according to “old” licenses. It was expected that, if adopted, this bill would likely affect such companies as Chernomorneftegaz, OAO Lukoil, and Severneftegaz. The bill was expected to be approved by the Government and then introduced to the Parliament (Mineral.ru, 2014t).

In 2014, the Government continued to discuss possible tax incentives for the development of shale hydrocarbons. In September 2013, the tax rate on the extraction of natural resources (the NDPI rate) from the Abalaksкая, the Bazhenovskaya, the Domanikovskaya, and the Khadumskaya Shales was set at zero for a period of between 10 and 15 years. This rate was applicable to all deposits within those shales where deposit depletion did not exceed 5%. In December 2013, the Government agreed to extend the zero NDPI rate to all deposits that are less than 10% depleted. In February 2014, Minprirody considered a suggestion to set the NDPI rate to zero for the entire Bazhenovskaya Shale, regardless of the rate of depletion of particular deposits. In addition, Minprirody considered providing tax incentives for the development of hydrocarbons from the Akhimovskaya and the Tymenskaya Shales. Also, the Ministry was considering reducing the import tariffs on equipment, which was produced outside Russia, that was used to develop of shale oil (Mineral.ru, 2014g).

In October, Minprirody announced that it was preparing a bill that would simplify access to shale hydrocarbons, particularly shale oil. It was expected that, if the bill was adopted, any interested party that was capable of cutting through shale would be able to get a license and start drilling. The companies that conducted such experiments would receive tax incentives and would not need to participate in tenders to obtain mining licenses. Minprirody planned to send the bill to the Government for consideration in the near future (Mineral.ru, 2014d, e, t).

In February, Minprirody proposed an amendment to Russia’s Mining Code that was related to auctions with sole participants. The current Mining Code specifies that if an auction has only one bidder, then the auction is automatically canceled and the natural resource remains unused. In 2012 and 2013, about 1,500 auctions were held, and only about 50% had two or more bidders. Moreover, in about 500 auctions, the second company was a fictitious bidder brought in by the first bidder to assure that the auction would not be canceled. According to the Minprirody, a proposed amendment would eliminate the need for fictitious bidders and would increase the Government’s revenue from the auctions. It was not clear how other ministries, such as the Ministry of Energy, would react to this proposal and whether the amendment would likely be passed by the Parliament (MinerJob.ru, 2014b; Pronedra.ru, 2014c).

In February, Minprirody announced a large-scale inspection of projects at licensed mining sites in Russia’s Far East. The Ministry planned to inspect the worksites and compare the work plans used to obtain the licenses with the actual work in progress. If the work at the sites was either not being completed or was significantly delayed, the Ministry retained the right to annul the licenses. Also, the companies in the Far East that were mining nonhydrocarbon natural resources were eligible for a reduced mineral extraction tax. If, however, the companies did not satisfy the requirements of their mining licenses, then they were ineligible for the reduced tax rates. The head of Minprirody stated that about 100 mining licenses in Russia’s Far East were annulled every year. The Ministry was working on revisions to regulations to address companies’ responsibilities for ensuring that work specified in the license agreements is completed. In particular, Minprirody wanted to have the ability to increase companies’ user tax obligations if the conditions of their licenses are not met. Overall, Russia has about 49,000 active mining licenses. Every year, about 25% of the projects are inspected; in 2013, 5,470 licensed mining projects were inspected (Mineral.ru, 2014f; Pronedra.ru, 2014d).

In September, Russia signed the Minamata Convention on the use of mercury. According to the convention, the Russian Federation agreed to stop producing articles containing mercury and its compounds by 2030. Until then, Russia would ban the use of mercury in several stages. By 2018, the country would ban the production of acetaldehyde, and by 2025, mercury would be banned from use as a catalyst in chloralkali processes. The country would also institute control over artisanal gold mining and amalgamation, which were often associated with mercury-related pollution. Mercury would be allowed to be used in medical measuring devices through 2030 (Pronedra.ru, 2014a, f).

## **Production**

In 2014, Russia’s production of mineral commodities was largely stable. Production of secondary gold increased by 102%; tin, mine output, by 92%; secondary silver production, by 38%; indium, by 30%; soda ash, by 23%; potash, by 22%; and germanium, by an estimated 20%. The output of ferrochromium silicon increased by 16%; selenium, by 15%; steel pipe, by 12%; and rolled steel, by 10%. At the same time, production of sulfur, as a byproduct of metallurgy, decreased by an estimated 33%;



sulfur, as a byproduct of petroleum and other ferroalloys, by 29%; ferrotitanium, by 27%; molybdenum, in concentrate, by an estimated 24%; ferronickel, by an estimated 15%; peat, by an estimated 13%; and sulfur from pyrites, by an estimated 10%. Production data for these and other mineral commodities are in table 1.

### Structure of the Mineral Industry

At the end of 2014, Russia had 17,800 enterprises engaged in mining and quarrying, which was a 2.3% increase compared with the number of enterprises active in mining and quarrying in 2013. Of these enterprises, 6,900 were engaged in extracting fuel minerals and the other 10,900 were engaged in mining nonfuel minerals. Out of all mining and quarrying enterprises, only about 200 were owned by the Federal and municipal governments, 15,900 were owned by Russian citizens, and about 300 were either owned by foreign companies or jointly owned by domestic and foreign entities. In addition, Russia had 45,900 enterprises engaged in metallurgy, 44,100 of which were owned by Russian citizens. Information on the structure of Russia's mineral industry is in table 2 (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

### Mineral Trade

In 2014, the total value of Russia's exports of goods was \$497.7 billion, which was a 4.9% decrease compared with the revised value of exports in 2013. The value of Russia's imports in 2014 decreased to \$308.0 billion, or by 9.8%. Russia had a positive trade balance of \$189.7 billion for the year (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

The main export categories for Russia were chemicals, manufactured goods, metals, natural gas, petroleum and petroleum products, and wood and wood products. Mineral products made up 70.5% of the total value of Russia's exports, and crude oil alone contributed 30.9% to the total value of exports. Petroleum refinery products accounted for another 23.3%; natural gas, 11.1%; and ferrous metals, 4.1%. Among ferrous metals and products made of them, the leading categories were semifinished products made from carbon steel (32.0%) and flat-rolled iron and steel (24.9%). Other mineral products that contributed significantly to Russia's export revenue were bituminous coal (2.3%), aluminum (1.1%), nickel (0.78%), nitrogen fertilizers (0.65%), complex mineral fertilizers (0.61%), potassium fertilizers (0.54%), and ferrous ores and concentrates (0.39%). The major export partners of Russia in 2014 were the Netherlands (which received 13.7% of Russia's exports), China and Germany (7.5% each), Italy (7.2%), Turkey (5.0%), Belarus and Japan (4.0% each), Ukraine (3.4%), Poland (3.2%), and Kazakhstan (2.8%) (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

In 2014, Russia imported \$6.9 billion worth of products made of ferrous metals (which constituted 2.2% of the total imports) and \$5.7 billion worth of ferrous metals (1.9%). The major import partners of Russia were China (which supplied 17.7% of Russia's imports), Germany (11.5%), the United States (6.5%), Italy (4.4%), Belarus (4.3%), Japan (3.8%), France and Ukraine (3.7% each), the United Kingdom (2.7%), Kazakhstan (2.6%),

and Poland (2.5%) (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2015).

## Commodity Review

### Metals

**Platinum-Group Metals.**—In 2014, Russia produced an estimated 23,500 kilograms (kg) of platinum and 82,700 kg of palladium. Compared with 2013, platinum production decreased by 9.3%, but palladium production increased by 3.1% and reversed the trend of annual production decreases during the past several years. The leading producer of platinum-group metals (PGMs) in 2014 was OJSC MMC Norilsk Nickel (Nornickel), which produced most of the palladium and more than 80% of all platinum mined in Russia (OJSC MMC Norilsk Nickel, 2015).

The second leading producer of PGMs, GK Russian Platinum, had three active PGM projects. The first one was the Kondyor alluvial deposit in Khabarovskiy Kray, which is located about 1,000 kilometers north of the city of Khabarovsk. OAO A/S Amur (a subsidiary of Russian Platinum) mined about 3.7 metric tons per year (t/yr) of platinum at Kondyor. In 2014, Amur had an exploration program worth \$17 million. The Yorgalan deposit, which is located near Kondyor, had estimated resources of 13 metric tons (t) of platinum. Russian Platinum planned to start platinum production at Yorgalan in 2016 and to start mining and processing platinum ore from the Kondyor deposit in the near future. In 2014 and 2015, the company planned to invest \$130 million in production facilities at Kondyor (Mineral.ru, 2014o, p).

Two other Russian Platinum projects were the Chernogorskoye copper-nickel-platinum deposit (located on the Taymyr Peninsula) and the southern part of the Norilsk-1 deposit, which contained cobalt, copper, nickel, and other minerals. Norilsk-1 was one of the largest deposits on the Taymyr Peninsula, and the resources of its southern part contained 378,000 t of copper, 273,000 t of nickel, 12,700 t of cobalt, and about 518 kg of PGM (Mineral.ru, 2014n).

In February, Russian Platinum announced its intention to invest about \$220 billion rubles (about \$5.5 billion) in the development of two deposits in the Norilsk region—the Chernogorskoye and the southern portion of Norilsk-1—during a period of 8 to 10 years. The company announced that mining would start in 2015 and that it would build mining and beneficiation plants and mining and metallurgical plants at both deposits, construct the required energy and transportation infrastructure, and pay more than 23 billion rubles (about \$570 million) in taxes. The company would also contribute to the social development of the region and build 110,000 square meters of housing and children's day care centers (MinerJob.ru, 2014g; Pronedra.ru, 2014h).

In March 2014, Russian Platinum signed an agreement with the regional administration that the Chernogorskoye Mine was to reach its design capacity by no later than October 10, 2017. The design capacity was to be at least 2.5 million metric tons per year (Mt/yr) of ore, and, according to the agreement, the company had to create at least 1,500 jobs in the region. The total measured resources of the Chernogorskoye Mine were 143 Mt,

and an additional 80 Mt was forecast. In addition, Russian Platinum was to commission a mine in the southern part of the Norilsk-1 deposit by no later than August 9, 2023, and the mine was to reach its design capacity of 6 Mt/yr of ore by no later than August 9, 2024. The regional administration agreed to lease lands to Russian Platinum to build production facilities and construct a road from Norilsk to the Chernogorskoye deposit with the conditions that the Norilsk-1 project must create at least 2,000 jobs, and, by 2033, that the Chernogorskoye and the Norilsk-1 projects together must create a total of 7,000 jobs (Mineral.ru, 2014n).

At the end of March, it was announced that Nornickel won the auction for the right to lease land for construction of the road from Norilsk to the Chernogorskoye deposit. It was later reported that, although the starting bid was set at 3,300 rubles (about \$82), Nornickel bid 12 million rubles (about \$300,000) and won the project. The Chernogorskoye deposit is located close to the Maslovskoye deposit, the license for development of which is held by Nornickel, and Nornickel likely would save money by constructing both roads (MinerJob.ru, 2014e; Pronedra.ru, 2014e).

In April, Nornickel announced that it was ready to start developing the Maslovskoye deposit, which was located on the Taymyr Peninsula in Krasnoyarskiy Kray. Nornickel had a long history with the deposit. In 2006, Nornickel obtained an exploration license and discovered the deposit. Historically, Maslovskoye was considered to be a nickel deposit, but in the course of exploration, Nornickel discovered resources of copper, gold, and platinum. In 2009, the resources of the deposit were confirmed (in the C1 plus C2 categories—similar to the indicated and inferred resources categories, respectively, in USGS terminology) at 215 Mt containing 1.1 Mt of copper, 728,000 t of nickel, 32.26 million troy ounces of palladium, 12.4 million troy ounces of platinum, and 1.3 million troy ounces of gold. According to Russia's Law on Subsoil of 2008, the company that discovered the deposit, Nornickel, had the right to convert its exploration license automatically into a mining license. In 2009, however, a clerical error in the original exploration license resulted in an incorrect coordinate of the licensed area being recorded, which increased the licensed area from 24 km<sup>2</sup> to 91 km<sup>2</sup>. The original exploration license was valid through the end of 2011, and was later renewed through the end of 2013. Although the clerical error was eventually corrected, the correction was made after the resources of the deposit were recorded, and the exploration license was not converted into a mining license automatically. Moreover, the Government questioned the legality of the deposit discovery certificate that had been given to Nornickel. Nornickel's main competitor, Russian Platinum, announced that it would participate in an auction for the Maslovskoye deposit mining license if the Government decided to hold an auction (Mineral.ru, 2014h).

In 2014, Nornickel tried to resolve the situation and to finally obtain the mining license for the Maslovskoye deposit. The company announced that it had invested 1.4 billion rubles (about \$35 million) in exploration at Maslovskoye and it promised to invest 85 billion rubles (about \$2.12 billion) in the development of the deposit. Unable to correct the error otherwise, Nornickel

sent a letter to Russia's Prime Minister. It appeared that the Prime Minister ordered the problem corrected and the regulations corrected to avoid similar problems in the future; it was not clear when Nornickel would receive a mining license for the Maslovskoye deposit (MinerJob.ru, 2014d, f).

In 2003, Eurasia Mining plc of the United Kingdom and Anglo American Platinum (Amplats) of South Africa created a 50–50 joint venture called Urals Alluvial Platinum Ltd. (UAP) for the production of alluvial platinum in Russia. Later, the joint venture became the owner of 75% of ZAO Kos'vinskiy Kamen', and the other 25% was owned by a group of artisanal miners called Yuzhno-Zaozerskiy Priisk. ZAO Kos'vinskiy Kamen' had explored for alluvial platinum in the Tylay-Kos'vinskaya area of Western Kytlym, which is located in northern Sverdlovskaya Oblast', since 2005. In June 2014, Amplats announced that it was selling its share in the joint venture to its partner, Eurasia Mining; the value of the transaction was estimated to be between 300 million and 350 million rubles (between \$7.5 million and \$8.7 million). As a result, Eurasia Mining would own 100% of UAP. The company reported that, as of May 2014, its total investment in the project amounted to 240 million rubles (about \$6 million). The confirmed resources of UAP in the C2 category (similar to the inferred resources category in USGS terminology) were reported to be 2,283 kg of platinum, and Eurasia Mining reported that the resources would allow the company to mine the area for about 9 years. The company planned to start mining in 2015 (Mineral.ru, 2014b, r).

In October, Polymetal International plc announced that it was considering conducting exploration for and production of PGMs, a long-term strategy for the company. It announced that it had prepared a resource assessment for its Semchenskaya area project, which is located in Kareliya, and was waiting for Government approval of the document. Polymetal obtained a license for the Semchenskaya area with a preliminary resource estimate of 130.6 t (4.2 million troy ounces) of platinoids in palladium equivalent in 2012. In May 2013, Polymetal acquired ZAO Nevyanskaya Gruppya, which had a license for exploration and production of platinoids in the Svetlobor area in Sverdlovskaya Oblast', where preliminary resources amounted to 59.1 t (1.9 million troy ounces) of PGMs. Polymetal was a Russian company engaged in the production of gold and silver and the development of precious metal projects in Russia and Kazakhstan; the company was registered in Jersey [United Kingdom] (Prime.ru, 2014a).

**Titanium.**—In 2014, Russia produced an estimated 47,000 t of titanium sponge, which was a 2.2% increase compared with production in 2013. Russia was the second-ranked producer of titanium sponge after China, and production was mostly from imported raw materials. The Bereznykovskiy titanium-magnesium complex (BTMK) in Permskiy Kray, which was a unit within OAO VSMPO-Avisma Corp., produced most of Russia's titanium sponge. The other titanium producer in Russia, the OAO Solikamskiy magnesium plant, produced much less titanium than the BTMK. Both plants supplied titanium sponge to another unit of VSMPO-Avisma—the Verkhnesaldinskoye metallurgical production complex, which was located in Sverdlovskaya Oblast; this unit produced titanium mill products and semifinished products made from titanium alloys. Russia

was the world leader in the production and export of titanium products (Mineral-Info, 2015).

In 2014, the Verkhnesaldinskoye complex produced 29,260 t of titanium products, which was 1.4% more than in 2013. VSMPO-Avisma supplied titanium mill products to major world companies involved in building aircraft. It was also the only supplier of titanium metal to the Russian domestic market. In 2014, the net profit of VSMPO-Avisma was reduced by 46% to 4.02 billion rubles (about \$100 million) owing to the negative impact of the exchange rate of the Russian ruble to other currencies, in particular the euro area euro and the United States dollar. In 2014, VSMPO-Avisma employed a total of 20,200 people, which was 290 fewer people than in 2013. In 2014, the company invested 5.1 billion rubles (about \$127 million) in its production, which was 0.7% more than in 2013. The company was one of the largest taxpayers in the Sverdlovskaya Oblast' and paid a total of 5.6 billion rubles (about \$139.3 million) in taxes to government entities at various levels (Mineral.ru, 2015).

In 2014, VSMPO-Avisma's supply of materials for titanium production was interrupted several times. In November, one of OAO Uralkali's mines was flooded and created the risk of flooding at the company's neighboring mines, including the only Uralkali mine that produced carnallite. Carnallite is a material used by VSMPO-Avisma in the production of magnesium products, which are used in titanium production. In 2013, Uralkali produced 315,000 t of carnallite and was modernizing its operation to increase its production capacity to 400,000 t/yr. The company reported that, if shortages of carnallite occur, it could either find an alternative supplier or change the production technology such as, for example, to one that uses liquid chlorine instead of carnallite. In 2006, VSMPO-Avisma faced a shortage of carnallite and was able to purchase the material from a supplier in Israel (Interfax.ru, 2014b; Pronedra.ru, 2014b).

Another supply problem was related to shipments of ilmenite concentrate from Ukraine. Historically, Ukraine has been the main source of ilmenite for VSMPO-Avisma. In 2012 and 2013, Russia imported 111,200 t and 119,300 t of ilmenite, respectively, from Ukraine, and in 2014, imports from Ukraine were reduced to 93,300 t. All shipments were made from the Irshanskiy and the Vol'nogorkiy mining and beneficiation complexes (GOKs). In September, the Government of Ukraine nationalized the Irshanskiy and the Vol'nogorskiy GOKs, which had previously been owned by the DF Group. In order to protect itself against the risk of supply loss, VSMPO-Avisma decided to diversify its supply of raw materials and purchased 5,300 t of ilmenite concentrate from Senegal. The ilmenite concentrate from Senegal contained 54% titanium oxide (TiO<sub>2</sub>) and cost \$326 per metric ton, whereas the ilmenite concentrate from Ukraine contained 63% TiO<sub>2</sub> and cost \$370 per metric ton. In 2014, VSMPO-Avisma also purchased titanium raw materials (mostly rutile) from Australia, Sierra-Leone, South Africa, and Thailand. The prices of 95% rutile concentrate from those countries were reported to be \$1,257, \$1,062, \$1,602, and \$1,641, respectively. Despite the higher prices, the Russian company wanted to minimize the risk of supply disruptions related to the political situation in Ukraine. In November 2014, VSMPO-Avisma assured its business partners that it had sufficient inventory of titanium raw materials to continue

production for between 8 and 10 months (Izvestia.ru, 2014; Steelland.ru, 2014).

In May, VSMPO-Avisma and Government officials in Dnepropetrovskaya Oblast' in Ukraine agreed to continue developing the Volchanskoye titanium-zirconium deposit. The Demurinskiy GOK (a subsidiary of VSMPO-Avisma in Ukraine) planned to set up industrial-scale mining at the site. Earlier, in March, the Economic Court of Dnepropetrovskaya Oblast' ruled that the lease agreement on which the project was based violated Ukrainian law by illegally leasing agricultural land for the mining project. Consequently, the court annulled the lease agreement and precluded development of the mining project. In May, VSMPO-Avisma signed a new land lease for the Volchanskoye deposit. The comprehensive agreement required the company to invest \$45 million in the development of the deposit, to create 200 new jobs at the GOK, and to contribute to local social programs. VSMPO-Avisma planned to move from the pilot stage to the full-scale production stage. The projected capacity of the Demurinskiy GOK was 40 t/yr and full-scale production was expected to start in 2016 (Steelland.ru, 2014; Yarosh, 2014).

VSMPO-Avisma had held a license for the Tsentral'noye titanium-zirconium deposit in Tambovskaya Oblast' in Russia since 2011. Development of the deposit could provide the company with titanium raw materials for several decades. VSMPO-Avisma planned to begin mining the Tsentral'noye deposit in 2016. It was not clear if the company had planned to accelerate the development of the deposit owing to the risks associated with the supply of titanium raw materials from Ukraine (Yarosh, 2014).

The Tuganskiy mining and beneficiation complex "Ilmenit" (TGOK) and Izurium Capital of the United Kingdom, an investment fund, planned to build a mining and beneficiation plant with the capacity to process 4 Mt/yr of mineral sands in the Tomskaya Oblast'. TGOK was founded in 2002, and in 2005, a pilot production line with an annual capacity of 125,000 t/yr of quartz sands was commissioned. Total investment in the project was expected to amount to \$132 million. The project was to be implemented in three stages—the pilot project and two full production stages. At each of the full production stages, the plant would have the capacity to process 2 Mt/yr of mineral sands. The complex was expected to be commissioned in 2016 and would reach full capacity in 2018. The mining and beneficiation plant would produce 13,300 t/yr of rutile and leucoxene concentrate, 33,500 t/yr of zircon concentrate, 73,100 t/yr of ilmenite concentrate, and 960,000 t/yr of quartz sands. TGOK planned to become the second-ranked supplier of products made of beneficiated mineral sands in Siberia, with a market share of about 15% in raw materials for titanium production and 30% in zirconium, and the leading supplier of sands for glassmaking in Siberia, with a market share of about 50% (MinerJob.ru, 2014a).

### *Industrial Minerals*

**Cement.**—According to the Federal State Statistical Service, Russia produced a total of 68,544,800 t of cement in 2014, which was a 3.1% increase compared with that of 2013.



The largest increases in cement production took place in the Privolzhskiy Federal Okrug (an increase of 1.9 Mt, or 13.2%) and the Central Federal Okrug (0.55 Mt, or 3.2%). The increases were largely attributable to the commissioning of new production facilities, such as OAO Serebryakovcement and Sengileevskiy Cement, and new plants, such as the Lafarge plant in Kaluzhskaya Oblast' and OOO Asia Cement in Penzenskaya Oblast'. At the same time, production in three Federal Okrugs—the Northwestern, The Ural'skiy, and the Northern Caucasus—decreased by 449,000 t, 364,000 t, and 300,000 t, respectively. In 2014, the trend of relative increase of portland cement without additives continued, and for the first time, the share of Portland cement without additives (48.1%) exceeded the share of portland cement with additives (45.8%). The leading cement-producing company in Russia was Eurocement, which controlled 29.4% of all cement production, followed by Novoroscement (8.8%), Mordovcement (7.3%), Siberian Cement (6.6%), Dyckerhoff (6.0%), HeidelbergCement Russia (5.6%), and Holcim Russia (5.4%). In 2014, Russia had a total of about 70 cement plants with annual capacities ranging from 100,000 t/yr to more than 4 Mt/yr (Cemclub.ru, 2015; Nezavisimyi Stroitel'nyi Portal, 2016).

In 2014, Russia imported 5.2 Mt of cement, which was a 3.4% decrease compared with the amount imported in 2013. The leading exporter of cement to Russia was Belarus, which supplied 1.59 Mt of cement, or 30.6% of total imports. Significant cement imports were received from Iran (12.5% of the total), Turkey (11.0%), Sweden (8.9%), Latvia (6.8%), and Kazakhstan (6.0%). In 2014, Russia's cement plants exported a total of 2.4 Mt of cement, which was a 20.3% reduction compared with 2013. The main importers of Russia's cement were Kazakhstan, which received 36.9%, Ukraine (28.9%), Belarus (25.2%), and Azerbaijan (7.6%). Russia's apparent cement consumption in 2014 was 71.3 Mt, which constituted a 3.8% increase compared with that of 2013. In 2014, new housing construction reached 83 million square meters, which absorbed the additional cement production (Cemclub.ru, 2015; Rcomm.ru, 2015).

**Rare Earths.**—In 2014, Russia produced an estimated 1,400 t of total rare-earth oxides. The only producer of rare earths in Russia was the Lovozerskiy GOK (located in Murmanskaya Oblast'), where production had been decreasing slowly during the past several years. At the same time, Russia had significant resources of rare earths and planned to start rare-earth production in various parts of the country (table 1).

In January, the Ministry of Industry and Trade (Minpromtorg) developed a program to subsidize interest rates for investment projects involving rare metals and rare-earth metals from 2014 through 2016. The total amount of the subsidies approved by the Government was 735.2 million rubles (about \$18.3 million). Of that total, 11.2 million rubles (about \$279,200) would be spent on subsidies in 2014; 133.3 million rubles (about \$3.32 million), in 2015; and the remaining 590.8 million rubles (about \$14.7 million), in 2016. Minpromtorg also developed the second stage of the subsidy project for the period between 2017 and 2020, which was expected to provide total subsidies to rare-earth metal producers in the amount of 14.3 billion rubles (about \$356.4 million). The subsidy was part of a

comprehensive Government program entitled “Development of the rare metal and rare-earth industry”; the program sought to create a competitive rare metals and rare-earth metal sector with a complete technological cycle to satisfy the needs of the defense sector, civil industries, and exports. Minpromtorg planned to conduct competitions at least once per year to select companies that would receive Government support. Overall, the Government expected that the total investment in rare metals and rare-earth metals through 2020 would amount to 145 billion rubles (about \$3.61 billion), including Government investments of 23.5 billion rubles (about \$586 million). Minpromtorg estimated that, by 2020, Russia would produce about 20,000 t of raw materials and finished products and that production would continue to increase by between 10% to 20% per year for the foreseeable future (Mineral.ru, 2014l).

In September, the Physics and Technology Institute of the Urals Federal University announced that it had received a grant from the Government in the amount of 300 million rubles (about \$7.47 million) to extract rare metals and rare-earth metals from uranium ore, specifically europium, lanthanum, and terbium. As of the end of 2014, the Institute had produced about 100 t of rare metals and rare-earth metals and planned to increase production to 1,000 t/yr of rare metals and rare-earth metals (Mineral.ru, 2014s).

In 2014, ZAO Technoinvest Alliance continued working on the construction of a mining and beneficiation plant at the Zashikhinskoye rare-earths deposit in Irkutskaya Oblast' (Zashikhinskiy GOK). The company obtained a license for developing the deposit in 2005 and had been working on the project since then. The resources of the Zashikhinskoye deposit were estimated to be 34.5 Mt containing 105,000 t of niobium pentoxide ( $Nb_2O_5$ ) and 8,500 t of tantalum pentoxide ( $Ta_2O_5$ ). The capacity of the Zashikhinskiy GOK was projected to be 1 Mt/yr of processed ore that would yield 3,200 t/yr of concentrate. From this amount of concentrate, the company planned to produce 166 t of  $Ta_2O_5$  and 1,671 t of  $Nb_2O_5$  with 99.5% metal content. The total investment in the project was estimated to be 12.9 billion rubles (about \$322 million) and was funded by the company's owners, bank loans, and Government subsidies. The financing provided by Mintorg amounted to 65 million rubles (\$1.62 million) in 2014. In addition to the production facilities, the company planned to build a 170-km-long road and a 110-kilowatt powerline. The company planned to commission the plant in 2018 and to reach full production capacity by 2019. Previously, the company had planned to commission the plant in 2014, but had to delay the commissioning because of difficulties with the technological decisionmaking related to the ore beneficiation methods. When operating at full capacity, the plant would provide about 300 jobs (Kommersant.ru, 2015).

The Association of National Producers of Strategic Materials proposed organizing an Eastern Rare Earth Cluster, which would be formed around the Zabaikal'skiy GOK and would use the resources of the Yermakovskoye fluorite-beryllium deposit, the Zashikhinskoye tantalum-niobium deposit, the Etykinskoye tantalum-niobium-tin deposit, and the Zavitinskoye lithium deposit. The creation of the cluster would entail reviving



production at the Zabaikal'skiy GOK and organization of tolling-based shipments to the Ulba metallurgical plant in Kazakhstan. The Association recommended organizing the cluster within 2 years (Interfax.ru, 2014a; MinerJob.ru, 2014i).

In February, the Prime Minister of the Russian Federation signed a decree concerning an auction for the use of the "Burannyi" section of the Tomtorskoye rare-earth deposit in Yakutiya. The license would allow for exploration and production of niobium, rare earths, scandium, and other components. The Burannyi section covered an area of 12.4 km<sup>2</sup>. The starting bid that was structured as a one-time fee was 956 million rubles (about \$23.8 million) (Mineral.ru, 2014c).

### ***Mineral Fuels and Related Materials***

**Coal.**—In 2014, Russia produced 356.9 Mt of coal, which was a 1.5% increase compared with production in 2013. Anthracite coal production increased by 5.5% to 13.5 Mt, bituminous coal output increased by 3.5% to 274.5 Mt, and lignite production decreased by 6.5% to 68.9 Mt. Open pit mining was used for the production of 251.8 Mt of coal, or about 70.6%. In 2014, investment in the Russian coal industry decreased by 28% compared with that of 2013, to 58 billion rubles (about \$1.45 billion). In 2014, Russia exported 152.1 Mt of bituminous coal, which was an increase of 8% compared with exports in 2013, although in terms of value, the revenue from coal exports decreased by 2% to \$11.6 billion owing to a decrease in coal prices in 2014. China and the United Kingdom were the leading importers of Russia's coal and received 25.8 Mt and 24.0 Mt, respectively. Other leading importers were the Republic of Korea and Japan, which received 16.2 Mt and 14.7 Mt, respectively (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015; Vedomosti.ru, 2015).

Russia had coal reserves of 157 billion metric tons (17.6% of the world's reserves) and was second only to the United States, which held 26.6% of the world's coal reserves. Within Russia, "explored" coal resources were located in 22 coal basins and 129 separate deposits. More than two-thirds of explored coal resources were concentrated in two basins—the Kansk-Achinskiy basin, which holds 40.7% of Russia's resources, and the Kuznetskiy basin (27.4%). The Kuznetskiy basin continued to be the leading source for coal production—in 2014, 59% of Russia's coal output was produced there. In 2014, 85% of all coal mined in Russia was produced in three jurisdictions—Kemerovskaya Oblast', Krasnoyarskiy Kray, and Zabaikal'skiy Kray—in the Siberian Federal Okrug (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

Large producers dominated Russia's coal industry. The leading coal producer was OAO SUEK, which produced 98.9 Mt of coal, or 28% of the country's output, followed by OAO UK Kuzbassrazrezugol (43.5 Mt), OAO HK SDS-Ugol (29.7 Mt), Evraz (21.8 Mt), and OAO Mechel-Mining (21.4 Mt). Together, these five companies produced more than 60% of Russia's coal. The remaining output was produced by about 20 smaller companies (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

**Natural Gas.**—In 2014, Russia produced 643 billion cubic meters of natural gas, which was a decrease of 3.7% compared

with production in 2013. Russia's share of the world production had been decreasing slowly since 2000 owing to increased production in other countries; in particular, Iran, Qatar, and the United States. In 2014, Russia produced about 19% of the world's natural gas output (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

As of January 1, 2014, Russia's resources of natural gas (categories A, B, and C1—similar to measured reserves in USGS terminology) were 49.5 trillion cubic meters, which was 1% higher than at the beginning of 2013. The largest natural gas deposits in Russia are located in the oil and gas province of Western Siberia. According to Minprirody, the leading natural gas deposit in Russia was the Urengoyevskoye deposit, which had reserves of 5.2 trillion cubic meters. The Urengoyevskoye deposit was followed by the Bovankovskoye (4.3 trillion cubic meters), the Shtokmanovskoye (3.9 trillion cubic meters), the Yamburgskoye (3.2 trillion cubic meters), and the Astrakhanskoye and Zapolyarnoye (2.5 trillion cubic meters each) (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

About 80% of the natural gas production in Russia took place in the Nadym-Pur-Taz region of the Yamalo-Nenetskiy Avtonomnyy Okrug (YaNAO). In 2013 (the latest year for which information was available), the three deposits (the Zapolyarnoye, the Urengoyevskoye, and the Yamburgskoye) provided 40% of the total natural gas production in Russia, having produced 117.5, 90.6, and 75.3 billion cubic meters, respectively. Production at the Bovankovskoye deposit started in 2012 and reached 22.8 billion cubic meters in 2013; the deposit was expected to become one of the largest deposits in terms of annual production (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

In 2014, 67.5% of total natural gas output was produced by OAO Gazprom. Although Gazprom continued to be the dominant producer, the share of independent companies engaged in gas production continued to increase. (In 2007, only 16% of natural gas was produced by independent companies.) Among the independent companies, the production leader was Novatek, which produced 53.5 billion cubic meters, followed by Rosneft' (37.3 billion cubic meters), OAO Lukoil (18.7 billion cubic meters), TNK-BP (12.6 billion cubic meters), and Surgutneftegaz (9.4 billion cubic meters) (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

In 2014, Russia's exports of natural gas decreased by 11.4% to 187 billion cubic meters and reached the lowest level since 2000 (except for the crisis year of 2009). In 2014, the geography of gas exports remained largely stable; the major export partners of Russia were European countries. The leading export partner was Germany, which imported 36.4 billion cubic meters of natural gas from Russia, followed by Turkey (27.3 billion cubic meters), Belarus (20.1 billion cubic meters), Italy (19.9 billion cubic meters), Ukraine (14.5 billion cubic meters), Japan (11.6 billion cubic meters), Kazakhstan (8.6 billion cubic meters), and France (7.1 billion cubic meters). Compared with 2013, the largest decreases in natural gas exports were to Ukraine (decreased by 44%) and Italy (19%). In 2014, 7.7% of all Russia's natural gas exports went to countries in Asia. In 2009, when the new liquefied natural gas (LNG) plant opened

on Sakhalin island, shipments of natural gas to the countries of the Asia and the Pacific region increased. As of 2014, most shipments of LNG went to Japan (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

**Petroleum.**—In 2014, Russia produced 526 Mt of petroleum, which was a 0.8% increase compared with production in 2013. In 2014, Russia produced about 12% of the world's output and was the third-ranked producer in the world after the United States and Saudi Arabia. Rosneft' was the leading petroleum producer in the country, accounting for 190.9 Mt, or 36.3%, of Russia's petroleum production, followed by OAO Lukoil (86.6 Mt, or 16.5%), Surgutneftegaz (61.4 Mt, or 11.7%), Gazprom Neft' (33.6 Mt, or 6.4%), Tatneft' (26.5 Mt, or 5.0%), Bashneft' (17.9 Mt, or 3.4%), and Russneft' (8.6 Mt, or 1.6%). Russia's share of world petroleum consumption continued to remain quite modest (less than 4%), but its share had continued to increase slowly during the past several years (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

In 2014, Russia refined 295 Mt of petroleum, which was a 5.0% increase compared with that of 2013. During the past 5 years, petroleum refining in Russia was slowly but steadily increasing—by 12.9% since 2010. The average depth of refining (the measure of refinery effectiveness computed as a percentage of refined petroleum products to the total volume of processed petroleum) in 2014 was 72.4% compared with 71.7% in 2013. The increase in the depth of refining was attributed to modernization at Russia's refineries, which was expected to be completed by 2020. In 2014, production of refinery products in Russia increased by 6.5 Mt (or 3.4%). The increases took place predominantly in the production of diesel fuel (an increase of 5.4 Mt, or 7.6%). At the same time, production of gasoline decreased by 0.4 Mt, or by 1.1% (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

In 2014, Russia exported 223.4 Mt of crude oil. Crude oil exports had continued to decrease during the past several years and amounted to a total decrease of 21.4 Mt compared with exports in 2009. On the other hand, exports of refined petroleum products continued to increase and, in 2014, reached 164.8 Mt, which was an increase of 13.2 Mt compared with exports in 2013. In 2014, 89.2% of crude oil and 94.1% of petroleum products were exported to countries outside the Commonwealth of Independent States (CIS) (Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii, 2015).

## Outlook

Russia has large reserves of a variety of mineral commodities and most likely will continue to be one of the world's leading mineral producers. In 2014, the country's mineral sector demonstrated several interesting trends. First, the Government and industry were very concerned about minerals exploration in the country. This trend was observed both at the level of the Federal Government and through the activities of leading mineral producers, such as Normickel, United Company RUSAL, and VSMPO-Avisma. Second, the emphasis on exploration and national self-sufficiency was strengthened by the sanctions imposed on selected enterprises and individuals by the Western countries. For example, the program focused on domestic production of rare earths was largely based on

concerns that an opportunity to import of such materials for domestic use should not be taken for granted. Finally, Russia's mineral industry began strengthening partnerships with its Eastern neighbors, such as China, at the expense of other countries and regions, such as Australia and countries of Europe.

In the short to medium run, Russia is likely to deal with the effects of reduced petroleum prices, decreased value of the ruble against other currencies, and economic sanctions. It is likely that some of the most ambitious mineral industry projects would be canceled or delayed until better economic conditions prevail in the country. It remains to be seen, however, how this new economic reality is likely to affect the structure and resilience of Russia's mineral industry.

## References Cited

- Analiticheskiy Tsentri pri Pravitel'stve Rossiyskoy Federatsii [Analytical Center under the Government of the Russian Federation], 2015, TEK Rossii—2014 [Fuels and energy complex of Russia—2014]: Government of the Russian Federation, June, 59 p. (Accessed March 8, 2016, at <http://ac.gov.ru/files/publication/a/5451.pdf>.)
- Anderson, C.S., 2016a, Selenium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 148–149.
- Anderson, C.S., 2016b, Tellurium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 168–169.
- Apodaca, L.E., 2016a, Nitrogen (fixed)—Ammonia: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 118–119.
- Apodaca, L.E., 2016b, Peat: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 120–121.
- Apodaca, L.E., 2016c, Sulfur: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 162–163.
- Bedinger, G.M., 2016, Titanium and titanium dioxide: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 176–177.
- BP p.l.c., 2015, BP statistical review of world energy: BP p.l.c., June, 48 p. (Accessed March 8, 2016, at <https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf>.)
- Bray, E.L., 2016a, Aluminum: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 22–23.
- Bray, E.L., 2016b, Bauxite and alumina: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 32–33.
- Bray, E.L., 2016c, Magnesium compounds: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 102–103.
- Bray, E.L., 2016d, Magnesium metal: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 104–105.
- Brininstool, Mark, 2016, Copper: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 54–55.
- Cemclub.ru, 2015, Obzor rynka tsementa Rossii za 2014 god [An overview of Russia's cement market for 2014]: Cemclub.ru. (Accessed March 8, 2016, at <http://cemclub.ru/news/review.1.2015.htm>.)
- Corathers, L.A., 2016, Lime: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 98–99.
- Crangle, R.D., Jr., 2016a, Boron: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 38–39.
- Crangle, R.D., Jr., 2016b, Diatomite: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 58–59.
- Crangle, R.D., Jr., 2016c, Gypsum: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 76–77.
- Edelstein, D.L., 2016, Arsenic: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 26–27.
- Federal'naya Sluzhba Gosudarstvennoy Statistiki [Federal State Statistical Service], 2015, Rossiyskiy Statisticheskiy Yezhegodnik [Russian statistical yearbook]: Federal'naya Sluzhba Gosudarstvennoy Statistiki. (Accessed March 8, 2016, at [http://www.gks.ru/free\\_doc/doc\\_2015/year/year15.rar](http://www.gks.ru/free_doc/doc_2015/year/year15.rar).)
- Fenton, M.D., 2016, Iron and steel: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 84–85.
- Flanagan, D.M., 2016, Asbestos: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 28–29.
- Gambogi, Joseph, 2016, Rare earths: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 134–135.

- George, M.W., 2016a, Gold: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 72–73.
- George, M.W., 2016b, Silver: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 152–153.
- Guberman, D.E., 2016a, Antimony: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 24–25.
- Guberman, D.E., 2016b, Germanium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 70–71.
- Guberman, D.E., 2016c, Lead: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 96–97.
- Interfax.ru, 2014a, RF mozhnet stolknut'sya s nevhvatkoy RZM [Russian Federation may encounter REM shortage]: Interfax.ru, April 8. (Accessed March 8, 2016, at <http://www.interfax.ru/presscenter/370301>.)
- Interfax.ru, 2014b, VSMPO-Avisma sobralas' zamenit' karnallit Uralkaliya postavkami iz Izraili [VSMPO-Avisma decided to replace Uralkali's carnallite with shipments from Israel]: Interfax.ru, November 28. (Accessed March 8, 2016, at <http://www.interfax.ru/business/409916>.)
- Izvestia.ru, 2014, Rossiyskiy titanoviy monopolist pomenyal Kolomoyskogo na Senegal [Russian titanium monopolist swapped Kolomoyskiy for Senegal]: Izvestia.ru, November 18. (Accessed March 8, 2016, at <http://izvestia.ru/news/579542>.)
- Jasinski, S.M., 2016a, Phosphate rock: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 124–125.
- Jasinski, S.M., 2016b, Potash: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 128–129.
- Jaskula, B.W., 2016, Gallium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 64–65.
- Kommersant.ru, 2015, Redkosti poyavyatsya pozdne [Rarities will appear later]: Kommersant.ru, January 22. (Accessed March 8, 2016, at <http://www.kommersant.ru/doc/2650913>.)
- Kuck, P.H., 2016, Nickel: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 114–115.
- Loferski, P.J., 2016, Platinum-group metals: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 126–127.
- Mineral-Info, 2015, Titanium: Gosudarstvennyi doklad o sostoyanii i ispol'zovanii mineral'no-syr'evykh resursov Rossiyskoy federatsii v 2013 godu [Titanium—State report on conditions and use of mineral resources in the Russian Federation in 2013]: Moscow, Russia, Mineral-Info, p. 219–226.
- Mineral.ru, 2014a, Donskoy utverdil novyi poriyadok opredeleniya platelyey za nedra [Donskoy approved a new rule for determining subsoil user fees]: Mineral.ru, March 9. (Accessed March 8, 2016, at <http://www.mineral.ru/News/58343.html>.)
- Mineral.ru, 2014b, Eurasia Mining vykupaet Zapadnyi Kytlim i c 2015 g. nachnet dobychu [Eurasia Mining buys out Western Kytlim and will start production in 2015]: Mineral.ru, June 23. (Accessed March 8, 2016, at <http://www.mineral.ru/News/61520.html>.)
- Mineral.ru, 2014c, Medvedev podpisal rasporyazheniye o provedenii auktsiona na Tomtorskoye mestorozhdeniye [Medvedev signed a decree on an auction for the Tomtorskoye deposit]: Mineral.ru, February 25. (Accessed March 8, 2016, at <http://www.mineral.ru/News/57190.html>.)
- Mineral.ru, 2014d, Minprirody predlagat oblegchit' dostup k slantsevym mestorozhdeniyam [Minprirody suggests simplifying access to shale deposits]: Mineral.ru, October 23. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64841.html>.)
- Mineral.ru, 2014e, Minprirody zakrepil spetsial'nyi rezhim predostavleniya dlya geologicheskogo izucheniya uchastkov nedr poleznykh iskopaemykh [Minprirody approved a special procedure for providing subsoil lots for geologic study and exploration]: Mineral.ru, July 18. (Accessed March 8, 2016, at <http://www.mineral.ru/News/61839.html>.)
- Mineral.ru, 2014f, Minprirody: narushitelyam litsenziy s soglaseniy budut povyshat' stavki platelyey za pol'zovaniye nedrami [Minprirody—The violators of licensing agreements will face increased subsoil user fees]: Mineral.ru, July 11. (Accessed March 8, 2016, at <http://www.mineral.ru/News/61750.html>.)
- Mineral.ru, 2014g, Neftyaniki potrebovali nulevoy NDPI dlya trudnoizvlekaemykh zapasov [Petroleum producers demanded to zero out NDPI for hard-to-extract resources]: Mineral.ru, February 8. (Accessed February 8, 2016, at <http://www.mineral.ru/News/56995.html>.)
- Mineral.ru, 2014h, Normickel razvedyval Maslovskoye mestorozhdeniye fakticheski nezakonno [Normickel actually explored the Maslovskoye deposit illegally]: Mineral.ru, April 24. (Accessed March 8, 2016, at <http://www.mineral.ru/News/59896.html>.)
- Mineral.ru, 2014i, Osnovnaya chast' gosfinansirovaniya razvedki nefiti i gaza s 2014 goda budet napravlena na zony Sibiri i Kaspiya [Major part of Government investment in oil and gas exploration in 2014 will be directed to Siberia and the Caspian region]: Mineral.ru, July 16. (Accessed July 16, 2016, at <http://www.mineral.ru/News/61793.html>.)
- Mineral.ru, 2014j, Po raschetam Minprirody RF, vvedeniye vychetov raskhodov na geologorazvedku in NDPI pozvolit poluchit' prirost zapasov nefiti do 2035 v 2 mlrd ton [According to Minprirody's calculations, introduction of exclusion of exploration expenses from NDPI would allow obtaining a resource increase of 2 billion tons through 2035]: Mineral.ru, September 22. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64447.html>.)
- Mineral.ru, 2014k, Pravitel'stvo RF v 2014 g. peredast Rosgeologii 100% minus 1 aktsiya Zarubezhgeologii [The Government of the Russian Federation will transfer 100% minus 1 share of Zarubezhgeologiya to Rosgeologiya]: Mineral.ru, February 24. (Accessed March 8, 2016, at <http://www.mineral.ru/News/57184.html>.)
- Mineral.ru, 2014l, RF vydelit 735 mln rub. subsidii dlya redkozemel'nykh metallov [Russian Federation will earmark 735 million rubles for subsidies on rare-earth metals]: Mineral.ru, January 29. (Accessed March 8, 2016, at <http://www.mineral.ru/News/56853.html>.)
- Mineral.ru, 2014m, Rosgeologiya mozhnet poluchit' status spetsagenstva po razvitiyu geologorazvedki [Rosgeologiya could obtain a status of special agency for geologic exploration]: Mineral.ru, August 21. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64064.html>.)
- Mineral.ru, 2014n, Russkaya Platina na dva goda zaderzhit zapusk Chernogorskogo mestorozhdeniya [Russian platinum will delay commissioning of the Chernogorskoye deposit by 2 years]: Mineral.ru, March 4. (Accessed March 8, 2016, at <http://www.mineral.ru/News/58282.html>.)
- Mineral.ru, 2014o, Russkaya Platina ozhidaet 13 t zapasov platiny na sputnik Kondyora [Russian platinum expects 13 tons in resources at the Kodyor satellite]: Mineral.ru, September 18. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64408.html>.)
- Mineral.ru, 2014p, Russkaya Platina sokhranit dobychu v 2014 g. na urovne 3,6 tons [Russian platinum will keep production at 3.6-t level]: Mineral.ru, March 3. (Accessed March 8, 2016, at <http://www.mineral.ru/News/58265.html>.)
- Mineral.ru, 2014q, Uproshennyi rezhim litsenzirovaniya provel k rekordnomu uvelochniyu sprosna na poiskovye litsenzii [Simplified licensing procedures led to a record demand for exploration licenses]: Mineral.ru, September 15. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64370.html>.)
- Mineral.ru, 2014r, Ural'skaya platina uhodit v odni ruki [Urals platinum goes to the same hands]: Mineral.ru, June 25. (Accessed March 8, 2016, at <http://www.mineral.ru/News/61554.html>.)
- Mineral.ru, 2014s, V Sverdlovskoy oblasti skoro nachnut proizvodit' redkozemel'nye metally [Rare-earth metals soon will be produced in Sverdlovskaya Oblast']: Mineral.ru, September 18. (Accessed March 8, 2016, at <http://www.mineral.ru/News/64417.html>.)
- Mineral.ru, 2014t, Zakonoproekt o liberalizatsii dostupa k strategicheskim uchastkam nedr na shel'fe odobren zakonoproektnoy komissiyey pravitel'stva RF [A bill on liberalization of access to subsoil sectors on the continental shelf is approved by the legislation commission of the Government of the Russian Federation]: Mineral.ru, June 18. (Accessed March 8, 2016, at <http://www.mineral.ru/News/61464.html>.)
- Mineral.ru, 2014u, Zatraty kompaniy na geologorazvedku v 2013 godu uvelichilis' na 37% [Exploration expenditures of companies increased by 37% in 2013]: Mineral.ru, April 3. (Accessed March 8, 2016, at <http://www.mineral.ru/News/59641.html>.)
- MinerJob.ru, 2015, OAO Korporatsiya VSMPO-AVISMA podvela itogo svoey deyatelnosti za 2014 god [OAO VSMPO-AVISMA Corporation published results of its activities in 2014]: Mineral.ru, March 31. (Accessed March 8, 2016, at <http://www.mineral.ru/News/72580.html>.)
- MinerJob.ru, 2014a, GOK po proizvodstvu mineral'nykh peskov za \$132 mln budet postroen v Tomskoy oblasti [A mining and beneficiation complex for mining mineral sands will be built in Tomskaya Oblast']: MinerJob.ru, February 11. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26247>.)
- MinerJob.ru, 2014b, Minprirody predlagat provodit' auktsiony bez konkurentsii [Minprirody suggests conducting auctions without competition]: MinerJob.ru, February 28. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26460>.)



- MinerJob.ru, 2014c, Nauchno-tekhnicheskii sovet Rosgeologii rassmotrel strategiyu razvitiya Holdinga do 2020 goda [Scientific and technical committee of Rosgeologiya considered Holding's strategy through 2020]: MinerJob.ru, January 28. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26073>.)
- MinerJob.ru, 2014d, Noril'skiy Nikel' polnost'yu gotov pristupit' k ocvoeniyu Maslovskogo mstorozhdeniya [Nornickel is completely ready to develop the Maslovskoye deposit]: MinerJob.ru, March 24. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26687>.)
- MinerJob.ru, 2014e, Nornickel' vyigral torgi na stroitelstvo dorogi u Russkoy Platiny [Nornickel won the competition with Russian Platinum for road construction]: MinerJob.ru, March 31. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26886>.)
- MinerJob.ru, 2014f, Potanin poposil u Medvedeva litsenziyu na dobychu platiny na Maslovskom [Potanin asked Medvedev to give him a license for Maslovskoye]: MinerJob.ru, April 15. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26821>.)
- MinerJob.ru, 2014g, Russkaya Platina investiruet 220 mlrd rub. v ekonomiku Krasnoyarskogo kraya [Russian Platinum invests 220 billion rubles in the economy of Krasnoyarskiy Kray]: MinerJob.ru, February 28. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26457>.)
- MinerJob.ru, 2014h, Velichinu platezha za pol'zovanie nedrami opredelit razmer uchastka i vid poleznogo iskopaemogo [The size of the subsoil user fee will depend on the lot size and the type of mineral]: MinerJob.ru, March 11. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26539>.)
- MinerJob.ru, 2014i, Vostochniy redkometal'nyi klaster prodlozhili sozdat' na baze ZabGOKa [An Eastern rare-earth cluster based on ZabGOK is suggested]: MinerJob.ru, April 10. (Accessed March 8, 2015, at <http://www.minerjob.ru/viewnew.php?id=26773>.)
- Nezavisimiy Stroitel'nyi Portal [Independent Construction Portal], 2016, Tsementnye zavody Rossii [Russia's cement plants]: nsp.su. (Accessed March 8, 2016, at [http://www.nsp.su/geo/russia\\_map/cement/](http://www.nsp.su/geo/russia_map/cement/).)
- OJSC MMC Norilsk Nickel, 2015, Predvaritel'nye itogi proizvodstvennoy deyatel'nosti za 4 kvartal I polnyi 2014 god, a takzhe proizvodstvennyi prognoz na 2015 god [Preliminary results of production activities for the fourth quarter and the year 2014 and production forecast for 2015]: OJSC MMC Norilsk Nickel press release, January 30. (Accessed March 8, 2016, at <http://www.nornik.ru/press-czentr/novosti-i-press-relizyi/press-relizyi/predvaritelnye-itogi-proizvodstvennoj-deyatelnosti-za-4-kvartal-i-polnyiy-2014-god-a-takzhe-proizvodstvennyj-prognoz-na-2015-god>.)
- Olson, D.W., 2016a, Diamond (industrial): U.S. Geological Survey Mineral Commodity Summaries 2016, p. 56–57.
- Olson, D.W., 2016b, Gemstones: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 68–69.
- Olson, D.W., 2016c, Graphite (natural): U.S. Geological Survey Mineral Commodity Summaries 2016, p. 74–75.
- Polyak, D.E., 2016a, Molybdenum: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 112–113.
- Polyak, D.E., 2016b, Rhenium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 136–137.
- Polyak, D.E., 2016c, Vanadium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 182–183.
- Prime.ru, 2014a, Polymetal scitaet dobychu platiny strategicheskim razvitiem [Polymetal considers platinum production to be a strategic development]: Prime.ru, October 8. (Accessed March 8, 2016, at <http://gold.lprime.ru/mining/regions/show.asp?id=33153>.)
- Prime.ru, 2014b, Rosgeologiya ob'edinit dochek v regionah [Rosgeologiya will merge its subsidiaries in regions]: Prime.ru, September 24. (Accessed March 8, 2016, at <http://gold.lprime.ru/deposits/survey/show.asp?id=33004>.)
- Pronedra.ru, 2014a, Cherez shest' let Rossiya otkazhetsya ot rtuti [Russia will give up mercury in 6 years]: Pronedra.ru, February 28. (Accessed March 8, 2016, at <http://pronedra.ru/ecology/2014/07/11/rossiya-otkazhetsya-ot-rtuti/>.)
- Pronedra.ru, 2014b, Ch. P. v shakhte Uralkaliya grozit sryvom postavok karnallita [An emergency in Uralkali mine threatens disruption of carnallite shipments]: Pronedra.ru, November 19. (Accessed March 8, 2016, at <http://pronedra.ru/mining/2014/11/19/uralkaliy-karnallit/>.)
- Pronedra.ru, 2014c, Litsenziyu na nedra dadut edinstvennomu uchastniku tendera [A license for use of subsoil would be given to the only bidder]: Pronedra.ru, February 28. (Accessed March 8, 2016, at <http://pronedra.ru/oil/2014/02/28/konkursy/>.)
- Pronedra.ru, 2014d, Minprirody ustroit masshatbnuyu proverku litsenziy nedropol'zovateley v DFO [Minprirody will conduct a large-scale audit of subsoil licenses in DFO]: Pronedra.ru, February 10. (Accessed March 8, 2016, at <http://pronedra.ru/oil/2014/02/10/minprirody-proverki/>.)
- Pronedra.ru, 2014e, Nornikel' prolozhit dorogu k Chernogorskoyu mestorozhdeniyu [Nornickel will build a road to the Chernogorskoye deposit]: Pronedra.ru, March 29. (Accessed March 8, 2016, at <http://pronedra.ru/mining/2014/03/29/stroitelstvo-dorogi-nornikelem/>.)
- Pronedra.ru, 2014f, RF otkazalas' ot ispol'zovaniya rtuti [Russian Federation gave up use of mercury]: Pronedra.ru, September 25. (Accessed March 8, 2016, at <http://pronedra.ru/ecology/2014/09/24/otkaz-rtuti/>.)
- Pronedra.ru, 2014g, Rossiya vlozhit v geologorazvedku 320 mlrd rubley [Russia will invest 320 billion rubles in geologic exploration]: Pronedra.ru, July 10. (Accessed March 8, 2016, at <http://pronedra.ru/mining/2014/07/10/russia-geologia/>.)
- Pronedra.ru, 2014h, Russkaya Platina vlozhit v noril'skiye proekty 220 mlrd rub. [Russian Platinum will invest 220 billion rubles in Norilsk projects]: Pronedra.ru, February 28. (Accessed March 8, 2016, at <http://pronedra.ru/mining/2014/02/28/russkaya-platina/>.)
- Rcmm.ru, 2015, Proizvodstvo tsementa kak zerkalo ekonomicheskoy situatsii v strane [Cement production as a mirror of the economic situation in the country]: Rcmm.ru, June 10. (Accessed March 8, 2016, at <http://www.rcmm.ru/stroitelnye-materialy/22501-proizvodstvo-cementa-kak-zerkalo-ekonomicheskoy-situatsii-v-strane.html>.)
- Schnebele, E.K., 2016, Silicon: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 150–151.
- Shedd, K.B., 2016a, Cobalt: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 52–53.
- Shedd, K.B., 2016b, Tungsten: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 180–181.
- Steelland.ru, 2014, Rossiya otkazalas' ot postavok titanovoy rudy iz Ukrainy [Russia gave up titanium ore from Ukraine]: Steelland.ru, November 18. (Accessed March 8, 2016, at <http://www.steelland.ru/news/mining/3583.html>.)
- Tanner, A.O., 2016, Vermiculite: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 184–185.
- Tolcin, A.C., 2016a, Cadmium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 42–43.
- Tolcin, A.C., 2016b, Indium: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 80–81.
- Tuck, C.A., 2016, Iron ore: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 90–91.
- van Oss, H.G., 2016, Cement: U.S. Geological Survey Mineral Commodity Summaries 2016, p. 44–45.
- Vedomosti.ru, 2015, Dobycha uglia v Rossii v 2014 godu vyroslo na 1,5% [Coal production in Russia increased by 1.5% in 2014]: Vedomosti.ru, January 3. (Accessed March 8, 2016, at <https://www.vedomosti.ru/business/news/2015/01/03/dobycha-uglya-v-rossii-v-2014-g-vyroslo-na-15>.)
- Willett, J.C., 2016, Mica (natural): U.S. Geological Survey Mineral Commodity Summaries 2016, p. 110–111.
- World Nuclear Association, 2016, World uranium mining production: World Nuclear Association. (Accessed March 8, 2016, at <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Mining-of-Uranium/World-Uranium-Mining-Production/>.)
- Yarosh, Yaroslav, 2014, Avismu ne gonyat [Avisma is not being kicked out]: Minprom.ua, May 7. (Accessed March 8, 2016, at <http://minprom.ua/articles/154139.html>.)



TABLE 1  
RUSSIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014	
<b>METALS</b>						
<b>Aluminum:</b>						
<b>Ore and concentrate:</b>						
Alumina	thousand metric tons	2,930	2,825	2,719	2,659 <sup>r</sup>	2,600
Bauxite		5,688,000	5,943,000	5,700,000	5,617,000 <sup>r</sup>	5,500,000
Nepheline ores		4,601 <sup>r</sup>	4,345 <sup>r</sup>	4,091 <sup>r</sup>	3,393 <sup>r</sup>	3,300 <sup>e</sup>
Metal, smelter, primary		3,947,000	3,992,000	4,024,000	3,601,000	3,300,000
Antimony, mine output, recoverable Sb content <sup>e</sup>		6,040	6,348	7,300	8,700	9,000
<b>Bismuth:<sup>c</sup></b>						
Mine output, Bi content		50	50	40	40	40
Metal, refined		10	10	8	8	8
Cadmium, metal, smelter		733	800	850 <sup>e</sup>	850 <sup>e</sup>	860 <sup>e</sup>
Chromium, chrome ore, marketable		699,000	662,000	552,000 <sup>3</sup>	360,000 <sup>r</sup>	360,000
<b>Cobalt:<sup>c</sup></b>						
Mine output, recoverable Co content		6,200	6,100	6,300	6,350	6,300
Metal, refined		2,460	2,337 <sup>3</sup>	2,186 <sup>3</sup>	2,368 <sup>3</sup>	2,200
<b>Copper:</b>						
Ore, recoverable Cu content <sup>e</sup>		703,000	856,200 <sup>3</sup>	841,800 <sup>3</sup>	870,100 <sup>r,3</sup>	860,000
<b>Metal:</b>						
<b>Blister, smelter:<sup>c</sup></b>						
Primary		590,000	596,490 <sup>3</sup>	621,200 <sup>3</sup>	625,000	650,000
Secondary		240,000	242,640 <sup>3</sup>	253,800 <sup>3</sup>	255,000	230,000
Total		830,000	839,130 <sup>3</sup>	875,000 <sup>3</sup>	880,000	880,000
<b>Refined:</b>						
Primary		656,000	663,200	665,000	657,600	667,000
Secondary		218,000	220,400	222,400	220,000	225,000
Total		874,000	883,600	887,400	877,600	892,000
Gallium <sup>e</sup>		11	11	10	10	10
Germanium <sup>e</sup>		5 <sup>3</sup>	5	5	5	6
<b>Gold:</b>						
Mine output, Au content	kilograms	189,000	199,650	217,800	231,700 <sup>r</sup>	246,900
Secondary recovery	do.	12,600	9,334	8,500	17,764	35,800
Indium <sup>c</sup>		4	13	13	33 <sup>r</sup>	43
<b>Iron and steel:</b>						
<b>Iron ore:</b>						
Gross weight		95,927,200 <sup>r,3</sup>	103,607,300 <sup>r</sup>	104,010,000 <sup>r</sup>	102,156,500 <sup>r</sup>	102,018,500
Fe content, 55% to 63% <sup>c</sup>		56,600,000	61,100,000 <sup>r</sup>	61,400,000	60,300,000 <sup>r</sup>	60,200,000
<b>Metal:</b>						
Pig iron		48,090,000	47,996,000	50,459,000	49,945,000	51,371,800
Direct-reduced iron <sup>e</sup>		4,700,000	4,900,000	5,200,000	5,400,000	5,400,000
<b>Ferroalloys:</b>						
<b>Blast furnace:<sup>c</sup></b>						
Ferromanganese		174,800 <sup>3</sup>	148,100 <sup>3</sup>	160,800 <sup>3</sup>	181,400 <sup>3</sup>	178,600 <sup>3</sup>
Ferrophosphorus		3,600	3,600	3,600	3,500	3,500
Spiegeleisen		5,500	6,000	6,000	5,500	5,400
<b>Electric furnace:</b>						
Ferrochromium		607,570	565,900	546,360	487,810	439,600
Ferrochromiumsilicon		102,120	49,740	57,450	58,130	67,160
<b>Ferronickel, gross weight:<sup>4</sup></b>						
High-nickel		19,763	20,200	23,300 <sup>e</sup>	20,000	17,000
Other		13,165	13,800	13,000 <sup>e</sup>	13,000	11,000
Ferroniobium (ferrocolumbium)		700	700	700	600	600
Ferrosilicon		920,440	1,026,170	1,036,930	1,012,740 <sup>e</sup>	1,026,190

See footnotes at end of table.

TABLE 1—Continued  
RUSSIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014
METALS—Continued					
Iron and steel—Continued:					
Metal—Continued:					
Ferroalloys—Continued: <sup>e</sup>					
Electric furnace—Continued:					
Ferrovanadium <sup>3</sup>	7,000	7,590	8,280	10,510	11,380
Silicomanganese <sup>3</sup>	148,470	149,850	164,350	169,190	179,910
Silicon metal	48,700	52,000	52,000	50,000	50,000
Ferrotitanium	7,000	7,000	7,500	5,500 <sup>r</sup>	4,000
Other	7,000 <sup>r</sup>	8,000 <sup>r</sup>	9,000 <sup>r,3</sup>	8,500	6,000
Total, ferroalloys	2,070,000	2,060,000	2,090,000 <sup>3</sup>	2,030,000	2,000,000
Steel:					
Crude	66,844,000	68,114,000	70,392,000	68,862,000	70,500,000
Finished, rolled	55,031,000	56,492,000	60,036,000	59,161,000	65,200,000
Pipe	9,190,000	9,979,000	9,723,000	10,082,000	11,300,000
Lead: <sup>e</sup>					
Mine output, recoverable Pb content	97,000	94,500	195,600 <sup>r,3</sup>	223,300 <sup>r,3</sup>	225,000
Metal, refined, primary and secondary	122,000	115,000	110,000 <sup>3</sup>	95,400 <sup>3</sup>	90,000
Magnesium:					
Magnesite <sup>e</sup>	1,200,000	1,200,000	1,300,000	1,300,000	1,300,000
Metal, including secondary	20,800 <sup>r</sup>	17,700 <sup>r</sup>	18,500 <sup>r</sup>	18,100 <sup>r</sup>	17,700
Manganese ore, marketable: <sup>e</sup>					
Gross weight	45,000	30,000	22,000 <sup>3</sup>	20,000	--
Mn content	9,200	4,500	3,256 <sup>3</sup>	3,000	--
Molybdenum, in concentrate	5,777 <sup>r</sup>	6,014 <sup>r</sup>	4,939 <sup>r</sup>	4,753	3,600 <sup>e</sup>
Nickel:					
Marketable mine production, Ni content:					
Laterite ore	41,184	34,000	37,700	35,000	32,000 <sup>e</sup>
Sulfide concentrate	228,093	231,000	216,400	215,000	220,000 <sup>e</sup>
Total	269,277	265,000	254,100	250,000	252,000 <sup>e</sup>
Matte	85	65	1 <sup>e</sup>	--	--
Nickel products:					
Metal	262,400	264,900	255,000	241,800 <sup>r</sup>	240,000 <sup>e</sup>
Chemicals <sup>e</sup>	2,900	2,900	2,900	2,600	2,700
Total	265,300	267,800	257,900	244,400	242,700
Platinum-group metals:					
Platinum kilograms	25,700	27,300	26,500	25,200 <sup>r</sup>	23,500 <sup>e</sup>
Palladium do.	84,700	84,100	81,700	80,200 <sup>r</sup>	82,700
Other do.	46,500	46,000	45,200	48,800 <sup>r</sup>	48,500 <sup>e</sup>
Total do.	156,900	157,400	153,400	154,200 <sup>r</sup>	154,700
Selenium do.	110,000 <sup>r</sup>	100,000 <sup>r</sup>	114,620 <sup>r</sup>	114,160 <sup>r</sup>	130,810
Silicon <sup>e</sup>	1,000,000	1,031,000 <sup>3</sup>	1,043,000 <sup>3</sup>	1,100,000	1,100,000
Silver:					
Mine output, Ag content kilograms	1,885,000 <sup>r</sup>	2,004,000 <sup>r</sup>	2,255,000 <sup>r</sup>	2,175,600 <sup>r</sup>	2,100,000 <sup>e</sup>
Secondary recovery do.	40,810	39,300	40,000	150,000 <sup>e,r</sup>	207,500
Tellurium	31,000	30,000	30,390	31,030	32,540
Tin: <sup>e</sup>					
Mine output, recoverable Sn content	144 <sup>3</sup>	75 <sup>3</sup>	249 <sup>3</sup>	156 <sup>3</sup>	300 <sup>3</sup>
Metal, smelter:					
Primary	1,081 <sup>3</sup>	526 <sup>3</sup>	650	--	--
Secondary	300	200	250	--	--
Total	1,400	700	900	--	--

See footnotes at end of table.

TABLE 1—Continued  
 RUSSIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014
METALS—Continued					
Titanium sponge	26,500	24,600	42,000	46,000	47,000 <sup>e</sup>
Tungsten, concentrate, W content	2,785	3,314	3,025	2,973 <sup>r</sup>	2,800 <sup>e</sup>
Vanadium, metal <sup>c</sup>	15,000	12,860 <sup>3</sup>	14,856 <sup>3</sup>	15,000	15,000
Zinc:					
Mine output, recoverable Zn content	186,900	176,300	179,800	248,300 <sup>r</sup>	250,000
Metal, smelter, primary and secondary	248,600	255,600	250,000	216,000 <sup>r</sup>	223,311
Zirconium, baddeleyite concentrate, averaging 98% ZrO <sub>2</sub>	9,308	8,914	7,969	8,504 <sup>r</sup>	8,500 <sup>e</sup>
INDUSTRIAL MINERALS					
Asbestos, grades I through VI	995,174	1,031,880	1,050,000 <sup>e</sup>	1,100,000	1,100,000 <sup>e</sup>
Barite <sup>c</sup>	60,000	63,000	63,000	225,000 <sup>r</sup>	215,000
Boron <sup>c</sup>	200,000	200,000	250,000	76,199 <sup>r</sup>	81,234
Cement, hydraulic	50,400,000	56,200,000	61,700,000	66,503,000	68,544,800
Clays:					
Bentonite	500,000	500,000	550,000	550,000 <sup>e</sup>	560,000 <sup>e</sup>
Kaolin and kaolinitic clays	105,000	297,000 <sup>r</sup>	283,000 <sup>r</sup>	711,000 <sup>r</sup>	779,000
Diamond: <sup>c</sup>					
Gem	17,800,000 carats	20,140,000	19,900,000	20,000,000	19,200,000
Industrial	15,000,000 do.	15,000,000	15,000,000	16,000,000	17,100,000
Synthetic	80,000,000 do.	80,000,000	80,000,000	80,000,000	NA
Total	113,000,000 do.	115,000,000	115,000,000	116,000,000	36,300,000
Diatomite	32,000	33,000	70,000	70,000	72,000 <sup>e</sup>
Feldspar <sup>c</sup>	405,000 <sup>r</sup>	400,000 <sup>r</sup>	400,000 <sup>r</sup>	390,000 <sup>r</sup>	400,000
Fluorspar, concentrate, 55% to 96.4% CaF <sub>2</sub>	67,000	119,800	129,000	30,000 <sup>e</sup>	--
Graphite	14,000	15,000 <sup>r</sup>	14,000	15,000	15,000 <sup>e</sup>
Gypsum <sup>5</sup>	3,349,000	3,907,000	4,179,000	4,223,000	4,400,000
Iodine <sup>c</sup>	230,000	210,000	100,000 <sup>r</sup>	-- <sup>r</sup>	--
Lime, industrial and construction <sup>c</sup>	9,500,000	10,100,000	10,800,000	10,902,000	10,900,000
Limestone	7,000,000 <sup>e</sup>	7,000,000 <sup>e</sup>	7,200,000	56,700,000 <sup>r</sup>	58,707,400
Mica <sup>c</sup>	100,000	100,000	100,000	50,000 <sup>r</sup>	10,000
Nitrogen, N content of ammonia	10,902,000	11,418,000	11,345,000	11,836,000	12,000,000
Phosphate rock: <sup>c</sup>					
Gross weight	11,000,000	11,000,000	12,500,000	12,500,000	12,500,000
P <sub>2</sub> O <sub>5</sub> content	4,000,000	4,000,000	4,500,000	4,500,000	4,500,000
Potash, marketable, K <sub>2</sub> O equivalent	6,283,000	6,498,000	5,563,000	6,100,000	7,439,000
Rare earths, total rare-earth oxides	2,300	2,500	2,100	1,400 <sup>3</sup>	1,400 <sup>e</sup>
Salt, all types	1,800,000	1,800,000	1,850,000	1,900,000	1,900,000
Soda ash	2,670,000	2,822,000	2,807,000	2,477,000	3,052,000
Soda, caustic	1,075,000	1,049,000	1,093,000	1,056,000	1,076,000
Sulfur: <sup>c</sup>					
Native <sup>3</sup>	77,700	68,600	68,900	123,000	120,000 <sup>e</sup>
Pyrite	200,000	200,000	200,000	200,000	180,000
Byproduct:					
From metallurgy	100,000	200,000	300,000	300,000	200,000
From natural gas <sup>3</sup>	6,337,000	6,488,000	6,416,000	5,977,000	5,859,000
From petroleum	600,000	600,000	700,000	700,000	500,000
Total	7,310,000	7,560,000	7,680,000	7,300,000	6,860,000
Sulfur, sulfuric acid	10,200,000	10,700,000	11,036,000	10,298,000	10,200,000
Vermiculite	21,000 <sup>r</sup>	21,000 <sup>r</sup>	21,800 <sup>r</sup>	20,931 <sup>r</sup>	21,000 <sup>e</sup>

See footnotes at end of table.

TABLE 1—Continued  
RUSSIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2010	2011	2012	2013	2014	
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
<b>Coal:</b>						
Anthracite	thousand metric tons	8,700	10,000	11,400	12,800	13,500
Bituminous	do.	236,100	249,100	276,500	265,200	274,500
Lignite	do.	76,800	76,900	78,100 <sup>r</sup>	73,700 <sup>r</sup>	68,900
Total	do.	321,600	336,000	366,000 <sup>r</sup>	351,700 <sup>r</sup>	356,900
Coke, metallurgical, 6% moisture content	do.	26,800	26,800	26,900	25,900	26,500
Natural gas, marketed	million cubic meters	651,000	671,000	655,000	668,000 <sup>r</sup>	643,000
Peat, horticultural and fuel uses <sup>c</sup>		1,258,000 <sup>3</sup>	1,337,000 <sup>3</sup>	1,200,000	1,500,000	1,300,000
<b>Petroleum:</b>						
<b>Crude:</b>						
In gravimetric units		506,000,000	512,000,000	519,000,000	522,000,000	526,000,000
In volumetric units <sup>c</sup>	thousand 42-gallon barrels	3,530,000	3,578,000 <sup>3</sup>	3,615,000 <sup>3</sup>	3,636,000	3,735,000
<b>Refinery products:</b>						
In gravimetric units		250,000,000	258,000,000	272,000,000	281,000,000	295,000,000
In volumetric units <sup>c</sup>	thousand 42-gallon barrels	2,010,000	2,080,600 <sup>3</sup>	2,185,500 <sup>3</sup>	2,258,000	2,371,000
<b>Uranium:</b>						
U content		3,562	2,993	2,862	3,135 <sup>r</sup>	2,991
U <sub>3</sub> O <sub>8</sub> content		4,200	3,502	3,348	3,668 <sup>r</sup>	3,500

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero.

<sup>1</sup>Table includes data available through February 16, 2016.

<sup>2</sup>In addition to the commodities listed, Russia produced a number of other mineral commodities, which include arsenic, lithium, mercury, niobium, oil shale, rhenium, scandium, talc, tantalum, titanium ore, and vanadium ore, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

<sup>4</sup>Excludes nickel-chromium remelt alloy produced from scrap. The remelt alloy typically has a nickel content of 20% to 50%.

<sup>5</sup>Excludes gypsum used in cement production.



TABLE 2  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>	
Alumina	Achinsk (United Company RUSAL)	Achinsk in East Siberia	900,000	
Do.	Bogoslavsk (United Company RUSAL)	Krasnotur'insk	1,050,000	
Do.	Boksitogorsk (United Company RUSAL)	Leningradskaya Oblast'	200,000	
Do.	Pikalyovo (United Company RUSAL)	Pikalyovo	300,000	
Do.	Uralsk (United Company RUSAL)	Kamensk-Uralskiy	700,000	
Aluminum, primary smelters	Bogoslavskiy AZ (United Company RUSAL)	Krasnotur'insk	175,000	
Do.	Bratskiy AZ (United Company RUSAL)	Bratsk	1,000,000	
Do.	Irkutskiy AZ (United Company RUSAL)	Irkutskaya Oblast'	420,000	
Do.	Kandalakskiy AZ (United Company RUSAL)	Kola Peninsula	75,000	
Do.	Khakasskiy AZ (United Company RUSAL)	Khakasiya	300,000	
Do.	Krasnoyarskiy AZ (United Company RUSAL)	Krasnoyarskiy Kray	1,000,000	
Do.	Nadvoitskiy AZ (United Company RUSAL)	Nadvoitsy, Kareliya Republic	75,000	
Do.	Novokuznetskiy AZ (United Company RUSAL)	Novokuznetsk	300,000	
Do.	Sayanogorskiy AZ (United Company RUSAL)	Sayanogorsk	550,000	
Do.	Uralskiy AZ (United Company RUSAL)	Kamensk-Uralskiy	150,000	
Do.	Volgogradskiy AZ (United Company RUSAL)	Volgogradskaya Oblast'	175,000	
Do.	Volkhovskiy AZ (United Company RUSAL)	Volkhov, east of St. Petersburg	20,000	
Amber	Kaliningrad Amber enterprise (Kaliningrad regional authorities and Alrosa Co. Ltd.)	Kaliningrad Oblast'	250	
Antimony:				
Sb content of concentrate	GeoProMining, Ltd. (GPM)	Sarylakh deposit, Ust'-Nera region, Sakha Republic (Yakutiya)	8,000 <sup>2</sup>	
Do.	do.	Sentachan deposit, Northeastern Sakha Republic (Yakutiya)	NA	
Do.	Zabaykal'skiy GOK (ZabGOK) (OOO NefteChimMash)	Zabaykal'skiy Kray	360,000	
Compounds and metals	Ryazsvetmet plant	Ryazanskaya Oblast'	NA	
Apatite, concentrate	Khibiny apatite association (OAO Apatit)	Kola Peninsula	15,000,000	
Do.	Kovdor iron ore mining association	do.	700,000	
Asbestos	Bazenovskoye chrysotile deposit	Sverdlovskaya Oblast'	NA	
Do.	Molodeznoye deposit	Zabaykal'skiy Kray	NA	
Do.	"Orenburg Minerals" Co., Kiembraevskoye chrysotile deposit	Orenburgskaya Oblast'	500,000	
Do.	"Tuvaasbest" plant, Ak-Dovurakskoye chrysotile deposit	Tyva Republic	250,000	
Do.	"Uralasbest" mining and clarification plant	Central Urals	1,100,000	
Barite	Salarinskiy mining and beneficiation complex	Kvartsitovaya Sopka deposit	100,000	
Bauxite	OAO Severalboksitrudra (United Company RUSAL)	Severoural'sk region	NA	
Do.	South-Urals mining company (United Company RUSAL)	South Urals	NA	
Do.	Severnaya Onega Mine (United Company RUSAL)	Northwest region	800,000	
Do.	Komi Aluminum (United Company RUSAL)	Sredne-Timanskiy	3,000,000	
Boron, boric acid	Bor Association	Primorskiy Kray	140,000	
Do.	Amur River complex	Russian Far East	8,000	
Do.	Alga River chemical complex	do.	12,000	
Chromite	Saranov complex	Saranovskiy	200,000	
Coal	thousand metric tons	Donetskiy (east) basin	Rostovskaya Oblast'	30,000
Do.	do.	Irkutskiy basin	Irkutskaya Oblast'	NA
Do.	thousand metric tons	Kansko-Achinskiy basin	East Siberia	50,000
Do.	do.	Kuznetskiy basin (Kuzbass)	West Siberia	160,000
Do.	do.	Lenskiy basin	Sakha Republic (Yakutiya)	NA
Do.	do.	Minusinskiy field	Khakasiya Republic	NA
Do.	thousand metric tons	Moscovskiy basin	Moscow region	15,000
Do.	do.	Neryungri basin	Sakha Republic (Yakutiya)	15,000
Do.	do.	Pechorskiy basin	Komi Republic	30,000

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Coal—Continued	thousand metric tons	South Yakutiya basin	Sakha Republic (Yakutiya)	17,000
Do.		Ulughemskiy basin	Tyva Republic	NA
Do.		Yuzhno-Yakutskiy basin	Sakha Republic (Yakutiya)	NA
Cobalt		OJSC MMC Norilsk Nickel (Normickel)	Norilsk, Kola Peninsula	4,000
Do.		Rezh and Yuzhuralnikel enterprises	South Urals	2,100
Do.		Ufaleynikel Co.	Chelyabinskaya Oblast', Urals	4,000
Do.		Khovu-Aksynskoe (nickel-cobalt) deposit	Khovu-Aksy, Tyva Republic	NA
Copper:				
Cu in concentrate		OJSC MMC Norilsk Nickel (Normickel)	Norilsk region, Kola Peninsula	500,000
Do.		ZAO Russkaya Mednaya Kompaniya (RMK)	Urals	70,000
Do.		Metalloinvest Holding	Udokan, Zabaykal'skiy Kray	NA
Do.		OAo Ural'skaya Gorno-Metallurgicheskaya Kompaniya (UGMK)	do.	230,000
Metal, refined		OJSC MMC Norilsk Nickel (Normickel)	Norilsk region, Kola Peninsula	450,000
Do.		ZAO Russkaya Mednaya Kompaniya (RMK)	Urals	170,000
Do.		OAo Ural'skaya Gorno-Metallurgicheskaya Kompaniya (UGMK)	do.	360,000
Diamond, gem and industrial	thousand carats	Almazy Rossii-Sakha Joint Stock Co. (Alrosa Co. Ltd.) enterprises: Udachnyy mining and beneficiation complex	Sakha Republic (Yakutiya) mines: Zarnitsa and Udachnyy	NA
Do.	do.	Mirny mining and beneficiation complex	Mir and International	NA
Do.	do.	Aikhal mining and beneficiation complex	Aikhal and Komsomol'skiy	NA
Do.	do.	Anabaraskiy mining and beneficiation complex	Alluvial mines	NA
Do.	do.	Nyurbinskiy mining and beneficiation complex	Nyurbinskiy and Botuobinskiy	NA
Do.	do.	Lomonosov	Arkhangel'skaya Oblast'	NA
Feldspar		Kheto-Lanbino and Lupikko deposits	Kareliya Republic	NA
Ferroalloys		ChEMK Industrial Group enterprises:	Locations:	
Do.		Chelyabinsk electrometallurgical plant	Chelyabinskaya Oblast'	450,000
Do.		Kuznetsk ferroalloys plant	Novokuznetsk	400,000
Do.		Chusovoy iron and steel plant	Permskiy Kray	NA
Do.		Klyuchevsk ferroalloy plant	Dvurechensk	160,000
Do.		Kosaya Gora iron works	Kosaya, Gora	200,000
Do.		Lipetsk iron and steel works	Lipetskaya Oblast'	NA
Do.		Serov ferroalloy plant [a subsidiary of Eurasian Natural Resources PLC (ENRC)]	Sverdlovskaya Oblast'	NA
Ferronickel		Ufaleynikel Co.	Chelyabinskaya Oblast', Urals	5,000
Ferrovandium		Vanadii-Tulachermet (Evraz Group)	Tula, North Caucasus	NA
Fluorspar		Abagaytuy deposit	Transbaikal	NA
Do.		Usugli Mine	do.	NA
Do.		Kyakhtinsky deposit	do.	NA
Do.		Kalanguy mining complex	Zabaykal'skiy Kray	NA
Do.		Yaroslavsky mining and beneficiation complex	Pogranichnoye and Vosnesenskoye deposits, Primorskiy Kray	NA
Gallium		Achinsk (United Company RUSAL)	Achinsk in Eastern Siberia	15 <sup>2</sup>
Do.		OOO Galliy	NA	NA
Do.		Novosibirsk tin complex	Novosibirsk	NA
Do.		Pikalevo (United Company RUSAL)	Pikalevo	NA
Germanium, metal and products		Federal State Unitary Enterprise Germanium	Kranoyarsk	7
Gold	kilograms	Mining companies:	Mining regions:	
		ZAO Amur a/s	Khabarovskiy Kray	5,500
Do.	do.	OAo Buryatzoloto	Buryatiya Republic	5,000
Do.	do.	ZAO Chukotskaya Mining and Geological Co. (Chukotskaya GSK)	Chukotskiy Avtonomnyy Okrug	15,000
Do.	do.	OOO Mining and Geological Co. (GRK) Aldanzoloto	Sakha Republic (Yakutiya)	4,000
Do.	do.	Highland Gold Mining Ltd. (HGM)	Khabarovskiy and Zabaykal'skiy Kray	NA

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Gold—Continued	kilograms	Mining companies—Continued: Kinross Gold Corp.	Mining regions—Continued: Chukotskiy Avtonomnyy Okrug	NA
Do.	do.	LT-Resurs, ZAO	Irkutskaya Oblast'	2,700
Do.	do.	OOO Neryungri-Metallik	Sakha Republic (Yakutiya)	1,500
Do.	do.	OOO Nirungan	do.	1,100
Do.	do.	OAo Omchak	Magadanskaya Oblast'	3,000
Do.	do.	OAo Omolonskaya ZRK	do.	5,000
Do.	do.	ZAO Omsukchanskaya GGK	do.	3,000
Do.	do.	Oyna, a/s	Tyva Republic	1,500
Do.	do.	Petropavlovsk plc	Petropavlovsk	23,000
Do.	do.	OAo Pokrovskiy Mine	Amurskaya Oblast'	6,000
Do.	do.	OAo Polimetal	Magadanskaya and Sverdlovskaya Oblast's, Khabarovskiy Kray	7,500
Do.	do.	Polyarnaya, a/s	Chukotskiy Avtonomnyy Okrug	1,000
Do.	do.	OAo Polyus Gold	Krasnoyarskiy Kray	50,000
Do.	do.	OOO Priisk Drazhnyy	do.	1,200
Do.	do.	OAo Priisk Solov'yevskiy	Amurskaya Oblast'	1,500
Do.	do.	OOO Ros-DV	Khabarovskiy Kray	1,100
Do.	do.	OOO Russdragmet	Khabarovskiy Kray, Zabaykal'skiy Kray	6,000
Do.	do.	OAo Seligdar	Sakha Republic (Yakutiya)	3,000
Do.	do.	Severstal Nordgold NV	Russia, Kazakhstan, and West Africa	10,200
Do.	do.	OOO Sovrudnik	Krasnoyarskiy Kray	3,900
Do.	do.	OAo Susumanzoloto	Magadanskaya Oblast'	3,000
Do.	do.	OAo Uralelktomed'	Sverdlovskaya Oblast'	1,400
Do.	do.	Vitim, a/s	Irkutskaya Oblast'	2,900
Do.	do.	Vostok, a/s	Khabarovskiy Kray	1,100
Do.	do.	OOO Vysochayshiy (GV Gold)	Irkutskaya Oblast' and Sakha Republic (Yakutiya)	5,500
Do.	do.	OOO Yuzhuralzoloto	Chelyabinskaya Oblast'	6,500
Do.	do.	Zapadnaya, a/s	Krasnoyarskiy Kray	1,900
Do.	do.	ZAO Zolotaya, ZDK	Khakasiya Republic	1,200
<b>Indium:</b>				
Primary		Chelyabinsk zinc plant	Chelyabinskaya Oblast'	6
Secondary		Elektrozink plant	Vladikavkaz, North Caucasus	6
Iron ore		Kursk Magnetic Anomaly (KMA) region, which contains the following enterprises: Lebedi and Stoilo Mikhaylovka	Locations: Gubkin Zheleznogorsk	50,000,000 <sup>2</sup>
Do.		Northwest region, which contains the following enterprises: Kostomuksha Kovdor Olenegorsk	Locations: Kostomuksha Kola Peninsula Olenegorsk	22,000,000 <sup>2</sup>
Do.		Siberia region, which contains the following enterprises: East: Korshunovo Rudnogorsk West: Abakan Sheregesh Tashtagol Teya	Locations: Zheleznogorsk Rudnogorsk Abaza Sheregesh Tashtagol Vershina Tei	18,000,000 <sup>2</sup>

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Iron ore—Continued	Urals region, which contains the following enterprises: Akkermanovka Bakal Goroblagodat Kachkanar Magnitogorsk Peshchanka	Locations:  Novotroitsk Bakal Kushva Kachkanar Magnitogorsk Rudnichnyy	22,000,000 <sup>2</sup>
Lead, metal	Dalpolymetal lead smelter	Rudnaya in Primorskiy Krai	20,000
Do.	Elektrozink lead smelter [Ural Mining and Metallurgical Co. (UMMC)]	Vladikavkaz, North Caucasus	40,000
Lead and zinc, recoverable content of ore:			
Lead, recoverable Pb content of ore	Altay mining-beneficiation complex	Altay Krai, Southern Siberia	2,000
Do.	Dalpolymetal mining-beneficiation complex	Primorskiy Krai	20,000
Do.	Nerchinsk polymetallic complex	Zabaykal'skiy Krai	7,000
Do.	Sadon lead-zinc complex	North Ossetia	5,000
Do.	Salair mining-beneficiation complex	Kemerovskaya Oblast'	2,000
Zinc, recoverable Zn content of ore	Altay mining-beneficiation complex	Altay Krai, Southern Siberia	1,000
Do.	Dalpolymetal mining-beneficiation complex	Primorskiy Krai	25,000
Do.	Nerchinsk polymetallic complex	Zabaykal'skiy Krai	12,500
Do.	Sadon lead-zinc complex	Severnaya Osetiya	14,000
Do.	Salair mining-beneficiation complex	Kemerovskaya Oblast'	10,500
Limestone	Mazul'skiy Mine (United Company Rusal)	Goryachegorsk massif, Eastern Siberia	NA
Lithium and its compounds	JSC Novosibirsk Chemical Plant (TVEL Corp.)	Novosibirsk	NA
Do.	JSC Chemical-Metallurgical Plant (TVEL Corp.)	Kransnoyarsk	NA
Magnesite	Karagayskiy open pit (Magnezit Group) and Magnezitovaya underground mine (Magnezit Group)	Sakha group of deposits (Chelyabinskaya Oblast')	3,800,000 <sup>2</sup>
Magnesium, metal (for sale)	Avisma plant	Berezniki	35,000
Do.	Solikamsk plant (Uralkali)	Permskiy Krai	30,000
Mica	Emel'dzhak deposit, Aldan Shield	Sakha Republic (Yakutiya)	NA
Do.	Lopatova Guba mica pit, Northern Kareliya	Kareliya Republic	NA
Do.	Kovdor phlogopite mine (Mica Mine; Slyuda Mine; Kovdorslyuda Shaft)	Kola Peninsula, Murmanskaya Oblast'	NA
Do.	Irkutsk complex (JSC "Vostoksluda")	Mam deposit, Irkutskaya Oblast'	NA
Molybdenum	Dzhida tungsten-molybdenum mine	West Transbaikalia	NA
Do.	Sorsk molybdenum mining enterprise	Khakasiya Republic	NA
Do.	Tyrnyauz tungsten-molybdenum mine [OAO Kabardino-Balkarskaya Tungsten-Molybdenum Co. (Government of Kabardino-Balkarskaya Republic)]	Republic of Kabardino-Balkariya, North Caucasus	NA
Do.	Shakhtamenskoye molybdenum mining enterprise	Zabaykal'skiy Krai	NA
Natural gas	million cubic meters	Komi Republic	8,000
Do.	do.	Norilsk area	5,500
Do.	do.	North Caucasus	6,000
Do.	do.	Sakhalin	2,000
Do.	do.	Tomsk Oblast	500
Do.	do.	Tyumen Oblast, of which:	575,000 <sup>2</sup>
Do.	do.	Medvezhye field	(75,000)
Do.	do.	Urengoy field	(300,000)
Do.	do.	Vyrngapur field	(17,000)
Do.	do.	Yamburg field	(170,000)
Do.	do.	Bovanenko field	NA
Do.	do.	Pestovoy field	NA
Do.	do.	Zapolyarnyy field	NA
Do.	do.	Shtokmanov field	NA

See footnotes at end of table.



TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>	
Natural gas— Continued	million cubic meters	Urals	Ural'skiye Gory	45,000
Do.	do.	Volga	Vologodskaya Oblast'	6,000
Do.	do.	Yakut-Sakha	Sakha Republic (Yakutiya)	1,500
Nepheline syenite	Apatite complex	Kola Peninsula	1,500,000	
Do.	Kiya-Shaltyr Mine (United Company RUSAL)	Goryachegorsk massif, Eastern Siberia	NA	
Nickel:				
Nickel in ore	OJSC MMC Norilsk Nickel (Nornickel)	Kola Peninsula and Norilsk region	300,000	
Do.	OAO Ufaleynikel [Koks Company of Industrial Metallurgical Holding]	Chelyabinskaya Oblast', Urals	17,000	
Do.	OAO Yuzhuralnikel [OAO Mechel]	South Urals	3,000	
Metal:				
Smelting	OJSC MMC Norilsk Nickel (Nornickel)	Norilsk region, Kola Peninsula	160,000	
Do.	do.	Pechenga	50,000	
Do.	do.	Monchegorsk	50,000	
Refining	do.	do.	140,000	
Do.	do.	Norilsk region, Kola Peninsula	100,000	
Nickel products and nickel in ferronickel	Enterprises: ZAO Rezhnickel [Ural Mining and Metallurgical Co. (UMMC)] OAO Ufaleynikel [Koks Industrial Metallurgical Holding Co.] Yuzhuralnikel [Mechel OAO]	Location: South Urals do. do.	65,000 <sup>2</sup>	
Niobium (columbium)	Kamarsurt mining enterprise (AO Sevredmet)	Lovozerskoye deposit, Kola Peninsula	12,000	
Oil shale	Leningradslanets Association	Slantsy, Leningradskaya Oblast'	5,000,000	
Petroleum	Bashneft'	Bashkortostan Republic	12,000,000	
Do.	Gazprom Neft'	Deposits throughout Russia	50,000,000	
Do.	OAO Lukoil	West Siberian deposits: Kechimovskoye Nivagalskoye Urals deposits Volga Region Timen Pechora deposit: Yuzhnaya Khyllchuya Komi Republic deposits: Kyrtaelskoye Pashshorskoye Perevoznoye	100,000,000 <sup>2</sup>	
Do.	OAO Novatek	Western Siberia	5,000,000	
Do.	OAO NK Rosneft'	Deposits throughout Russia	120,000,000	
Do.	Rusneft'	Central and Western Siberia, Urals and Volga regions	15,000,000	
Do.	Slavneft'	Western Siberia and Krasnoyarskiy Kray	20,000,000	
Do.	OAO Surgutneftegas	Khanty-Mansiyskiy Avtonomnyy Okrug (HMAO)	60,000,000	
Do.	Tatneft'	Deposits: Romashkinskoye Novo-Elkhovskoye Bavlinskoye Bondyuzskoye Pervomayskoye Sabandchinskoye	30,000,000 <sup>2</sup>	

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Petroleum—Continued	OAO TNK–BP Holding	Deposits: Kamennoye Kovyatka Russkoye Suzunskoye Tagulskoye Uvat Verkhnechonsk	80,000,000 <sup>2</sup>
Phosphate rock	Kingisepp complex (OAO Fosforit)	Leningradskaya Oblast'	3,500,000
Do.	Lopatino and Yegorevsk deposits	Moscow Oblast'	NA
Do.	Polpinskoye deposit	Bryanskaya Oblast'	NA
Do.	Verkhnekamsk deposit	Urals	NA
Phosphate rock, apatite concentrate	OAO Apatit (Phosagro)	Kola Peninsula	12,000,000
Do.	Kovdor iron mining complex	do.	700,000
Platinum-group metals:			
Ore, platinum-group-metal content	OJSC MMC Norilsk Nickel	Norilsk region, Kola Peninsula	150
Do.	AO Koryakgeoldobycha, Amur Prospectors	Placer deposits (mostly platinum), Urals; Siberia; Russian Far East	10
Do.	Lopatino and Yegorevsk deposits	Moscow Oblast'	NA
Do.	Polpinskoye deposit	Bryanskaya Oblast'	NA
Do.	Verkhnekamsk deposit	Ural'skiye Gory	NA
Do.	OAO AS Amur (Russian Platinum Co.)	Placer deposits (mostly platinum), Urals; Siberia; Russian Far East	10
Metal	Krasnoyarsk Nonferrous Metals Plant (Krastsvetmet)	Krasnoyarskiy Kray	NA
Do.	Ekaterinburgskiy plant (EZOTsM)	Sverdlovskaya Oblast'	NA
Do.	Priobsk plant (OJSC Gazprom Neft)	Khanty-Mansiyskiy Avtonomnyy Okrug (HMAO)	NA
Potash, K <sub>2</sub> O equivalent	OAO Uralkali	Verkhnekamskoye deposit	8,000,000
Do.	OAO Silvinit <sup>3</sup>	Solikamsk-Berezniki regions, Urals	NA
Do.	OAO Akron	Novgorod	NA
Rare earths	OAO Apatit	Lovozerskoye deposit, Kola Peninsula	NA
Salt	AO Bassol'	Lake Baskunchak in Astrakhanskaya Oblast'	2,500,000
Do.	Dus-Dagskoe deposit	Dus-Dag Mountains	25,000
Silver	Dukat Mine	Magadanskaya Oblast'	1,000
Do.	Kinross Gold Corp.	Chukotskiy Avtonomnyy Okrug	NA
Soda ash	Achinsk plant	Eastern Siberia	595
Do.	Berezniki plant	Ural'skiye Gory	1,080
Do.	Pikalevo plant	Leningradskaya Oblast'	200
Do.	Sterlitamak plant	Bashkortostan Republic	2,135
Do.	Volkhov plant	Leningradskaya Oblast'	20
Steel, crude	OAO Amurmetal	Komsomol'sk-na-Amure	1,600,000
Do.	JSC Asha Metallurgical Plant	Chelyabinskaya Oblast'	450,000
Do.	Beloretsk Iron and Steel Works	Bashkirskoye	380,000
Do.	Chusovskoy Iron and Steel Works	Permskiy Kray	570,000
Do.	JSC Electrostal Metallurgical Plant	Moscow	314,000
Do.	Gorkovskoy Metallurgichesky Zavod	Nizhegorodskaya Oblast'	78,000
Do.	Gur'yevsk Steel Works	Kemerovskaya Oblast'	160,000
Do.	Karaganda	Karagandinskaya Oblast'	6,300,000
Do.	Kuznetsk Steel Works	Kemerovskaya Oblast'	4,700,000
Do.	Lys'va Metallurgical Plant	Permskiy Kray	350,000
Do.	OAO Magnitogorsk mining and metallurgical complex (MMK)	Chelyabinskaya Oblast'	16,200,000

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
Steel, crude—Continued	OAO Mechel	Chelyabinskaya Oblast'	7,000,000
Do.	Nizhniy Sergi Steel Works	Sverdlovskaya Oblast'	300,000
Do.	Nizhniy Tagil mining and metallurgical complex (NTMK) (Evraz Group)	do.	8,000,000
Do.	Nosta JSC (JSC Orsk-Kahlilovo Iron and Steel Works)	Novotroitsk, Orenburgskaya Oblast'	4,600,000
Do.	Novolipetskiy mining and metallurgical complex (NLMK)	Lipetskaya Oblast'	9,900,000
Do.	Novosibirsk Steel Works (Novosibprokat)	Novosibirskaya Oblast'	1,100,000
Do.	CJSC Omutninsk Metallurgical Plant	Kirovskaya Oblast'	210,000
Do.	Oskol Electric Steel Works (OEMK)	Staryi Oskol	2,500,000
Do.	Petrovsk-Zabayka'skiy Steel Works	Petrovsk-Zabayka'skiy	426,000
Do.	Revdinskiy Steel and Wire Production Works	Sverdlovskaya Oblast'	281,000
Do.	Salda Steel Works	do.	1,900
Do.	Serov Steel Works	do.	1,000,000
Do.	Serp i Molot (Moscow Metallurgical Works)	Moskovskaya Oblast'	70,000
Do.	Severskiy Tube Works	Polevskoy, Sverdlovskaya Oblast'	825,000
Do.	OAO Severstal	Vologodskaya Oblast'	14,000,000
Do.	Sibelektrostal Metallurgical Works	Krasnoyarskiy Kray	110,000
Do.	Sulinskiy Steel Works (Staks)	Rostovskaya Oblast'	280,000
Do.	Taganrog Iron and Steel Works (Tagmet)	do.	925,000
Do.	OAO Tulachermet	Tul'skaya Oblast'	18,400
Do.	Viz-Stal (Verkh-Isetsk Steel Works)	Sverdlovskaya Oblast'	132,000
Do.	Volgograd Steel Works (Red October)	Volgogradskaya Oblast'	2,000,000
Do.	Vyksa Steel Works	Nizhegorodskaya Oblast'	540,000
Do.	Zapadno-Sibirskiy mining and metallurgical complex (ZSMK) (Evraz Group)	Kemerovskaya Oblast'	6,900,000
Do.	Zlatoust Iron and Steel Works	Zlatoust, Chelyabinskaya Oblast'	1,200,000
Talc	Onotsk deposit	Irkutskaya Oblast'	NA
Do.	Kirgiteysk deposit	Krasnoyarskiy Kray	NA
Do.	Miass deposit	Chelyabinskaya Oblast'	NA
Do.	Shabrovsk deposit	Sverdlovskaya Oblast'	NA
Tantalum, ore	Facilities: Zabaykalskiy mining and beneficiation complex NA	Deposits: Etykinskoye deposit Lovozerskoye deposit, Kola Peninsula	10 <sup>2</sup>
Tellurium	OJSC MMC Norilsk Nickel	NA	5
Do.	Ural Mining and Metallurgical Co. (UMMC)	Urals	35
Tin:	Novosibirsk mining and beneficiation complexes:	Locations:	
Ore	Khinganskoye olovo (Jewish Autonomous District)	Khabarovskiy Kray	11 <sup>4</sup>
Do.	Tin Ore Co.	Solnechnyi deposit, Khabarovskiy Kray	NA
Do.	Pravourmiyskoye	Khabarovskiy Kray	NA
Do.	Deputatskiy (Sakhaolovo)	Sakha Republic (Yakutiya)	NA <sup>4</sup>
Do.	Vostokolovo	Russian Far East	NA <sup>4</sup>
Do.	Iultin mining and beneficiation complex	Magadanskaya Oblast'	NA <sup>4</sup>
Do.	Khrustalnyy mining and beneficiation complex	Primorskiy Kray	NA <sup>4</sup>
Do.	Pevek mining and beneficiation complex	Magadanskaya Oblast'	NA <sup>4</sup>
Metal	Novosibirsk Processing Plant Ltd.	Novosibirskaya Oblast'	NA <sup>4</sup>
Titanium:			
Ore	OOO Lovozerskiy GOK	Murmanskaya Oblast	NA
Do.	OAO Apatit	Kykisvumchorrskoye and Yuksporskoye deposits	NA
Do.	OAO TGOK Ilmenit	Tyuganskoye deposit	NA
Do.	OOO Olekminskiy Rudnik	Kuranakhsokoye deposit	NA

See footnotes at end of table.

TABLE 2—Continued  
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity <sup>c</sup>
<b>Titanium—Continued:</b>			
Metal	Moscow plant	Moscow	NA
Do.	Podol'sk plant	Podol'sk	NA
Do.	OAO Corp. VSMPO-Avisma	Bereznikovskiy Complex, Permskiy Kray	NA
Sponge	do.	do.	40,000
Do.	Solikamskiy Magnesium Plant (SMZ)	Solikamsk, Permskiy Kray	NA
<b>Tungsten:</b>			
Concentrate, W content	AS Quartz	Bom-Gorkhom deposit, West Transbaikal, Zabaykal'skiy Kray	NA
Do.	ZAO Novoorlovskiy GOK	Spokoyninskoye deposit, Zabaykal'skiy Kray	NA
Do.	KGUP Primteploenergo	Lermontovskoye deposit, Primorskiy Kray	NA
Do.	OAO Primorsky GOK	Vostok-2 deposit	NA
Do.	ZAO Zakamensk	Ruchey Inkur deposit, Barun-Narynskoye deposit	NA
Do.	Tyrnyauz tungsten-molybdenum mine [OAO Kabardino-Balkarskaya Tungsten-Molybdenum Co. (Government of Kabardino-Balkarskaya Republic)]	Republic of Kabardino-Balkariya, North Caucasus	NA
Metal	Gidrometallurg plant	do.	NA
Uranium, U content	Uranium Holding OAO Atomredmetzoloto (ARMZ): ZAO Dalur mining enterprise OAO Khiagda mining enterprise Priargunsky mining and chemical enterprise	Locations: Kurganskaya Oblast' Buryatiya Republic Krasnokamensk, Zabaykal'skiy Kray	3,500
<b>Vanadium:</b>			
Ore	Kachkanar iron mining complex	Ural'skiye Gory	NA
Metal	Chusovoy and Nizhniy Tagil plants	do.	17,000
Pentoxide	Vanadii-Tulachermet	Tul'skaya Oblast', North Caucasus	NA
<b>Zinc:</b>			
Zn content of copper-zinc ore	Bashkir copper-zinc complex	Sibai, Southern Urals	5,000
Do.	Buribai copper-zinc mining complex	Buribai, Southern Urals	1,500
Do.	Gai copper-zinc mining and beneficiation complex	Gai, Southern Urals	25,000
Do.	Kirovgrad copper enterprise	Kirovgrad, Central Urals	1,200
Do.	Sredneuralsk copper complex	Revda, Central Urals	5,000
Do.	Uchali copper-zinc mining and beneficiation complex	Uchalinskiy Rayon, Southern Urals	90,000
Metal	Chelyabinsk electrolytic zinc plant	Chelyabinskaya Oblast'	200,000
Do.	Elektrozink plant [Ural Mining and Metallurgical Co. (UMMC)]	Vladikavkaz, North Caucasus	90,000
Do.	Uralkal'nyy elektrometallurgicheskiy zavod [Ural Mining and Metallurgical Co. (UMMC)]	Verkhnyaya Pyshma	17,000
<b>Zirconium:</b>			
Baddeleyite concentrate	Kovdor iron ore mining and beneficiation complex	Kola Peninsula	3,500
Metal	Chepetskiy metallurgical plant (TVEL Corp.)	Glazov, Udmurtiya Republic	NA

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

<sup>1</sup>Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.

<sup>2</sup>Capacity estimates are totals for all enterprises that produce that commodity.

<sup>3</sup>Merged with Uralkali in February 2011.

<sup>4</sup>Not in operation as of 2013.