Vale S.A.
Form 20-F
March 20, 2015

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As filed with the Securities and Exchange Commission on March 20, 2015

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 20-F

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended: December 31, 2014
Commission file number: 001-15030

VALE S.A.

(Exact name of Registrant as specified in its charter)

Federative Republic of Brazil
(Jurisdiction of incorporation or organization)

Luciano Siani Pires, Chief Financial Officer
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Avenida Graça Aranha, No. 26
20030-900 Rio de Janeiro, RJ, Brazil
(Address of principal executive offices)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of Each Class	**Name of Each Exchange on Which Registered**
Preferred class A shares of Vale, no par value per share	New York Stock Exchange*
American Depositary Shares (evidenced by American Depositary Receipts), each representing one preferred class A share of Vale	New York Stock Exchange
Common shares of Vale, no par value per share	New York Stock Exchange*
American Depositary Shares (evidenced by American Depositary Receipts), each representing one common share of Vale	New York Stock Exchange
6.25% Guaranteed Notes due 2016, issued by Vale Overseas	New York Stock Exchange
6.250% Guaranteed Notes due 2017, issued by Vale Overseas	New York Stock Exchange
5.625% Guaranteed Notes due 2019, issued by Vale Overseas	New York Stock Exchange
4.625% Guaranteed Notes due 2020, issued by Vale Overseas	New York Stock Exchange
4.375% Guaranteed Notes due 2022, issued by Vale Overseas	New York Stock Exchange

8.25% Guaranteed Notes due 2034, issued by Vale Overseas	New York Stock Exchange
6.875% Guaranteed Notes due 2036, issued by Vale Overseas	New York Stock Exchange
6.875% Guaranteed Notes due 2039, issued by Vale Overseas	New York Stock Exchange
5.625% Notes due 2042, issued by Vale S.A.	New York Stock Exchange

*

Shares are not listed for trading, but only in connection with the registration of American Depositary Shares pursuant to the requirements of the New York Stock Exchange.

Securities registered or to be registered pursuant to Section 12(g) of the Act: None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None

The number of outstanding shares of each class of stock of Vale as of December 31, 2014 was:

3,185,653,000 common shares, no par value per share
1,967,722,926 preferred class A shares, no par value per share
12 golden shares, no par value per share

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ý No o

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes o No ý

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes ý No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ý No o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer" and "large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ý Accelerated filer o Non-accelerated filer o

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP o International Financial Reporting Standards as issued by the International Accounting Standards Board ý Other o

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 o Item 18 o

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes o No ý

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FORWARD-LOOKING STATEMENTS

This annual report contains statements that may constitute forward-looking statements within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Many of those forward-looking statements can be identified by the use of forward-looking words such as "anticipate," "believe," "could," "expect," "should," "plan," "intend," "estimate" and "potential," among others. Those statements appear in a number of places and include statements regarding our intent, belief or current expectations with respect to:

- our direction and future operation;
- the implementation of our principal operating strategies, including our potential participation in acquisition, divestiture or joint venture transactions or other investment opportunities;
- the implementation of our financing strategy and capital expenditure plans;
- the exploration of mineral reserves and development of mining facilities;
- the depletion and exhaustion of mines and mineral reserves;
- trends in commodity prices and demand for commodities;
- the future impact of competition and regulation;
- the payment of dividends or interest on shareholders' equity;
- compliance with financial covenants;
- industry trends, including the direction of prices and expected levels of supply and demand;
- other factors or trends affecting our financial condition or results of operations; and
- the factors discussed under *Risk factors*.

We caution you that forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual results may differ materially from those in forward-looking statements as a result of various factors. These risks and uncertainties include factors relating to (a) economic, political and social issues in the countries in which we operate, (b) the global economy, (c) commodity prices, (d) financial and capital markets, (e) the mining and metals businesses, which are cyclical in nature, and their dependence upon global industrial production, which is also cyclical, (f) regulation and taxation, and (g) the high degree of global competition in the markets in which we operate. For additional information on factors that could cause our actual results to differ from expectations reflected in forward-looking statements, see *Risk factors*. Forward-looking statements speak only as of the date they are made, and we do not undertake any obligation to update them in light of new information or future developments. All forward-looking statements attributed to us or a person acting on our behalf are expressly qualified in their entirety by this cautionary statement, and you should not place undue reliance on any forward-looking statement.

Vale S.A. is a stock corporation, or sociedade por ações*, that was organized on January 11, 1943 under the laws of the Federative Republic of Brazil for an unlimited period of time. Its head office is located at Avenida Graça Aranha, No. 26, 20030-900 Rio de Janeiro, RJ, Brazil, and its telephone number is 55-21-3814-4477.*

In this report, references to "Vale" are to Vale S.A. References to "we," "us" or the "Company" are to Vale and, except where the context otherwise requires, its consolidated subsidiaries. References to our "preferred shares" are to our preferred class A shares. References to our "ADSs" or "American Depositary Shares" include both our common American Depositary Shares (our "common ADSs"), each of which represents one common share of Vale, and our preferred class A American Depositary Shares (our "preferred ADSs"), each of which represents one class A preferred share of Vale. American Depositary Shares are represented by American Depositary Receipts ("ADRs") issued by the depositary. References to our "HDSs" or "Hong Kong Depositary Shares" include both our common Hong Kong Depositary Shares (our "common HDSs"), each of which represents one common share of Vale, and our class A preferred Hong Kong Depositary Shares (our "preferred HDSs"), each of which represents one preferred Class A share of Vale. Hong Kong Depositary Shares are represented by Hong Kong Depositary Receipts ("HDRs") issued by the depositary.

Unless otherwise specified, we use metric units.

References to "real," "reais" or "R$" are to the official currency of Brazil, the real (singular) or reais (plural). References to "U.S. dollars" or "US$" are to United States dollars. References to "CAD" are to Canadian dollars, and references to "A$" are to Australian dollars.

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RISK FACTORS

Risks relating to our business

Our business is exposed to the cyclicality of global economic activity and requires significant investments of capital.

As a mining company, we are a supplier of industrial raw materials. Industrial production tends to be the most cyclical and volatile component of global economic activity, which affects demand for minerals and metals. At the same time, investment in mining requires a substantial amount of funds in order to replenish reserves, expand and maintain production capacity, build infrastructure and preserve the environment. Sensitivity to industrial production, together with the need for significant long-term capital investments, are important sources of risk for our financial performance and growth prospects.

Adverse economic developments in China could have a negative impact on our revenues, cash flow and profitability.

China has been the main driver of global demand for minerals and metals over the last few years. In 2014, Chinese demand represented 69% of global demand for seaborne iron ore, 52% of global demand for nickel and 44% of global demand for copper. The percentage of our net operating revenues attributable to sales to customers in China was 33.7% in 2014. Therefore, any contraction of China's economic growth could result in lower demand for our products, leading to lower revenues, cash flow and profitability. Poor performance in the Chinese real estate sector, the largest consumer of carbon steel in China, would also negatively impact our results.

Our business may be adversely affected by declines in demand for and prices of the products our customers produce, including steel (for our iron ore and coal business), stainless steel (for our nickel business), copper wire (for copper) and agricultural commodities (for our fertilizer nutrients business).

Demand for our iron ore, coal and nickel products depends on global demand for steel. Iron ore and iron ore pellets, which together accounted for 65.4% of our 2014 net operating revenues, are used to produce carbon steel. Nickel, which accounted for 11.9% of our 2014 net operating revenues, is used mainly to produce stainless and alloy steels. Demand for steel depends heavily on global economic conditions, but it also depends on a variety of regional and sectorial factors. The prices of different steels and the performance of the global steel industry are highly cyclical and volatile, and these business cycles in the steel industry affect demand and prices for our products. In addition, vertical backward integration of the steel and stainless steel industries and the use of scrap could reduce the global seaborne trade of iron ore and primary nickel. The demand for copper is affected by the demand for copper wire, and a sustained decline in the construction industry could have a negative impact on our copper business. The demand for fertilizers is affected by prices of agricultural commodities in the international and Brazilian markets, and a sustained decline in the price of one or more agricultural commodities could negatively impact our fertilizer nutrients business.

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The prices we charge, including prices for iron ore, nickel, copper, coal and fertilizers, are subject to volatility.

Our iron ore prices are based on a variety of pricing options, which generally use spot price indices as a basis for determining the customer price. Our prices for nickel and copper are based on reported prices for these metals on commodity exchanges such as the London Metal Exchange ("LME") and the New York Mercantile Exchange ("NYMEX"). Our prices and revenues for these products are consequently volatile, which may adversely affect our cash flow. Global prices for metals are subject to significant fluctuations and are affected by many factors, including actual and expected global macroeconomic and political conditions, levels of supply and demand, the availability and cost of substitutes, inventory levels, investments by commodity funds and others and actions of participants in the commodity markets. A continuous decrease in the market prices for the products we sell may result in the suspension of certain of our projects and operations and the impairment of assets, and it would adversely affect our financial position and results of operations.

We are especially exposed to movements in iron ore prices. Average iron ore prices decreased 28.1%, from US$135 per dry metric ton unit ("dmt") in 2013 to US$97 per dmt in 2014, according to the average Platts IODEX (62% Fe CFR China). On February 27, 2015 the year to date average Platts IODEX iron ore price was US$65.4 per dmt. In addition to reduced demand for iron ore, an excess in supply has adversely affected our prices since 2014. The expected conclusion of certain iron ore projects in the coming years may result in additional pressure on prices.

The nickel industry has experienced strong supply growth in recent years. Nickel refining in China, primarily using imported nickel ores and related raw materials, increased an estimated 536,000 metric tons from 2006 to 2014, with Chinese nickel pig iron production representing 23% of global nickel output. In January 2014, the Indonesian government approved a law restricting the export of unprocessed nickel. Since Indonesia has in recent years supplied the majority of high grade nickel ores to China, we expect this new export restriction to contribute to a decline in Chinese domestic nickel production in the coming years, leading to an increase in refined nickel imports and in international nickel prices. In the event that this measure is reversed or has an impact different from what we expect, nickel prices may not reflect our expectations.

For additional information about the average realized prices for the products we sell, see *Operating and financial review and prospects Overview Average realized prices* and *Major factors affecting prices*.

We may not be able to adjust production volume in a timely or cost-efficient manner in response to changes in demand.

During periods of high demand, our ability to rapidly increase production capacity is limited, which could prevent us from meeting demand for our products. Moreover, we may be unable to complete expansions and greenfield projects in time to take advantage of rising demand for iron ore, nickel or other products. When demand exceeds our production capacity, we may meet excess customer demand by purchasing iron ore, iron ore pellets or nickel from joint ventures or unrelated parties and reselling it, which would increase our costs and narrow our operating margins. If we are unable to satisfy excess customer demand in this way, we may lose customers. In addition, operating close to full capacity may expose us to higher costs, including demurrage fees due to capacity restraints in our logistics systems.

Conversely, operating at significant idle capacity during periods of weak demand may expose us to higher unit production costs since a significant portion of our cost structure is fixed in the short term due to the high capital intensity of mining operations. In addition, efforts to reduce costs during periods of weak demand could be limited by labor regulations or previous labor or government agreements.

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Regulatory, political, economic and social conditions in the countries in which we have operations or projects could adversely impact our business and the market price of our securities.

Our financial performance may be negatively affected by regulatory, political, economic and social conditions in countries in which we have significant operations or projects. In many of these jurisdictions, we are exposed to various risks such as potential renegotiation, nullification or forced modification of existing contracts and licenses, expropriation or nationalization of property, foreign exchange controls, changes in local laws, regulations and policies, political instability, bribery, extortion, corruption, civil strife, acts of war, guerilla activities, piracy in international shipping lanes and terrorism. We also face the risk of having to submit to the jurisdiction of a foreign court or arbitration panel or having to enforce a judgment against a sovereign nation within its own territory.

Actual or potential political or social changes and changes in economic policy may undermine investor confidence, which may hamper investment and thereby reduce economic growth, and otherwise may adversely affect the economic and other conditions under which we operate in ways that could have a materially negative effect on our business.

Disagreements with local communities in which we operate could adversely impact our business and reputation.

Disputes with communities where we operate may arise from time to time. Although we contribute to local communities with taxes, royalties, employment and business opportunities, and social programs, and have a team dedicated to mitigate the social impacts, expectations are complex and involve multiple stakeholders with different and constantly evolving interests. In some instances, our operations and mineral reserves are located on or near lands owned or used by indigenous or aboriginal people or other groups of stakeholders. Some of these indigenous peoples may have rights to review or participate in natural resource management, and we consult and negotiate with them to mitigate the impact of our operations or to obtain access to their lands. Some of our mining and other operations are located in territories where title may be subject to disputes or uncertainties, or in areas claimed for agriculture or land reform purposes, which may lead to disagreements with landowners, local communities and the government. We consult and negotiate with these groups to come to common agreement on land access and how to mitigate the impact on our operations.

Disagreements or disputes with local groups, including indigenous or aboriginal groups, could cause delays or interruptions to our operations, adversely affect our reputation or otherwise hamper our ability to develop our reserves and conduct our operations. Protesters have taken actions to disrupt our operations and projects, and they may continue to do so in the future. Although we engage in active dialogue with all stakeholders and vigorously defend ourselves against illegal acts, future attempts by protesters to harm our operations could adversely affect our business.

We could be adversely affected by changes in government policies or trends such as resource nationalism, including the imposition of new taxes or royalties on mining activities.

Mining is subject to government regulation, including taxes and royalties, which can have a significant financial impact on our operations. In the countries where we are present, governments may impose new taxes, raise existing taxes and royalty rates, reduce tax exemptions and benefits, request or force renegotiation of tax stabilization agreements or change the basis on which taxes are calculated in a manner that is unfavorable to us. Governments that have committed to provide a stable taxation or regulatory environment may alter those commitments or shorten their duration.

We are also required to meet domestic beneficiation requirements in certain countries in which we operate, such as local processing rules, export taxes or restrictions, or charges on unprocessed ores. The imposition of or increase in such requirements, taxes or charges can significantly increase the risk profile and costs of operations in those jurisdictions. We and the mining industry are subject to rising trends of resource nationalism in certain countries in which we operate that can result in constraints on our operations, increased taxation or even expropriations and nationalizations.

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Concessions, authorizations, licenses and permits are subject to expiration, limitation on renewal and various other risks and uncertainties.

Our operations depend on authorizations and concessions from governmental regulatory agencies in the countries in which we operate. We are subject to laws and regulations in many jurisdictions that can change at any time, and changes in laws and regulations may require modifications to our technologies and operations and result in unanticipated capital expenditures.

Some of our mining concessions are subject to fixed expiration dates and might only be renewed a limited number of times for a limited period of time. Apart from mining concessions, we may need to obtain various authorizations, licenses and permits from governmental or other regulatory bodies in connection with the planning, maintenance, operation and closure of our mines and related logistics infrastructure, which may be subject to fixed expiration dates or periodic review or renewal. While we anticipate that renewals will be given as and when sought, there is no assurance that such renewals will be granted as a matter of course and on a timely basis, and there is no assurance that new conditions will not be imposed in connection with renewal. Fees for mining concessions might increase substantially due to the passage of time from the original issuance of each individual exploration license. If so, the costs of holding or renewing our mining concessions might impede our business objectives. Accordingly, we need to continually assess the mineral potential of each mining concession, particularly at the time of renewal, to determine if the costs of maintaining the concession are justified by the results of operations to date, and we might elect to let some of our concessions lapse. There can be no assurance that concessions will be obtained on terms favorable to us, or at all, for our future intended mining or exploration targets.

In a number of jurisdictions where we have exploration projects, we may be required to retrocede to the state a certain portion of the area covered by the exploration license as a condition to renewing the license or obtaining a mining concession. This requirement can lead to a substantial loss of part of the mineral deposit originally identified in our feasibility studies. For more information on mining concessions and other similar rights, see *Information on the Company Regulatory matters*.

Our projects are subject to risks that may result in increased costs or delay in their implementation.

We are investing to maintain and further increase our production capacity and logistics capabilities and to expand the scope of the minerals we produce. We regularly review the economic viability of our projects. As a result of this review, we may decide to postpone, suspend or interrupt the implementation of certain projects. Our projects are also subject to a number of risks that may adversely affect our growth prospects and profitability, including the following:

- We may encounter delays or higher than expected costs in obtaining the necessary equipment or services and in implementing new technologies to build and operate a project.
- Our efforts to develop projects on schedule may be hampered by a lack of infrastructure, including reliable telecommunications services and power supply.
- Suppliers and contractors may fail to meet their contractual obligations to us.
- We may face unexpected weather conditions or other force majeure events.
- We may fail to obtain the required permits and licenses to build a project, or we may experience delays or higher than expected costs in obtaining them.
- Changes in market conditions or regulations may make a project less profitable than expected at the time we initiated work on it.
- There may be accidents or incidents during project implementation.
-

We may face shortages of skilled personnel.

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Operational problems could materially and adversely affect our business and financial performance.

Ineffective project management and operational breakdowns might require us to suspend or curtail operations, which could generally reduce our productivity. Operational breakdowns could entail failure of critical plant and machinery. There can be no assurance that ineffective project management or other operational problems will not occur. Any damages to our projects or delays in our operations caused by ineffective project management or operational breakdowns could materially and adversely affect our business and results of operations. Our business is subject to a number of operational risks that may adversely affect our results of operations, such as:

- Unexpected weather conditions or other force majeure events.
- Adverse mining conditions delaying or hampering our ability to produce the expected quantity of minerals and to meet specifications required by customers, which can trigger price adjustments.
- Accidents or incidents involving our mines and related infrastructure, plants, railroads, ports and ships.
- Delays or interruptions in the transportation of our products, including with railroads, ports and ships.
- Tropical diseases, HIV/AIDS and other contagious diseases in regions where some of our development projects are located, which pose health and safety risks to our employees.
- Labor disputes that may disrupt our operations from time to time.
- Changes in market conditions or regulations may affect the economic prospects of an operation and make it inconsistent with our business strategy.
- Disruptions to or unavailability of critical information technology systems or services resulting from accidents or malicious acts.

A deterioration in our cash flows, credit ratings and ability to raise capital may adversely affect our planned investments.

A continuous decrease in the prices of our products and the volatility in the global economy may adversely affect our future cash flows, credit ratings and ability to secure financing in the capital markets at attractive rates. In addition, a downturn in the Brazilian economy may result in a downgrade of the Brazilian sovereign credit rating and, consequently, our credit ratings. A deterioration in our cash flows, credit rating and ability to access the capital markets may adversely affect our ability to fund our capital investments, pay dividends and comply with the financial covenants existing in some of our long-term debt instruments.

Our business could be adversely affected by the failure of our counterparties to perform their obligations.

Customers, suppliers, contractors, joint venture partners and other counterparties may fail to perform existing contracts and obligations, which may unfavorably impact our operations and financial results. The ability of suppliers and customers to perform their obligations may be adversely affected in times of financial stress and economic downturn. Suppliers are also subject to capacity constraints in times of high demand which may affect their ability to fulfill their commitments.

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We currently operate important parts of our pelletizing, bauxite, nickel, coal, copper, fertilizers and steel businesses through joint ventures with other companies. Important parts of our electricity investments and projects are operated through consortia. Our forecasts and plans for these joint ventures and consortia assume that our partners will observe their obligations to make capital contributions, purchase products and, in some cases, provide skilled and competent managerial personnel. If any of our partners fails to observe its commitments, the affected joint venture or consortium may not be able to operate in accordance with its business plans, or we may have to increase the level of our investment to implement these plans.

In addition, some of our assets may be controlled and managed by joint venture partners that may not fully comply with our standards, controls and procedures, including our health, safety, environment and community standards. Failure by any of our partners to adopt standards, controls and procedures equivalent to ours could lead to higher costs, reduced production or environmental, health and safety incidents or accidents, which could adversely affect our results and reputation.

Our business is subject to environmental, health and safety incidents.

Our operations involve the use, handling, storage, discharge and disposal of hazardous substances into the environment and the use of natural resources, and the mining industry is generally subject to significant risks and hazards, including fire, explosion, toxic gas leaks, spilling of polluting substances or other hazardous materials, rockfall incidents in mining operations and incidents involving mobile equipment or machinery. This could occur by accident or by breach of operating and maintenance standards, and could result in a significant environmental impact, damage to or destruction of mineral properties or production facilities, personal injury or death, environmental damage, delays in production, monetary losses and possible legal liability. We have health, safety and environmental standards and risk management programs and procedures in place to mitigate such risks. Notwithstanding our standards, policies and controls, our operations remain subject to incidents or accidents that could adversely affect our business or reputation.

Our business may be adversely affected by environmental and health and safety regulation, including regulations pertaining to climate change.

Nearly all aspects of our activities, products, services and projects around the world are subject to environmental, health and safety regulations, which may expose us to increased liability or increased costs. These regulations require us to obtain environmental licenses, permits and authorizations for our operations, and to conduct environmental and social impact assessments in order to get approval for our projects and permission for initiating construction. Significant changes to existing operations are also subject to these requirements. Difficulties in obtaining permits may lead to construction delays or cost increases. Environmental and health and safety regulations also impose standards and controls on activities relating to mineral research, mining, pelletizing activities, railway and marine services, ports, decommissioning, refining, distribution and marketing of our products. Such regulation may give rise to significant costs and liabilities. In addition, communities and other stakeholders may increase demands for socially responsible and environmentally sustainable practices, and their efforts may lead to the creation or revision of government regulations and policies, which could entail significant costs and reduce our profitability. Private litigation relating to these or other matters may adversely affect our financial condition or cause harm to our reputation.

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Environmental and health and safety regulation in many countries in which we operate has become stricter in recent years, and it is possible that more regulation or more aggressive enforcement of existing regulations will adversely affect us by imposing restrictions on our activities and products, creating new requirements for the issuance or renewal of environmental licenses, raising our costs or requiring us to engage in expensive reclamation efforts. For example, changes in Brazilian legislation for the protection of caves have required us to conduct extensive technical studies and to engage in complex discussions with Brazilian environmental regulators, which are continuing. We cannot yet assess the final impact of these regulations on our operations, but it is possible that in certain of our iron ore mining operations or projects, we may be required to limit or modify our mining plans or to incur additional costs to preserve caves or to compensate for the impact on them, with potential consequences for production volumes, costs or reserves in our iron ore business. For more information about Brazilian environmental regulations related to caves, see *Information on the Company Regulatory matters Environmental regulations*.

National policies and international regulations regarding climate change may affect a number of our businesses in different countries, because we operate worldwide. For example, there is legislation in many countries where we operate that limits greenhouse gas emissions in the mining industry. Regulatory initiatives at the national and international levels that affect our shipping practices could increase our costs or require us to make new capital expenditures.

Natural disasters may cause severe damage to our operations and projects in the countries where we operate and may cause a negative impact on our sales to countries adversely affected by such disasters.

Natural disasters, such as wind storms, droughts, floods, earthquakes and tsunamis may adversely affect our operations and projects in the countries where we operate, and may cause a contraction in sales to countries adversely affected due to, among other factors, power outages and the destruction of industrial facilities and infrastructure. The physical impact of climate change on our business remains highly uncertain, but we may experience changes in rainfall patterns, water shortages, rising sea levels, increased storm intensity and flooding as a result of climate change, which may adversely affect our operations. On certain occasions in recent years, we have determined that force majeure events have occurred due to effect of severe weather on our mining and logistics activities. A current drought in the Southeast region of Brazil may result in water shortage in the most populous region in the country, which may adversely affect the Brazilian economy and our activities in Brazil.

We may not have adequate insurance coverage for some business risks.

Our businesses are generally subject to a number of risks and hazards, which could result in damage to, or destruction of, properties, facilities and equipment. The insurance we maintain against risks that are typical in our business may not provide adequate coverage. Insurance against some risks (including liabilities for environmental pollution or certain hazards or interruption of certain business activities) may not be available at a reasonable cost, or at all. Even when it is available, we may self-insure where we determine that is more cost-effective to do so. As a result, accidents or other negative developments involving our mining, production or transportation facilities could have a material adverse effect on our operations.

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Our reserve estimates may materially differ from mineral quantities that we are actually able to recover; our estimates of mine life may prove inaccurate; and market price fluctuations and changes in operating and capital costs may render certain ore reserves uneconomical to mine.

Our reported reserves are estimated quantities of ore and minerals that we have determined can be economically mined and processed under present and assumed future conditions. There are numerous uncertainties inherent in estimating quantities of reserves and in projecting potential future rates of mineral production, including factors beyond our control. Reserve reporting involves estimating deposits of minerals that cannot be measured in an exact manner, and the accuracy of any reserve estimate is a function of the quality of available data and engineering and geological interpretation and judgment. As a result, no assurance can be given that the indicated amount of ore will be recovered or that it will be recovered at the rates we anticipate. Reserve estimates and estimates of mine life may require revisions based on actual production experience and other factors. For example, fluctuations in the market prices of minerals and metals, reduced recovery rates or increased operating and capital costs due to inflation, exchange rates, changes in regulatory requirements or other factors may render proven and probable reserves uneconomic to exploit and may ultimately result in a restatement of reserves. Such a restatement could affect depreciation and amortization rates and have an adverse effect on our financial performance.

We may not be able to replenish our reserves, which could adversely affect our mining prospects.

We engage in mineral exploration, which is highly uncertain in nature, involves many risks and frequently is non-productive. Our exploration programs, which involve significant expenditures, may fail to result in the expansion or replacement of reserves depleted by current production. If we do not develop new reserves, we will not be able to sustain our current level of production beyond the remaining lives of our existing mines.

The feasibility of new mineral projects may change over time.

Once mineral deposits are discovered, it can take a number of years from the initial phases of drilling until production is possible, during which the economic feasibility of production may change. Substantial time and expenditures are required to:

- establish mineral reserves through drilling;
- determine appropriate mining and metallurgical processes for optimizing the recovery of metal contained in ore;
- obtain environmental and other licenses;
- construct mining, processing facilities and infrastructure required for greenfield properties; and
- obtain the ore or extract the minerals from the ore.

If a project proves not to be economically feasible by the time we are able to exploit it, we may incur substantial losses and be obliged to take write-downs. In addition, potential changes or complications involving metallurgical and other technological processes arising during the life of a project may result in delays and cost overruns that may render the project not economically feasible.

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We face rising extraction costs or investment requirements over time as reserves deplete.

Reserves are gradually depleted in the ordinary course of a given open pit or underground mining operation. As mining progresses, distances to the primary crusher and to waste deposits become longer, pits become steeper, mines move from being open pit to underground, and underground operations become deeper. In addition, for some types of reserves, mineralization grade decreases and hardness increases at increased depths. As a result, over time, we usually experience rising unit extraction costs with respect to each mine, or we may need to make additional investments, including adaptation or construction of processing plants and expansion or construction of tailing dams. Several of our mines have been operating for long periods, and we will likely experience rising extraction costs per unit in the future at these operations in particular.

Labor disputes may disrupt our operations from time to time.

A substantial number of our employees, and some of the employees of our subcontractors, are represented by labor unions and are covered by collective bargaining or other labor agreements, which are subject to periodic negotiation. Strikes and other labor disruptions at any of our operations could adversely affect the operation of facilities and the timing of completion and cost of our capital projects. For more information about labor relations, see *Management and employees Employees*. Moreover, we could be adversely affected by labor disruptions involving unrelated parties that may provide us with goods or services.

We may face shortages of equipment, services and skilled personnel.

The mining industry has faced worldwide shortages of mining and construction equipment, spare parts, contractors and other skilled personnel during periods of high demand for minerals and metals and intense development of mining projects. We may experience longer lead times for mining equipment and problems with the quality of contracted engineering, construction and maintenance services. We compete with other mining and extractive sector companies for highly skilled management and staff with relevant industry and technical experience, and we may not be able to attract and retain such people. Shortages during peak periods could negatively impact our operations, resulting in higher production or capital expenditure costs, production interruptions, higher inventory costs, project delays and potentially lower production and revenues.

Higher energy costs or energy shortages would adversely affect our business.

Energy costs are a significant component of our cost of production, representing 8.9% of our total cost of goods sold in 2014. To fulfill our energy needs, we depend on the following sources: oil by-products, which represented 41% of total energy needs in 2014, electricity (27%), natural gas (19%), coal (12%) and other energy sources (1%), using figures converted into terajoule ("TJ").

Fuel costs represented 6.5% of our cost of goods sold in 2014. Increases in oil and gas prices adversely affect margins in our logistics services, mining, iron ore pellets, fertilizers and nickel businesses.

Electricity costs represented 2.4% of our total cost of goods sold in 2014. If we are unable to secure reliable access to electricity at acceptable prices, we may be forced to curtail production or may experience higher production costs, either of which would adversely affect our results of operations. We face the risk of energy shortages in the countries where we have operations and projects, especially Brazil, due to excess demand, lack of infrastructure or weather conditions, such as floods or droughts. Future shortages, and government efforts to respond to or prevent shortages, may adversely impact the cost or supply of electricity for our operations.

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Price volatility relative to the U.S. dollar of the currencies in which we conduct operations could adversely affect our financial condition and results of operations.

A substantial portion of our revenues and our debt is denominated in U.S. dollars, and changes in exchange rates may result in (i) losses or gains on our net U.S. dollar-denominated indebtedness and accounts receivable and (ii) fair value losses or gains on currency derivatives we use to stabilize our cash flow in U.S. dollars. In 2014, 2013 and 2012 we had foreign exchange losses of US$2.1 billion, US$2.8 billion and US$1.9 billion, respectively. In addition, the price volatility of the Brazilian *real*, the Canadian dollar, the Australian dollar, the Indonesian rupiah and other currencies against the U.S. dollar affect our results since most of our costs of goods sold are denominated in currencies other than the U.S. dollar, principally the *real* (54% in 2014) and the Canadian dollar (13% in 2014), while our revenues are mostly U.S. dollar-denominated. We expect currency fluctuations to continue to affect our financial income, expense and cash flow generation.

Significant volatility in currency prices may also result in disruption of foreign exchange markets, which could limit our ability to transfer or to convert certain currencies into U.S. dollars and other currencies for the purpose of making timely payments of interest and principal on our indebtedness. The central banks and governments of the countries in which we operate may institute restrictive exchange rate policies in the future and impose taxes on foreign exchange transactions.

The integration between the Company and acquired companies might prove more difficult than anticipated.

We may not be able to successfully integrate our acquired businesses. We have grown our business in part through acquisitions, and some of our future growth could depend on acquisitions. Integration of acquisition targets might take longer than expected, and the costs associated with integration of acquisition targets might be higher than anticipated. Completed acquisitions could fail to achieve the increased revenues, cost savings or operational benefits that were anticipated at the time of their conception. Acquisitions could lead to the incurrence of substantial costs as a result of, for example, impairment of goodwill, unforeseen liabilities arising from acquired businesses, inability to retain key staff, inconsistencies in standards, controls, procedures and policies between the Company and the acquisition target which could negatively affect our financial condition and results of operations. In addition, management attention could be diverted from ordinary responsibilities to integration issues.

Failures in our information technology systems or difficulties in integrating new enterprise resource planning software may interfere with the normal functioning of our business.

We rely on information technology ("IT") systems for the operation of many of our business processes. Failures in our IT systems, whether caused by accident or malicious acts, may result in the disclosure or theft of sensible information, misappropriation of funds and disruptions to our business operations.

We are involved in legal proceedings that could have a material adverse effect on our business in the event of an outcome that is unfavorable to us.

We are involved in legal proceedings in which adverse parties have claimed substantial amounts. Although we are vigorously contesting them, the outcomes of these proceedings are uncertain and may result in obligations that could materially adversely affect our business and the value of our shares, ADSs and HDSs. For additional information, see *Additional information Legal proceedings*.

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Risks relating to our corporate structure

Our controlling shareholder has significant influence over Vale, and the Brazilian government has certain veto rights.

As of February 27, 2015, Valepar S.A. ("Valepar") owned 53.9% of our outstanding common stock and 33.7% of our total outstanding capital. As a result of its share ownership, Valepar can elect the majority of our board of directors and control the outcome of some actions that require shareholder approval. For a description of our ownership structure and of the Valepar shareholders' agreement, see *Share ownership and trading Major shareholders*.

The Brazilian government owns 12 golden shares of Vale, granting it limited veto power over certain company actions, such as changes to our name, the location of our headquarters and our corporate purpose as it relates to mining activities. For a detailed description of the Brazilian government's veto powers, see *Additional information Memorandum and articles of association Common shares and preferred shares*.

Our governance and compliance processes may fail to prevent regulatory penalties and reputational harm.

We operate in a global environment, and our activities straddle multiple jurisdictions and complex regulatory frameworks with increased enforcement activities worldwide. Our governance and compliance processes, which include the review of internal control over financial reporting, may not prevent future breaches of legal, accounting or governance standards. We may be subject to breaches of our Code of Ethics and Conduct, anti-corruption policies and business conduct protocols and to instances of fraudulent behavior, corrupt practices and dishonesty by our employees, contractors or other agents. Our failure to comply with applicable laws and other standards could subject us to fines, loss of operating licenses and reputational harm.

It could be difficult for investors to enforce any judgment obtained outside Brazil against us or any of our associates.

Our investors may be located in jurisdictions outside Brazil and could seek to bring actions against us or our directors or officers in the courts of their home jurisdictions. The Company is a Brazilian company, and the majority of our officers and directors are residents of Brazil. The vast majority of our assets and the assets of our officers and directors are likely to be located in jurisdictions other than the home jurisdictions of our investors. It might not be possible for investors to effect service of process within their home jurisdictions on us or on our officers or directors who reside outside their home jurisdictions. In addition, a foreign judgment will be enforceable in the courts of Brazil without a re-examination of the merits only if previously confirmed by the Brazilian Superior Court of Justice (*Superior Tribunal de Justiça*), and confirmation will only be granted if the judgment: (a) fulfills all formalities required for its enforceability under the laws of the country where it was issued; (b) was issued by a competent court after due service of process on the defendant, as required under applicable law; (c) is not subject to appeal; (d) was authenticated by a Brazilian consulate in the country in which it was issued and is accompanied by a sworn translation into the Portuguese language; and (e) is not contrary to Brazilian national sovereignty, public policy or good morals. Therefore, investors might not be able to recover against us or our directors and officers on judgments of the courts of their home jurisdictions predicated upon the laws of such jurisdictions.

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Risks relating to our depositary shares

If ADR holders or HDR holders exchange ADSs or HDSs, respectively, for the underlying shares, they risk losing the ability to remit foreign currency abroad.

The custodian for the shares underlying our ADSs and HDSs maintains a registration with the Central Bank of Brazil entitling it to remit U.S. dollars outside Brazil for payments of dividends and other distributions relating to the shares underlying our ADSs and HDSs or upon the disposition of the underlying shares. If an ADR holder or HDR holder exchanges its ADSs or HDSs for the underlying shares, it will be entitled to rely on the custodian's registration for only five business days from the date of exchange. Thereafter, an ADR holder or HDR holder may not be able to obtain and remit foreign currency abroad upon the disposition of, or distributions relating to, the underlying shares unless it obtains its own registration under applicable regulation, which permits qualifying institutional foreign investors to buy and sell securities on the BM&FBOVESPA. For more information regarding these exchange controls, see *Additional information Exchange controls and other limitations affecting security holders*. If an ADR holder or HDR holder attempts to obtain its own registration, it may incur expenses or suffer delays in the application process, which could delay the receipt of dividends or other distributions relating to the underlying shares or the return of capital in a timely manner.

The custodian's registration or any registration obtained could be affected by future legislative changes, and additional restrictions applicable to ADR holders or HDR holders, the disposition of the underlying shares or the repatriation of the proceeds from disposition could be imposed in the future.

ADR holders and HDR holders may be unable to exercise preemptive rights relating to the shares underlying their ADSs and HDSs.

The ability of ADR holders and HDR holders to exercise preemptive rights is not assured, particularly if the applicable law in the holder's jurisdiction (for example, the Securities Act in the United States or the Companies Ordinance in Hong Kong) requires that either a registration statement be effective or an exemption from registration be available with respect to those rights, as is in the case in the United States, or that any document offering preemptive rights be registered as a prospectus, as is the case in Hong Kong. We are not obligated to extend the offer of preemptive rights to holders of ADRs or HDRs, to file a registration statement in the United States, or to make any other similar filing in any other jurisdiction, relating to preemptive rights or to undertake steps that may be needed to make exemptions from registration available, and we cannot assure holders that we will file any registration statement or take such steps.

ADR holders and HDR holders may encounter difficulties in the exercise of voting rights.

ADR holders and HDR holders do not have the rights of shareholders. They have only the contractual rights set forth for their benefit under the deposit agreements. ADR holders and HDR holders are not permitted to attend shareholders' meetings, and they may only vote by providing instructions to the depositary. In practice, the ability of a holder of ADRs or HDRs to instruct the depositary as to voting will depend on the timing and procedures for providing instructions to the depositary either directly or through the holder's custodian and clearing system. With respect to ADSs for which instructions are not received, the depositary may, subject to certain limitations, grant a proxy to a person designated by us.

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The legal protections for holders of our securities differ from one jurisdiction to another and may be inconsistent, unfamiliar or less effective than investors anticipate.

We are a global company with securities traded in several different markets and investors located in many different countries. The legal regime for the protection of investors varies around the world, sometimes in important ways, and investors in our securities should recognize that the protections and remedies available to them may be different from those to which they are accustomed in their home markets. We are subject to securities legislation in several countries, which have different rules, supervision and enforcement practices. The only corporate law applicable to us is the law of Brazil, with its specific substantive rules and judicial procedures. We are subject to corporate governance rules in several jurisdictions where our securities are listed, but as a foreign private issuer, we are not required to follow many of the corporate governance rules that apply to U.S. domestic issuers with securities listed on the New York Stock Exchange, and we are not subject to the U.S. proxy rules. Similarly, we have been granted waivers and exemptions from certain requirements of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited ("HKEx Listing Rules"), the Codes on Takeovers and Mergers and Share Repurchases and the Securities and Futures Ordinance of Hong Kong that are generally applicable to issuers listed in Hong Kong.

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SELECTED FINANCIAL DATA

The tables below present selected consolidated financial information as of and for the periods indicated. You should read this information together with our consolidated financial statements in this annual report.

Consolidated statement of income data

	For the year ended December 31,				
	2010	2011	2012	2013	2014
	(US$ million)				
Net operating revenues	46,424	60,075	46,553	46,767	37,539
Cost of products and services	(19,829)	(24,528)	(25,390)	(24,245)	(25,064)
Selling, general and administrative expenses	(1,663)	(2,271)	(2,172)	(1,302)	(1,099)
Research and development	(876)	(1,671)	(1,465)	(801)	(734)
Other operating expenses, net	(2,214)	(2,775)	(3,588)	(2,843)	(2,145)
Impairment of non-current assets			(4,023)	(2,298)	(1,152)
Gain (loss) on measurement or sales of non-current assets		1,494	(506)	(215)	(167)
Operating income	21,842	30,324	9,409	15,063	7,178
Non-operating income (expenses):					
Financial income (expenses), net	(1,533)	(3,549)	(4,022)	(8,332)	(6,069)
Equity results from associates and joint controlled entities	983	1,138	645	469	505
Results on sale of investments from associates and joint controlled entities				41	(30)
Impairment on investments			(1,941)		(31)
Income before income taxes	21,292	27,913	4,091	7,241	1,553
Income taxes	(3,712)	(5,265)	1,174	(6,833)	(1,200)
Income from continuing operations	17,580	22,648	5,265	408	353
Income (loss) attributable to non-controlling interests	190	(233)	(257)	(178)	(304)
Net income attributable to Company's shareholders, from continuing operations	17,390	22,881	5,522	586	657
Loss from discontinued operations, net of tax	(133)	(86)	(68)	(2)	
Net income attributable to Company's shareholders	17,257	22,795	5,454	584	657
Income (loss) attributable to non-controlling interests	190	(233)	(257)	(178)	(304)
Net income	17,447	22,562	5,197	406	353
Total cash paid to shareholders(1)	3,000	9,000	6,000	4,500	4,200

(1) Consists of total cash paid to shareholders during the period, whether classified as dividends or interest on shareholders' equity.

Earnings per share

	For the year ended December 31,				
	2010	2011	2012	2013	2014
	(US$, except as noted)				
Earnings per share:					
Per common share	3.25	4.34	1.06	0.11	0.13
Per preferred share	3.25	4.34	1.06	0.11	0.13

Weighted average number of shares outstanding (in thousands)(1)(2):					
Common shares	3,210,023	3,197,063	3,172,179	3,185,653	3,185,653
Preferred shares	2,035,783	1,984,030	1,933,491	1,967,722	1,967,722
Treasury common shares underlying convertible notes	18,416	18,416			
Treasury preferred shares underlying convertible notes	47,285	47,285			
Total	5,311,507	5,246,794	5,105,670	5,153,375	5,153,375
Distributions to shareholders per share(3):					
Expressed in US$	0.57	1.74	1.17	0.87	0.81
Expressed in R$	0.98	2.89	2.26	1.81	1.89

(1) Each common ADS represents one common share and each preferred ADS represents one preferred share.

(2) Changes in the number of shares outstanding reflect share repurchase programs conducted from May 2011 to November 2011. For more information see *Share ownership and trading Purchases of equity securities by the issuer and affiliated purchasers*.

(3) Our distributions to shareholders may be classified as either dividends or interest on shareholders' equity. In many years, part of each distribution has been classified as interest on shareholders' equity and part has been classified as dividends. For information about distributions paid to shareholders, see *Share ownership and trading Distributions.*

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Balance sheet data

	At December 31,				
	2010	2011	2012	2013	2014
			(US$ million)		
Current assets	31,559	21,538	22,069	20,611	16,594
Property, plant and equipment, net and intangible assets	86,115	91,863	94,093	88,536	84,942
Investments in affiliated companies and joint ventures and other investments	4,394	8,013	6,384	3,584	4,133
Other assets	4,559	5,502	8,031	11,866	10,820
Total assets	126,627	126,916	130,577	124,597	116,489
Current liabilities	17,987	11,093	12,402	9,164	10,626
Liabilities directly associated with non-current assets held for sale and discontinued operations			169	448	111
Long-term liabilities(1)	17,214	16,470	16,380	22,379	22,043
Long-term debt(2)	21,591	21,538	26,799	27,670	27,388
Total liabilities	56,792	49,101	55,750	59,661	60,168
Shareholders' equity:					
Capital stock	45,266	60,578	60,578	60,578	61,614
Additional paid-in capital	1,413	7	(552)	(552)	(601)
Mandatorily convertible notes common ADSs	236	191			
Mandatorily convertible notes preferred ADSs	528	422			
Retained earnings and revenue reserves	19,866	14,902	13,213	3,299	(5,891)
Total Company shareholders' equity	67,309	76,100	73,239	63,325	55,122
Non-controlling interests	2,526	1,715	1,588	1,611	1,199
Total shareholders' equity	69,835	77,815	74,827	64,936	56,321
Total liabilities and shareholders' equity	126,627	126,916	130,577	124,597	116,489

(1) Excludes long-term debt.

(2) Excludes current portion of long-term debt.

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I. INFORMATION ON THE COMPANY

BUSINESS OVERVIEW

Summary

We are one of the largest metals and mining companies in the world and the largest in the Americas, based on market capitalization. We are the world's largest producer of iron ore and iron ore pellets and the world's largest producer of nickel. We also produce manganese ore, ferroalloys, metallurgical and thermal coal, copper, platinum group metals ("PGMs"), gold, silver, cobalt, potash, phosphates and other fertilizer nutrients. To support our growth strategy, we are engaged in mineral exploration efforts in six countries around the globe. We operate large logistics systems in Brazil and other regions of the world, including railroads, maritime terminals and ports, which are integrated with our mining operations. In addition, we have a portfolio of maritime freight assets, floating transfer stations and distribution centers to support the distribution of iron ore worldwide. Directly and through affiliates and joint ventures, we also have investments in energy and steel businesses.

The following table presents the breakdown of total net operating revenues attributable to each of our main lines of business.

	Year ended December 31,					
	2012		2013		2014	
	US$ million	% of total	US$ million	% of total	US$ million	% of total
Ferrous minerals:						
Iron ore	26,691	57.3%	27,844	59.6%	19,301	51.4%
Iron ore pellets	6,560	14.1	6,000	12.8	5,263	14.0
Manganese and ferroalloys	543	1.2	523	1.1	392	1.0
Other ferrous products and services	486	1.0	425	0.9	741	2.0
Subtotal ferrous minerals	34,280	73.6	34,792	74.4	25,697	68.4
Coal	1,092	2.4	1,010	2.2	739	2.0
Base metals: Nickel and other products(1)	5,975	12.8	5,839	12.5	6,241	16.6
Copper(2)	1,156	2.5	1,447	3.1	1,451	3.9
Subtotal base metals	7,131	15.3	7,286	15.6	7,692	20.5
Fertilizer nutrients	3,570	7.7	2,814	6.0	2,415	6.4
Other(3)	480	1.0	865	1.8	996	2.7
Total net operating revenues from continued operations	46,553	100.0%	46,767	100.0%	37,539	100.0%

(1) Includes nickel co-products (copper) and by-products (precious metals, cobalt and others).

(2) Does not include copper produced as a nickel co-product.

(3) Includes pig iron and energy.

- Ferrous minerals:
  - *Iron ore and iron ore pellets*. We operate four systems in Brazil for producing and distributing iron ore, which we refer to as the Northern, Southeastern, Southern and Midwestern Systems. The Northern and the Southeastern Systems are fully integrated, consisting of mines, railroads and a maritime terminal and a port. The Southern

System consists of three mining sites and two maritime terminals. We operate 11 pellet plants in Brazil and two in Oman. The operations of three of our pellet plants in Brazil have been suspended since the fourth quarter of 2012 in response to market conditions, and their capacity was partially replaced by Tubarão VIII, a more efficient plant. We also have a 50% stake in Samarco Mineração S.A. ("Samarco"), which operates an integrated system in the Brazilian states of Minas Gerais and Espírito Santo, and we have 25% stakes in two pellet companies in China.

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- *Manganese ore and ferroalloys*. We conduct our manganese mining operations through subsidiaries in Brazil, and we produce several types of manganese ferroalloys through a wholly-owned subsidiary in Brazil.

- Base metals:
  - *Nickel*. Our principal nickel mines and processing operations are conducted by our wholly-owned subsidiary Vale Canada Limited ("Vale Canada"), which has operations in Canada and Indonesia. We also have nickel operations in Onça Puma, in the Brazilian state of Pará. We also own and operate, or have interests in, nickel refining facilities in the United Kingdom, Japan, Taiwan, South Korea and China. We are currently ramping up nickel operations in New Caledonia.
  - *Copper*. In Brazil, we produce copper concentrates at Sossego and Salobo, in Carajás, in the Brazilian state of Pará. Salobo operations are ramping up. In Canada, we produce copper concentrates, copper anodes and copper cathodes in conjunction with our nickel mining operations at Sudbury and Voisey's Bay. In Zambia, our joint venture produces copper concentrates at Lubambe, located in the Zambian Copperbelt.
  - *Cobalt, PGMs and other precious metals*. We produce cobalt as a by-product of our nickel mining and processing operations in Canada and refine the majority of it at our Port Colborne facilities, in the Province of Ontario, Canada. We also produce cobalt as a by-product of our nickel operations in New Caledonia, which we are currently ramping up. We produce PGMs as by-products of our nickel mining and processing operations in Canada. The PGMs are concentrated at our Port Colborne facilities and refined at our precious metals refinery in Acton, England. We produce gold and silver as by-products of our nickel mining and processing operations in Canada, and gold as a by-product of our copper mining in Brazil. Some of the precious metals from our Canadian operations are upgraded at our Port Colborne facilities, and all such precious metals are refined by unrelated parties in Canada and other countries.

- Coal:
  - We conduct our coal operations primarily in Mozambique through Vale Moçambique, S.A. ("Vale Moçambique"), where we produce metallurgical and thermal coal, and we are ramping up our operations. We also have a coal operation in Australia through Rio Doce Australia Pty Ltd ("Vale Australia"), where we produce metallurgical coal in Carborough Downs. We suspended operations in the Isaac Plains and Integra Coal mines in 2014 in response to market conditions. We also have minority interests in Chinese coal and coke producers.

- Fertilizer nutrients:
  - We produce potash in Brazil, with operations in Rosario do Catete, in the state of Sergipe. Our main phosphate operations are conducted by our subsidiary Vale Fertilizantes S.A. ("Vale Fertilizantes"), which holds most of our fertilizer assets in Brazil, is the largest Brazilian producer of phosphate rock and phosphate fertilizers and the second-largest Brazilian producer of nitrogen fertilizers. We also have operations in Bayóvar, a phosphate rock mine in Peru.

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- Logistics infrastructure:
  - We are a leading operator of logistics services in Brazil and other regions of the world, with railroads, maritime terminals, distribution centers and ports. Two of our four iron ore systems include an integrated railroad network linked to port and terminal facilities. We also have an interest in MRS Logística S.A. ("MRS"), which transports our iron ore products from the Southern System mines to our maritime terminals, and VLI S.A. ("VLI"), which provides integrated logistics solutions to general cargo through railroads, inland and maritime terminals in Brazil. We are constructing logistics infrastructure to support our operations in Southeastern Africa. We own and charter dry bulk vessels to transport the products that we sell on a cost and freight ("CFR") basis to customers.

Business strategy

Our mission is to transform natural resources into prosperity and sustainable development. Our vision is to be the number one global natural resources company in creating long-term value through excellence and passion for people and the planet. We are committed to investing mainly in world-class assets, with long life, low cost, expandability and high quality output, capable of creating value through the cycles. A lean management organization, with teamwork and accountability, excellence in project execution and firm commitment to transparency and shareholder value creation, are principles of paramount importance that guide us towards the achievement of our goals. Health and safety, investment in human capital, a positive work environment and sustainability are also critical to our long-term competitiveness.

We aim to maintain our competitive position in the global iron ore market and to grow through world-class assets while exercising disciplined capital management and maintaining a low cost structure. Iron ore and nickel will continue to be our main businesses while we work to maximize the value of our copper, coal and fertilizer nutrients businesses. To enhance our competitiveness, we will continue to invest in our railroads and our global distribution network. We seek opportunities to make strategic partnerships focusing on disciplined capital management. We have also suspended operations of assets in response to market conditions, and disposed of assets that we have determined to be non-strategic or in order to optimize the structure of our business portfolio. The divestiture of assets improves capital allocation and unlocks funds to finance the execution of top priority projects. The preservation of our credit ratings is one of our basic commitments. Below are the highlights of our major business strategies.

Maintaining our competitiveness in the global iron ore market

We continue to consolidate our competitiveness in the global iron ore market. In 2014, we had an estimated market share of 20.4% of the total volume traded in the seaborne market, slightly below the previous year. We are committed to maintaining our competitiveness in the global iron ore market, by focusing our product line to capture industry trends, improving quality and productivity, controlling costs, strengthening our logistics infrastructure of railroads, ports, shipping and distribution centers, and strengthening relationships with customers. Our diversified portfolio of high quality products, strong technical marketing strategy, efficient logistics and long-standing relationships with major customers will help us achieve this goal.

Enhancing our logistics capacity to support our iron ore and coal businesses

We believe that the quality of our railway assets, our extensive experience as a railroad and port operator, and our stakes in MRS and VLI position us as a leader in the logistics business in Brazil. We have been expanding the capacity of our railroads and ports primarily to meet the needs of our iron ore business.

To support our commercial strategy for our iron ore business, we have developed a distribution center in Malaysia. We also operate a distribution center in Oman and two floating transfer stations ("FTS") in the Philippines, and we continue to increase the fleet of very large ore carriers of 400,000 deadweight tons ("DWT") dedicated to Vale, which are primarily used to transport iron ore from Brazil to Asia on a shuttle basis.

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In order to position ourselves for the future expansion of our coal production in Mozambique and leverage our presence in Africa, we are currently expanding the local railroad capacity by rehabilitating the existing network and building new railroad tracks to develop the logistics corridor from our mine to a new port under construction at Nacala-à-Velha, in Mozambique.

Maximization of value in the nickel and copper businesses

We are the world's largest nickel producer, with large-scale, long-life and low-cost operations, a substantial resource base, diversified mining operations producing nickel from nickel sulfides and laterites and advanced technology. We have refineries in North America, South America, Europe and Asia, which produce an array of products for use in most nickel applications. We are a leading producer of high-quality nickel products for non-stainless steel applications, such as plating, alloy steels, high nickel alloys and batteries, which represented 61% of our nickel sales in 2014. Our long-term goal is to strengthen our competitiveness in the nickel business. We continue to optimize our operational flowsheet and to review our asset utilization aiming to increase productivity and improve returns.

We produce copper concentrates from our Sossego and Salobo facilities located in the Carajás region. These copper mines benefit from our infrastructure facilities serving the Northern System. The gold we produce at Sossego and Salobo increases the total aggregated value of those operations. Our strategy for our copper assets in the Carajás region is to develop new mines that can directly supply our existing processing facilities. We are also ramping up our copper operations at Lubambe, in Zambia, through a joint venture. We also recover copper as a co-product from our nickel operations, principally at Sudbury and Voisey's Bay, in Canada.

Optimizing the coal business

We have coal operations in Moatize (Mozambique) and Australia, and we hold minority interests in two joint ventures in China. We intend to continue pursuing organic growth in the coal business mainly through the expansion of the Moatize operations in Mozambique, where we have entered into a strategic partnership with Mitsui.

Maintaining growth options in fertilizer nutrients business

We have potash and phosphate rock operations as well as potential investments in greenfield and brownfield projects that we believe will allow us to benefit from certain demographic trends: the growing world population, an increase in per capita income in emerging economies and higher global consumption of proteins. We also take advantage of our strategic position to provide goods to the fertilizer-driven agricultural expansion in Brazil.

Development of our resource base

We are taking advantage of our global presence to develop mineral exploration initiatives. We conduct brownfield exploration to maximize results from existing mining areas and to support both projects and operations. We conduct our greenfield exploration activities in six countries, which are Brazil, Peru, Chile, Canada, Australia and Indonesia. In particular, we seek to identify opportunities and develop deposits with the potential for large scale production at low cost. Our exploration activities include iron ore, nickel, copper, coal, potash and phosphates.

Optimizing our energy matrix

As a large consumer of electricity, we have invested in power generation projects to support our operations and to reduce our exposure to the volatility of energy prices and regulatory uncertainties. Accordingly, we have developed hydroelectric power generation plants in Brazil, Canada and Indonesia, and we currently generate 51% of our worldwide electricity needs from our own plants. We are seeking to develop a clean energy mix by investing to develop low carbon energy sources such as biofuels and focusing on reducing our carbon footprint.

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Integrating sustainability into our business

We are committed to sustainability, as we cannot grow without taking into account the physical limits of our planet or the well-being of communities in which we operate. Since 2013, we have incorporated environmental and social actions directly into our strategic planning, moving away from a stand-alone investment model. We practice sustainable mining by dedicating resources to education and researching the application of technologies to use natural resources efficiently. We are also committed to reduce the consumption of water in our activities and to use it more efficiently, especially through reuse and recirculation of water. In addition, we actively support an open dialogue with our main stakeholders (governments, communities, customers, suppliers, employees and others), because we recognize that only by acting together we can achieve sustainable growth and contribute to social welfare. We follow standards for social action and principles on business and human rights, which are based on the guidelines of the United Nations Human Rights Council.

Significant changes in our business

We summarize below major events related to our organic growth, divestitures, acquisitions and other significant developments in our business since the beginning of 2014.

Organic growth

We have an extensive program of investments in the organic growth of our businesses. Our main investment projects are summarized under *Capital expenditures*. The most significant projects that have come on stream since the beginning of 2014 are summarized below:

- *Tubarão VIII pellet plant.* In the first half of 2014, we completed the Tubarão VIII pelletizing plant in our existing site at Tubarão port, in the Brazilian state of Espírito Santo. We currently have an environmental operating license for 7.0 Mtpy of pellets, and the nominal capacity of this project is 7.5 Mtpy.

- *Salobo II.* In the first half of 2014, we completed the Salobo II project, located in the Brazilian state of Pará. The expansion brings an additional nominal capacity of 100,000 tpy of copper in concentrate.

- *Serra Leste.* In the first half of 2014, we concluded the Serra Leste project, a new processing plant located in Carajás, in the Brazilian state of Pará. The project has a nominal capacity of 6 Mtpy of sinter feed.

- *Vargem Grande Itabiritos.* In the second half of 2014, we completed the construction of a new iron ore processing plant in the Brazilian state of Minas Gerais. The additional nominal capacity of this project is 10 Mtpy of pellet feed.

- *Expansion of Brucutu plant.* In the second half of 2014, we completed the expansion of the Brucutu plant, which is part of our Southeastern System. The additional nominal capacity of this project is 9.5 Mtpy of pellet and sinter feed.

- *Teluk Rubiah Distribution Center.* In the second half of 2014, we completed the construction of a maritime terminal located in Teluk Rubiah, Malaysia. The terminal has a private jetty with enough depth to receive vessels with capacity of 400,000 DWT and a storage yard with capacity of 3 Mt. The distribution center has a throughput of 30 Mtpy of iron ore products.

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- *Nacala Corridor.* The Nacala Corridor project consists of railway and port infrastructure connecting the Moatize site to the Nacala-à-Velha maritime terminal, located in Nacala, Mozambique. In the second half of 2014, we completed the greenfield and the brownfield sections of the railway and successfully transported the first coal shipment from Moatize to the Nacala à Velha port. We expect the upgrade of a 500-kilometer portion of the brownfield section of the railway, which is already operational, to be completed in the third quarter of 2015. The nominal capacity of the project is initially 18 Mtpy. The start-up of the port infrastructure is expected for the first half of 2015.

Dispositions and asset sales

We are always seeking to optimize the structure of our portfolio of businesses in order to achieve the most efficient allocation of capital. To that end, we disposed of assets that we have determined to be non-strategic. We summarize below our most significant dispositions since the beginning of 2014.

- *Sale of stakes in VLI* In August 2014, we concluded the sale of an aggregate of 62.4% of VLI. We sold 20% of the total share capital of VLI to Mitsui & Co., Ltd. ("Mitsui"), for R$1.5 billion; 15.9% to the investment fund of a Brazilian employee benefits fund called Fundo de Garantia por Tempo de Serviço FGTS ("FI-FGTS"), for R$1.2 billion; and 26.5% to an investment fund managed by Brookfield Asset Management ("Brookfield"), for R$2.0 billion. All of the cash proceeds from the sale to FI-FGTS and R$800 million of the proceeds from Mitsui consisted of a cash contribution to VLI in consideration of the issue of new shares to Mitsui and FI-FGTS. The cash contribution to VLI will be used to finance part of VLI's investment plan. We received the remaining R$709 million from Mitsui and the total amount of R$2.0 billion from Brookfield in consideration of the transfer of VLI shares held by Vale. We may be required to pay a further amount to Brookfield six years after closing, to provide a specified minimum return on its investment. We hold 37.6% of VLI's total share capital following completion of these transactions and are party to a shareholders' agreement with FI-FGTS, Mitsui and Brookfield.

- *Sale of gold stream from Salobo copper mine* In March 2015, we sold to Silver Wheaton (Caymans) Ltd. an additional 25% of the gold produced as a by-product at our Salobo copper mine, in Brazil, for the life of that mine. We will receive an initial cash payment of US$900 million and ongoing payments of the lesser of US$400 (subject to a 1% annual inflation adjustment after 2017) and the prevailing market price, for each ounce of gold that we deliver under the agreement. We may receive an additional cash payment, ranging from US$88 million to US$720 million, if we expand our capacity to process Salobo copper ores to more than 28 Mtpy before 2036.

Partnership in coal assets in Mozambique

In December 2014, we entered into an investment agreement with Mitsui, pursuant to which Mitsui will acquire 15% of our stake in Vale Moçambique, which owns 95% of Moatize mine, and half of our equity stake in the companies holding the railroad and port concessions in the Nacala Corridor, in Mozambique and Malawi. Mitsui investment is subject to conditions precedent, and is expected to close in 2015.

- *Moatize* Mitsui has agreed to invest US$450 million, as a capital increase to Vale Moçambique and also by acquiring part of Vale's equity stake and funding instruments currently in place. Such funds will be used to fund part of the capital expenditures required for the expansion of the Moatize mine. The agreement provides for the Mitsui investment to increase by up to US$30 million or decrease by up to US$120 million, based on certain yield and production targets, through 2021. Mitsui will also fund future capital expenditures for the expansion of Moatize mine, pro-rata to its 15% equity stake, in an estimated additional amount of US$188 million. Upon completion of the transaction, we will indirectly own 81% of the Moatize mine.

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- *Nacala Corridor* Our equity stake in the companies holding the concessions in the Nacala Corridor will be transferred to a holding company jointly owned (50% each) and controlled by Vale and Mitsui. Mitsui will invest US$313 million, in equity and quasi-equity instruments in this holding company, which will be used to fund the project. Vale and Mitsui are seeking non-recourse project financing to fund the remaining capital expenditures required for the Nacala Corridor project and to replace part of the financing provided by Vale. See *Lines of Business Infrastructure Railroads*.

Restructuring our investments in iron ore shipping

We have been revising our business strategy with respect to maritime shipping for our iron ore. The strategy involves securing long-term access to shipping capacity for the transportation of our iron ore from Brazil to Asia and protecting against volatility in freight pricing, without incurring the costs relating to building and owning the ships. In 2014, we entered into framework agreements for strategic cooperation in iron ore transportation with three shipping companies and financial institutions based in China and Hong Kong. Pursuant to these framework agreements, we are negotiating long-term affreightment agreements and agreements for the sale of six of our very large ore carriers of 400,000 DWT.

Obtaining environmental licenses for N4WS ore body in Carajás

In November 2014, we obtained the environmental license for expanding our N4WS mine pit located in Carajás, Brazil. This license supports our iron ore production growth process, especially the production plan for 2015 and 2016.

Restructuring our investments in power generation

In December 2013, we entered into several agreements with CEMIG Geração e Transmissão S.A. ("CEMIG GT") to (i) sell 49% of our 9% stake in Norte Energia S.A. ("Norte Energia"), the company established to develop and operate the Belo Monte hydroelectric plant, in the Brazilian state of Pará, to CEMIG GT, for approximately R$304 million; and (ii) create two distinct joint ventures: Aliança Geração de Energia S.A. ("Aliança Geração"), which will hold the participations previously held by us and CEMIG GT in power generation assets and projects, and Aliança Norte Energia Participações S.A. ("Aliança Norte"), which will hold our and CEMIG GT's interests in Norte Energia. Our interest in these joint ventures will be 55% and 51%, respectively. The final amounts of these transactions are subject to certain adjustments in accordance with the terms and conditions established in the investment agreements. The transaction to create Aliança Geração was concluded in February 2015. The transaction to create Aliança Norte is still subject to certain conditions precedent, and we expect to conclude it in the first half of 2015.

Suspension of operations at Integra and Isaac Plains coal mines in Australia

In 2014, we suspended operations at our Integra and Isaac Plains mines in Australia, because they were not economically feasible under current market conditions. The decision is consistent with our strategy to focus on discipline in capital allocation and maximizing value for our shareholders.

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LINES OF BUSINESS

Our principal lines of business consist of mining and related logistics. We also have energy assets to supply part of our consumption. This section presents information about operations, production, sales and competition and is organized as follows.

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- 1.1.1 Iron ore operations
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1.2 Manganese ore and ferroalloys
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2. Base metals

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1. Ferrous minerals

Our ferrous minerals business includes iron ore mining, iron ore pellet production, manganese ore mining and ferroalloy production. Each of these activities is described below.

1.1 Iron ore and Iron ore pellets

1.1.1 Iron ore operations

We conduct our iron ore business in Brazil primarily at the parent-company level, through our wholly-owned subsidiary Mineração Corumbaense Reunida S.A. ("MCR") and through our subsidiary MBR. Our mines, all of which are open pit, and their related operations are mainly concentrated in three systems: the Southeastern, Southern and Northern Systems, each with its own transportation capabilities. We also conduct mining operations in the Midwestern System and through Samarco, a joint venture with an affiliate of BHP Billiton plc in which we have a 50% equity stake. We conduct each of our iron ore operations in Brazil under concessions from the federal government granted for an indefinite period. For more information about these concessions, see *Regulatory matters Mining rights and regulation of mining activities*.

Company/ Mining System	Location	Description/History	Mineralization	Operations	Power Source	Access / Transportation
Vale						
Northern System	Carajás, state of Pará	Open-pit mines and ore-processing plants. Divided into Serra Norte, Serra Sul and Serra Leste (northern, southern and eastern ranges). Since 1985, we have been conducting mining activities in the northern range, which is divided into three main mining areas (N4W, N4E and N5) and two major beneficiation plants. In first quarter of 2014, we started a new mine and beneficiation plant in Serra Leste.	High grade hematite ore type (iron grade of more than 66% on average).	Open-pit mining operations. Beneficiation process consists simply of sizing operations, including screening, hydrocycloning, crushing and filtration. Output from the beneficiation process consists of sinter feed, pellet feed and lump ore.	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	EFC railroad transports the iron ore to the Ponta da Madeira maritime terminal in the state of Maranhão. Serra Leste iron ore is transported by trucks from the mine site to EFC railroad.
Southeastern System	Iron Quadrangle, state of Minas Gerais	Three sites: Itabira (two mines, with three major beneficiation plants), Minas Centrais (three mines, with three major beneficiation plants and one secondary plant) and Mariana (three mines, with four major beneficiation plants).	Ore reserves with high ratios of itabirite ore relative to hematite ore type. Itabirite ore type has iron grade of 35-60% and requires concentration to achieve shipping grade.	Open-pit mining operations. We generally process the run-of-mine by means of standard crushing, classification and concentration steps, producing sinter feed, lump ore and pellet feed in the beneficiation plants located at the mining sites.	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	EFVM railroad connects these mines to the Tubarão port.

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Company/ Mining System	Location	Description/History	Mineralization	Operations	Power Source	Access / Transportation
Southern System	Iron Quadrangle, state of Minas Gerais	Three major sites: Minas Itabirito (four mines, three major beneficiation plants and three secondary beneficiation plants); Vargem Grande (three mines and two major beneficiation plants); and Paraopeba (four mines and four beneficiation plants).	Ore reserves with high ratios of itabirite ore type relative to hematite ore type. Itabirite ore has iron grade of 35-60% and requires concentration to achieve shipping grade.	Open-pit mining operations. We generally process the run-of-mine by means of standard crushing, classification and concentration steps, producing sinter feed, lump ore and pellet feed in the beneficiation plants located at the mining sites.	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	MRS, an affiliate railway company, transports our iron ore products from the mines to our Guaíba Island and Itaguaí maritime terminals in the state of Rio de Janeiro.
Midwestern System	State of Mato Grosso do Sul	Comprised of the Corumbá mines (two mines and two plants). Open-pit mining operations.	Corumbá ore reserves are comprised of hematite ore type, which generates lump ore predominantly.	Open-pit mining operations. The beneficiation process for the run of mine consists of standard crushing and classification steps, producing lump and fines.	Supplied through the national electricity grid. Acquired from regional utility companies.	Part of the sales are transported through barges traveling along the Paraguay river to the ports in Argentina, moving to Europe and Asia markets from there. Another part of the sales is transported by the customers, which pick up the products in the Corumbá ports.
Samarco	Iron Quadrangle, state of Minas Gerais	Integrated system comprised of two mines, three beneficiation plants, three pipelines, four pellet plants and a port.	Itabirite ore type.	Open-pit mining operations. The three beneficiation plants, located at the site, process the run-of-mine by means of standard crushing, milling and concentration steps, producing pellet feed and sinter feed.	Supplied through the national electricity grid. Acquired from regional utility companies or produced directly by Samarco.	Samarco mines supply Samarco pellet plants using three pipelines extending approximately 400 kilometers. These pipelines transport the iron ore from the beneficiation plants to the pelletizing plants, and from the pelletizing plants to the port in the state of Espírito Santo.

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1.1.2 Iron ore production

The following table sets forth information about our iron ore production.

Mine/Plant	Type	Production for the year ended December 31, 2012	2013	2014	2014 Process Recovery
		(million metric tons)			(%)
Southeastern System					
Itabira	Open pit	37.7	34.0	35.5	58.4
Minas Centrais(1)	Open pit	40.7	37.8	33.0	68.9
Mariana	Open pit	37.2	37.6	38.9	82.6
Total Southeastern System		115.6	109.5	107.5	
Southern System					
Minas Itabirito	Open pit	31.8	31.0	33.0	71.5
Vargem Grande	Open pit	22,6	22,0	25,0	82.7
Paraopeba	Open pit	25.8	26.0	28.2	92.8
Total Southern System		80.3	79.0	86.3	
Midwestern System					
Corumbá (MCR/Urucum)	Open pit	6.4	6.5	5.8	73.7
Total Midwestern System		6.4	6.5	5.8	
Northern System					
Serra Norte	Open pit	106.8	104.9	117.4	94.4
Serra Leste	Open pit			2.2	98.1
Total Northern System		106.8	104.9	119.7	
Vale Systems		309.0	299.8	319.2	
Samarco(2)		10.9	10.9	13.1	55.1
Total		320.0	310.7	332.4	

(1) Água Limpa mine and plants are part of the Minas Centrais operations and are owned by Baovale, in which we own 100% of the voting shares and 50% of the total shares. Production figures for Água Limpa have not been adjusted to reflect our ownership interest.

(2) Production figures for Samarco, in which we have a 50% interest, have been adjusted to reflect our ownership interest.

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1.1.3 Iron ore pellets operations

We produce iron ore pellets in Brazil and Oman, directly and through joint ventures, as set forth in the following table. We also have a 25% interest in two iron ore pelletizing plants in China, Zhuhai YPM Pellet Co., Ltd. ("Zhuhai YPM") and Anyang Yu Vale Yongtong Pellet Co., Ltd. ("Anyang"). Our total estimated nominal capacity is 64.2 Mtpy, including the full capacity of our pelletizing plants in Oman, but not including our joint ventures Samarco, Zhuhai YPM and Anyang. Of our total 2014 pellet production, including the production of our joint ventures, 61.5% was blast furnace pellets and 38.5% was direct reduction pellets, which are used in steel mills that employ the direct reduction process rather than blast furnace technology. We supply all of the iron ore requirements of our wholly-owned pellet plants and part of the iron ore requirements for Samarco and Zhuhai YPM. In 2014, we sold 10.2 million metric tons of run of mine to Samarco and 0.7 million metric tons to Zhuhai YPM.

Company/Plant	Description / History	Nominal Capacity (Mtpy)	Power Source	Other Information	Vale's Share (%)	Partners
Brazil:						
Vale						
Tubarão (state of Espírito Santo)	Three wholly owned pellet plants (Tubarão I, II and VIII) and five leased plants. Receives iron ore from our Southeastern System mines and distribution is made though our logistics infrastructure. Tubarão VIII plant started up in the first half of 2014.	36.7(1)	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	Operations at the Tubarão I and II pellet plants have been suspended since November 13, 2012 in response to changes in steel industry demand for raw materials, and replaced by Tubarão VIII, a more efficient plant.	100.0	
Fábrica (state of Minas Gerais)	Part of the Southern System. Receives iron ore from the João Pereira and Segredo mines. Production is transported by MRS and EFVM.	4.5	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.		100.0	
Vargem Grande (state of Minas Gerais)	Part of the Southern System. Receives iron ore from the Sapecado, Galinheiro and Vargem Grande mines and the production is transported by MRS.	7.0	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.		100.0	
São Luís (state of Maranhão)	Part of the Northern System. Receives iron ore from Carajás mines and production is shipped to customers through our Ponta da Madeira maritime terminal.	7.5	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	On October 8, 2012, we suspended operations at the São Luís pellet plant for reasons similar to those supporting our suspension of operations at the Tubarão I and II plants.	100.0	

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Company/Plant	Description / History	Nominal Capacity (Mtpy)	Power Source	Other Information	Vale's Share (%)	Partners
Samarco	Four pellet plants with nominal capacity of 30.5 Mtpy. The pellet plants are located in the Ponta Ubu unit, in Anchieta, state of Espírito Santo. The fourth pellet plant started up in the first half of 2014.	30.5	Supplied through the national electricity grid. Acquired from regional utility companies or produced directly by Samarco.	In 2014, we started up the fourth pellet plant with a capacity of 8.3 Mtpy, increasing Samarco's total nominal pellet capacity to 30.5 Mtpy.	50.0	BHP Billiton Brasil Ltda.
Oman:						
Vale Oman Pelletizing Company LLC ("VOPC")	Vale's industrial complex. Two pellet plants (totaling 9.0 Mtpy of capacity) for direct reduction pellets. The pelletizing plants are integrated with our distribution center that has a nominal capacity to handle 40.0 Mtpy.	9.0	Supplied through the national electricity grid.		70.0	Oman Oil Company S.A.O.C.

(1) Our environmental operating licenses for Tubarão pellet plants provide for 36.2 Mtpy capacity.

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1.1.4 Iron ore pellets production

The following table sets forth information about our main iron ore pellet production.

	Production for the year ended December 31,		
Company	**2012**	**2013**	**2014**
		(million metric tons)	
Vale(1)	43.3	39.0	43.0
Hispanobras(2)	1.1		
Samarco(3)	10.7	10.6	12.1
Total	55.1	49.6	55.1

(1) Figure indicates actual production, including full production from our pellet plants in Oman and from the four pellet plants we leased in Brazil in 2008. We signed a 10-year operating lease contract for Itabrasco's pellet plant in October 2008. We signed a five-year operating lease contract for Kobrasco's pellet plant in June 2008, renewed for additional five years in 2013. We signed a 30-year operating lease contract for Nibrasco's two pellet plants in May 2008.

(2) On July 1, 2012, we signed a three-year operating lease for Hispanobras' pellet plant and started to consolidate its output with our production.

(3) Production figures for Samarco have been adjusted to reflect our ownership interest.

1.1.5 Customers, sales and marketing

We supply all of our iron ore and iron ore pellets (including our share of joint-venture pellet production) to the steel industry. Prevailing and expected levels of demand for steel products affect demand for our iron ore and iron ore pellets. Demand for steel products is influenced by many factors, such as global manufacturing production, civil construction and infrastructure spending. For further information about demand and prices, see *Operating and financial review and prospects Major factors affecting prices.*

In 2014, China accounted for 50% of our iron ore and iron ore pellet shipments, and Asia as a whole accounted for 67%. Europe accounted for 16%, followed by Brazil with 12%. Our 10 largest customers collectively purchased 139.5 million metric tons of iron ore and iron ore pellets from us, representing 44% of our 2014 iron ore and iron ore pellet sales volumes and 44% of our total iron ore and iron ore pellet revenues. In 2014, no individual customer accounted for more than 10.0% of our iron ore and iron ore pellet shipments.

In 2014, the Asian market (mainly Japan, South Korea and Taiwan), the European market and the Brazilian market were the primary markets for our blast furnace pellets, while the Middle East, North America and North Africa were the primary markets for our direct reduction pellets.

We strongly emphasize customer service in order to improve our competitiveness. We work with our customers to understand their main objectives and to provide them with iron ore solutions to meet specific customer needs. Using our expertise in mining, agglomeration and iron-making processes, we search for technical solutions that will balance the best use of our world-class mining assets and the satisfaction of our customers. We believe that our ability to provide customers with a total iron ore solution and the quality of our products are both very important advantages helping us to improve our competitiveness in relation to competitors who may be more conveniently located geographically. In addition to offering technical assistance to our customers, we operate sales support offices in Tokyo (Japan), Seoul (South Korea), Singapore, Dubai (UAE) and Shanghai (China), which support the sales made by Vale International. These offices also allow us to stay in close contact with our customers, monitor their requirements and our contract performance, and ensure that our customers receive timely deliveries.

We sell iron ore and iron ore pellets under different arrangements, including long-term contracts with customers and on a spot basis through tenders and trading platforms. Our pricing is generally linked to the IODEX spot market price index, and uses a variety of mechanisms, including current spot prices and average prices over an agreed period. In cases where the products are delivered before the final price is determinable, we recognize the sale based on a provisional price with a subsequent adjustment reflecting the final price.

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1.1.6 Competition

The global iron ore and iron ore pellet markets are highly competitive. The main factors affecting competition are price, quality and range of products offered, reliability, operating costs and shipping costs.

Our biggest competitors in the Asian market are located in Australia and include subsidiaries and affiliates of BHP Billiton plc ("BHP Billiton"), Rio Tinto Ltd ("Rio Tinto") and Fortescue Metals Group Ltd ("FMG"). We are competitive in the Asian market for two main reasons. First, steel companies generally seek to obtain the types (or blends) of iron ore and iron ore pellets that can produce the intended final product in the most economic and efficient manner. Our iron ore has low impurity levels and other properties that generally lead to lower processing costs. For example, in addition to its high grade, the alumina grade of our iron ore is very low compared to Australian ores, reducing consumption of coke and increasing productivity in blast furnaces, which is particularly important during periods of high demand. When market demand is strong, our quality differential generally becomes more valuable to customers. Second, steel companies often develop sales relationships based on a reliable supply of a specific mix of iron ore and iron ore pellets.

In terms of reliability, our ownership and operation of logistics facilities in the Northern and Southeastern Systems help us ensure that our products are delivered on time and at a relatively low cost. In addition, we continue to develop a low-cost freight portfolio aimed at enhancing our ability to offer our products in the Asian market at competitive prices on a CFR basis, despite the higher transportation costs compared to Australian producers. To support this strategy, we have built two distribution centers, one in Oman and another in Malaysia, and two FTS in the Philippines. We are party to medium- and long-term freight contracts, and we own vessels, including very large ore carriers called Valemax. They reduce energy consumption and greenhouse emissions by carrying an increased amount of cargo in a single trip, offering lower freight rates. These investments improve speed and flexibility for customization, and they shorten the time to market required for our products.

Our principal competitors in the European market are Kumba Iron Ore Limited, Luossavaara Kiirunavaara AB ("LKAB"), Société Nationale Industrielle et Minière ("SNIM") and Iron Ore Company of Canada ("IOC"), a subsidiary of Rio Tinto. We are competitive in the European market for the same reasons as in Asia, but also due to the proximity of our port facilities to European customers.

The Brazilian iron ore market is also competitive. There are several small iron ore producers and new companies with developing projects, such as Anglo Ferrous Brazil, Ferrous Resources and Bahia Mineração. Some steel companies, including Gerdau S.A. ("Gerdau"), Companhia Siderúrgica Nacional ("CSN"), V&M do Brasil S.A., Usiminas and Arcelor Mittal, also have iron ore mining operations. Although pricing is relevant, quality and reliability are important competitive factors as well. We believe that our integrated transportation systems, high-quality ore and technical services make us a strong competitor in the Brazilian market.

With respect to pellets, our major competitors are LKAB, Arcelor Mittal Mines Canada (former Quebec Cartier Mining Co.), Iron Ore Company of Canada (IOC) and Bahrain Steel (former Gulf Industrial Investment Co).

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1.2 Manganese ore and ferroalloys

1.2.1 Manganese ore operations and production

We conduct our manganese mining operations in Brazil through Vale S.A. and our wholly-owned subsidiaries Vale Manganês S.A. ("Vale Manganês") and MCR. Our mines produce three types of manganese ore products:

- metallurgical ore, used primarily for the production of manganese ferroalloys, raw material to produce carbon and stainless steel;
- natural manganese dioxide, suitable for the manufacture of electrolytic batteries; and
- chemical ore, used in several industries for the production of fertilizer, water treatment, pesticides and animal feed, and used as a pigment in the ceramics industry.

Mining Site	Company	Location	Description/History	Mineralization	Operations	Power Source	Access/ Transportation
Azul(1)	Vale S.A.	State of Pará	Open-pit mining operations and on-site beneficiation plant.	High-grade ores (at least 40% manganese grade).	Crushing and classification steps, producing lumps and fines.	Supplied through the national electricity grid. Acquired from regional utility companies.	Manganese ore is transported by truck and EFC railroad to the Ponta da Madeira maritime terminal.
Morro da Mina	Vale Manganês	State of Minas Gerais	Open-pit mining operations and one major beneficiation plant.	Low-grade ores (24% manganese grade).	Crushing and screening/dense medium classification steps, producing lumps and fines to the Barbacena and Ouro Preto ferroalloy plants.	Supplied through the national electricity grid. Acquired from regional utility companies.	Manganese ore is transported by trucks to the Ouro Preto and Barbacena ferroalloy plants.
Urucum	MCR	State of Mato Grosso do Sul	Underground mining operations and on-site beneficiation plant.	High-grade ores (at least 40% manganese grade).	Crushing and classification steps, producing lumps and fines.	Supplied through the national electricity grid. Acquired from regional utility companies.	Manganese ore is transported to the port of Rosario (Argentina) by barges traveling along the Paraguay and Paraná rivers.

(1) Vale Mina do Azul S.A. was merged into Vale S.A. in December 2014.

The following table sets forth information about our manganese ore production.

Mine	Type	Production for the year ended December 31, 2012	2013	2014	2014 Process Recovery
		(million metric tons)			(%)
Azul	Open pit	1.9	1.9	1.7	52.4
Morro da Mina	Open pit	0.2	0.1	0.1	57.9
Urucum	Underground	0.3	0.4	0.6	81.4

Total	2.4	2.4	2.4

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1.2.2 Manganese ferroalloys operations and production

We conduct our manganese ferroalloys business through our wholly-owned subsidiary Vale Manganês.

The production of manganese ferroalloys consumes significant amounts of electricity, representing 7% of our total consumption in Brazil in 2014. The electricity supply to our ferroalloy plants is provided through power purchase agreements. For information on the risks associated with potential energy shortages, see *Risk factors*.

We produce several types of manganese ferroalloys, such as high carbon and medium carbon ferro-manganese and ferro-silicon manganese.

Plant	Location	Description/History	Nominal Capacity	Power Source
Minas Gerais Plants	Cities of Barbacena and Ouro Preto	Barbacena has six furnaces, two refining stations and a briquetting plant. Ouro Preto has three furnaces.	74,000 tons per year at Barbacena plant and 65,000 tons per year at Ouro Preto plant.	Supplied through the national electricity grid. Energy acquired from independent producer through power purchase agreements.
Bahia Plant	City of Simões Filho	Four furnaces, two converters and a sintering plant.	150,000 tons per year.	Supplied through the national electricity grid. Energy acquired from independent producer through power purchase agreements.

The following table sets forth information about our manganese ferroalloys production.

	Production for the year ended December 31,		
Plant	2012	2013	2014
	(thousand metric tons)		
Barbacena	65	45	50
Ouro Preto	62	48	8
Simões Filho	79	82	113
Total	206	175	171

We suspended operations at the Ouro Preto plant in February 2014, due to market conditions. In January 2015 the power purchase agreement pursuant to which we acquire energy for our Barbacena and Ouro Preto plants expired, and we also suspended operations in our Barbacena plant. We are considering alternatives for power supply to these plants, taking into consideration the energy prices and current market conditions for manganese ferroalloys.

1.2.3 Manganese ore and ferroalloys: sales and competition

The markets for manganese ore and ferroalloys are highly competitive. Competition in the manganese ore market takes place in two segments. High-grade manganese ore competes on a global seaborne basis, while low-grade ore competes on a regional basis. For some manganese ferroalloys, high-grade ore is mandatory, while for others high- and low-grade ores are complementary. The main suppliers of high-grade ores are located in South Africa, Gabon, Australia and Brazil. The main producers of low-grade ores are located in the Ukraine, China, Ghana, Kazakhstan, India and Mexico.

The manganese ferroalloy market is characterized by a large number of participants who compete primarily on the basis of price. The principal competitive factors in this market are the costs of manganese ore, electricity, logistics and reductants. We compete with both stand-alone producers and integrated producers that also mine their own ore. Our competitors are located principally in countries that produce manganese ore or steel. For further information about demand and prices, see *Operating and financial review and prospects Major factors affecting prices.*

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2. Base metals

2.1 Nickel

2.1.1 Operations

We conduct our nickel operations primarily through our wholly-owned subsidiary Vale Canada, which operates two nickel production systems, one in the North Atlantic region and the other in the Asia Pacific region. We operate a third nickel production system, Onça Puma, in the South Atlantic region. Our nickel operations are set forth in the following table.

Mining System/Company	Location	Description/History	Operations	Mining Title	Power Source	Access/Transportation
North Atlantic						
Vale Canada	Canada Sudbury, Ontario	Integrated mining, milling, smelting and refining operations to process ore into finished nickel with a nominal capacity of 66,000 metric tons of refined nickel per year and additional nickel oxide feed for the refinery in Wales. Mining operations in Sudbury began in 1885. Vale acquired the Sudbury operations in 2006.	Primarily underground mining operations with nickel sulfide ore bodies, which also contain some copper, cobalt, PGMs, gold and silver. We also smelt and refine an intermediate product, nickel concentrate, from our Voisey's Bay operations. In addition to producing finished nickel in Sudbury, we ship a nickel oxide intermediate product to our nickel refinery in Wales for processing to final products. We also have capabilities to ship nickel oxide to our Asian refineries.	Patented mineral rights with no expiration date; mineral leases expiring between 2015 and 2033; and mining license of occupation with indefinite expiration date.	Supplied by Ontario's provincial electricity grid and produced directly by Vale.	Located by the Trans-Canada highway and the two major railways that pass through the Sudbury area. Finished products are delivered to the North American market by truck. For overseas customers, the products are loaded into containers and travel intermodally (truck/rail/containership) through both east and west coast Canadian ports.
Vale Canada	Canada Thompson, Manitoba	Integrated mining, milling, smelting and refining operations to process ore into finished nickel with a nominal capacity of 50,000 metric tons of refined nickel per year. Thompson mineralization was discovered in 1956 and Thompson operations were acquired by Vale in 2006.	Primarily underground mining operations with nickel sulfide ore bodies, which also contain some copper and cobalt. Local concentrate is combined with nickel concentrate from our Voisey's Bay operations for smelting and refining to high quality nickel plate product. Smelting and refining are being considered for phase out in Thompson, due to pending federal sulfur dioxide emission standards that are expected to come into effect in 2015. Vale	Order in Council leases expiring between 2020 and 2030; mineral leases expiring in 2034.	Supplied by the Provincial utility company.	Finished products are delivered to market by truck in North America. For overseas customers, the products are loaded into containers and travel intermodally (truck/rail/containership) to final destination through both west coast and east coast Canadian ports.

	has secured an agreement in principle with Environment Canada on emissions, which may permit continued smelting and refining through 2019, subject to negotiating an environment performance agreement in 2015.

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Lines of business

Mining System/Company	Location	Description/History	Operations	Mining Title	Power Source	Access/Transportation
Vale Newfoundland & Labrador Limited	Canada Voisey's Bay, Newfoundland and Labrador	Integrated open-pit mining, milling, refining of ore into intermediate and finished nickel products and copper concentrates with a nominal capacity of 50,000 metric tons refined nickel per year. Voisey's Bay's operations started in 2005 and were purchased by Vale in 2006.	Comprised of the Ovoid open pit mine, and deposits with the potential for underground operations at a later stage. We mine nickel sulfide ore bodies, which also contain copper and cobalt. Nickel concentrates are currently shipped to our Sudbury and Thompson operations for final processing (smelting and refining) while copper concentrate is sold to the market. Long Harbour refinery started up in July 2014. Initially, Long Harbour is processing a blend of Voisey's Bay high grade nickel concentrates with nickel in matte from PTVI.	Mining lease expiring in 2027, with a right of further renewals for ten year periods.	Power at Voisey's Bay is 100% supplied through Vale owned diesel generators. Power at the Long Harbour refinery is supplied by the provincial utility company.	The nickel and copper concentrates are transported to the port by haulage trucks and then shipped by drybulk vessels to either overseas markets or to our Canadian operations for further refining.
Vale Europe Limited	U.K. Clydach, Wales	Stand-alone nickel refinery (producer of finished nickel), with nominal capacity of 40,000 metric tons per year. Clydach's refinery commenced operations in 1902 and was acquired by Vale in 2006.	Processes a nickel intermediate product, nickel oxide, supplied from either our Sudbury or Matsuzaka operation to produce finished nickel in the form of powders and pellets.		Supplied through the national electricity grid.	Transported to final customer in the UK and continental Europe by truck. Product for overseas customers are trucked to the ports of Southampton and Liverpool and shipped by ocean container.

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Mining System/Company	Location	Description/History	Operations	Mining Title	Power Source	Access/Transportation
Asia Pacific						
PT Vale Indonesia Tbk ("PTVI")	Indonesia Sorowako, Sulawesi	Open cast mining area and related processing facility (producer of nickel matte, an intermediate product) with a nominal capacity of approximately 80,000 metric tons of nickel in matte per year. PTVI's shares are traded on the Indonesia Stock Exchange. We indirectly hold 59.2% of PTVI's share capital, Sumitomo Metal Mining Co., Ltd ("Sumitomo") holds 20.2%, Sumitomo Corporation holds 0.1% and the public holds 20.5%. PTVI was established in 1968, commenced its commercial operations in 1978 and was acquired by Vale in 2006.	PTVI mines nickel laterite ore and produces nickel matte, which is shipped primarily to nickel refineries in Japan. Pursuant to life-of-mine off-take agreements, PTVI sells 80% of its production to our wholly-owned subsidiary Vale Canada and 20% of its production to Sumitomo.	Contract of work expiring in 2025, entitled to two consecutive ten-year extensions, subject to approval of the Indonesian government. See *Regulatory matters Mining rights and regulation of mining activities*.	Produced primarily by PVTI's low cost hydroelectric power plants on the Larona River (there are currently three facilities). PTVI has thermal generating facilities in order to supplement its hydroelectric power supply with a source of energy that is not subject to hydrological factors.	Trucked approximately 55 km to the river port at Malili and then loaded onto barges in order to load break-bulk vessels for onward shipment.
Vale Nouvelle-Calédonie S.A.S ("VNC")	New Caledonia Southern Province	Mining and processing operations (producer of nickel oxide, nickel hydroxide and cobalt carbonate). VNC's shares are held by Vale (80.5%), Sumic (14.5%) and Société de Participation Minière du Sud Caledonien SAS ("SPMSC") (5%). (1)	We are currently ramping up our nickel operation in New Caledonia. VNC utilizes a High Pressure Acid Leach ("HPAL") process to treat limonitic laterite and saprolitic laterite ores. We expect to continue to ramp-up VNC over the next two years to reach nominal production capacity of 57,000 metric tons per year of nickel oxide, which will be further processed in our refineries in Asia, and hydroxide cake form (IPNM), and 4,500 metric tons of cobalt in carbonate form.	Mining concessions expiring between 2015 and 2051.	Supplied through the national electricity grid and by independent producers.	Products are packed into containers and are trucked approximately 4 km to Prony port.

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Mining System/Company	Location	Description/History	Operations	Mining Title	Power Source	Access/Transportation
Vale Japan Limited	Japan Matsuzaka	Stand-alone nickel refinery (producer of intermediate and finished nickel), with nominal capacity of 60,000 metric tons per year. Vale owns 87.2% of the shares, and Sumitomo owns the remaining shares. The refinery was built in 1965 and was acquired by Vale in 2006.	Produces intermediate products for further processing in our refineries in Asia and the UK, and finished nickel products using nickel matte sourced from PTVI.		Supplied through the national electricity grid. Acquired from regional utility companies.	Products trucked over public roads to customers in Japan. For overseas customers, the product is loaded into containers at the plant and shipped from the ports of Yokkaichi and Nagoya.
Vale Taiwan Limited	Taiwan Kaoshiung	Stand-alone nickel refinery (producer of finished nickel), with nominal capacity of 18,000 metric tons per year. The refinery commenced production in 1983 and was acquired by Vale in 2006.	Produces finished nickel primarily for the stainless steel industry, using intermediate products from our Matsuzaka and New Caledonian operations.		Supplied through the national electricity grid. Acquired from regional utility companies.	Trucked over public roads to customers in Taiwan. For overseas customers, the product is loaded into containers at the plant and shipped from the port of Kaoshiung.
Vale Nickel (Dalian) Co., Ltd	China Dalian, Liaoning	Stand-alone nickel refinery (producer of finished nickel), with nominal capacity of 32,000 metric tons per year. Vale indirectly owns 98.3% of the shares and Ningbo Sunhu Chemical Products Co., Ltd. owns the remaining 1.7%. The refinery commenced production in 2008.	Produces finished nickel for the stainless steel industry, using intermediate products from our Matsuzaka and New Caledonian operations.		Supplied through the national electricity grid. Acquired from regional utility companies.	Product transported over public roads by truck and by railway to customers in China. It is also shipped in ocean containers to overseas and some domestic customers.
Korea Nickel Corporation	South Korea Onsan	Stand-alone nickel refinery (producer of finished nickel), with nominal capacity of 30,000 metric tons per year. Vale indirectly owns 25.0% of the shares, and the remaining shares are held by Korea Zinc Co., Ltd, Posteel Co., Ltd, Young Poong Co., Ltd. and others. The refinery commenced production in 1989.	Produces finished nickel for the stainless steel industry using intermediate products from our Matsuzaka and New Caledonia operations.		Supplied through the national electricity grid. Acquired from regional utility companies.	KNC's production is transported by truck over public roads to customers in Korea and is exported in containers to overseas customers from the ports of Busan and Ulsan.

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Mining System/Company	Location	Description/History	Operations	Mining Title	Power Source	Access/Transportation
South Atlantic						
Vale/Onça Puma	Brazil Ourilândia do Norte, Pará	Mining, smelting and refining operation producing a high quality ferronickel for application within the stainless steel industry.	The Onça Puma mine is built on lateritic nickel deposits of saprolitic laterite ore. The operation produces ferronickel via the rotary kiln-electric furnace process. We are currently operating with a single line, with nominal capacity estimated at 25,000 metric tons per year. We will evaluate opportunities to restart the second line operations in light of market outlook and single line furnace performance considerations.	Mining concession for indefinite period.	Supplied through the national electricity grid. Acquired from regional utility companies or supplied by Aliança Geração or directly by Vale.	The ferro-nickel is transported by public paved road and EFC railroad to the Itaqui maritime terminal in the state of Maranhão.It is exported in ocean containers.

(1) Sumic is a joint venture between Sumitomo and Mitsui. Pursuant to the shareholders agreement between Vale Canada and Sumic, amended in February 2015, if VNC does not start commercial production by December 2015, Sumic will sell its entire equity interest in VNC to Vale Canada for a pre-determined purchase price. If VNC achieves commercial production by December 2015, Sumic will have the option to repurchase from Vale Canada equity interests in VNC equivalent to the dilution in Sumic's shareholding that occurred as a result of an agreement in October 2012, which may increase Sumic's shareholding in VNC up to 21%. See note 30 to our consolidated financial statements. The shareholder SPMSC has an obligation to increase its stake in VNC to 10% within two years after the startup of commercial production.

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2.1.2 Production

The following table sets forth our annual mine production by operating mine (or on an aggregate basis for Sulawesi operating mining areas, in Indonesia, operated by PTVI, because it has mining areas rather than mines) and the average percentage grades of nickel and copper. The mine production at Sulawesi represents the product from PTVI's screening station delivered to PTVI's processing plant and does not include nickel losses due to drying and smelting. For our Sudbury, Thompson and Voisey's Bay operations, the production and average grades represent the mine product delivered to those operations' respective processing plants and do not include adjustments due to beneficiation, smelting or refining. For VNC's operation, in New Caledonia, the production and average grade represents in-place ore production and does not include losses due to processing.

	2012			2013			2014		
	(thousands of metric tons, except percentages)								
		Grade			Grade			Grade	
	Production	% Copper	% Nickel	Production	% Copper	% Nickel	Production	% Copper	% Nickel
Ontario operating mines									
Copper Cliff North	792	1.09	0.92	913	1.32	1.28	1,053	1.45	1.34
Creighton	797	1.80	1.84	915	2.01	2.19	903	1.81	2.47
Stobie	2,006	0.56	0.66	1,887	0.59	0.65	2,089	0.58	0.66
Garson	643	1.56	1.61	815	1.42	1.75	678	1.39	1.75
Coleman	1,062	2.58	1.51	1,515	3.15	1.52	1,385	3.10	1.52
Ellen	371	0.44	0.93	109	0.49	1.00	181	0.62	1.07
Totten	6	2.37	1.15	64	1.84	1.92	303	1.98	1.50
Gertrude	36	0.27	0.72	196	0.32	0.89			
Total Ontario operations	5,714	1.29%	1.14%	6,414	1.61%	1.3%	6,591	1.57%	1.36%
Manitoba operating mines									
Thompson	1,160		1.86	1,175		2.07	1,184		1.95
Birchtree	643		1.34	613		1.39	545		1.39
Total Manitoba operations	1,804		1.67%	1,788		1.84%	1,729		1.78%
Voisey's Bay operating mines									
Ovoid	2,351	1.94%	3.11%	2,318	1.68%	2.89%	2,243	1.54%	2.58%
Sulawesi operating mining areas									
Sorowako	3,678		2.02%	4,369		2.00%	4,391		1.99%
New Caledonia operating mines									
VNC	1,179		1.27%	1,860		1.36%	2,134		1.44%
Brazil operating mines									

Onça Puma	1,975	1.87%	263	2.28%	1,358	2.19%

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The following table sets forth information about our nickel production, including: nickel refined through our facilities and intermediates designated for sale. The numbers below are reported on an ore-source basis.

Mine	Type	Production for the year ended December 31, 2012	2013	2014
		(thousand metric tons)		
Sudbury(1)	Underground	65.5	69.4	64.3
Thompson(1)	Underground	24.2	24.5	26.1
Voisey's Bay(2)	Open pit	61.9	63.0	48.3
Sorowako(3)	Open cast	69.0	78.8	78.7
Onça Puma(4)	Open pit	6.0	1.9	21.4
New Caledonia(5)	Open pit	4.5	16.3	18.7
External(6)		5.9	6.4	17.5
Total(7)		237.0	260.2	274.9

(1) Primary nickel production only (i.e., does not include secondary nickel from unrelated parties).

(2) Includes finished nickel produced at our Sudbury and Thompson operations.

(3) These figures have not been adjusted to reflect our ownership. We have a 59.2% interest in PTVI, which owns the Sorowako mines.

(4) Primary production only. Nickel contained in ferro-nickel.

(5) Nickel contained in NHC and NiO. These figures have not been adjusted to reflect our ownership. We have an 80.5% interest in VNC.

(6) Finished nickel processed at our facilities using feeds purchased from unrelated parties.

(7) These figures do not include tolling of feeds for unrelated parties.

2.1.3 Customers and sales

Our nickel customers are broadly distributed on a global basis. In 2014, 41% of our refined nickel sales were delivered to customers in Asia, 30% to North America, 28% to Europe and 1% to other markets. We have short-term fixed-volume contracts with customers for the majority of our expected annual nickel sales. These contracts generally provide stable demand for a significant portion of our annual production.

Nickel is an exchange-traded metal, listed on the LME, and most nickel products are priced according to a discount or premium to the LME price, depending primarily on the nickel product's physical and technical characteristics. Our finished nickel products represent what is known in the industry as "primary" nickel, meaning nickel produced principally from nickel ores (as opposed to "secondary" nickel, which is recovered from recycled nickel-containing material). Finished primary nickel products are distinguishable in terms of the following characteristics, which determine the product price level and the suitability for various end-use applications:

- nickel content and purity level: (i) intermediates has various levels of nickel content, (ii) nickel pig iron has 1.5-6% nickel, (iii) ferro-nickel has 10-40% nickel, (iv) refined nickel with less than 99.8% nickel, including products such as Tonimet and Utility nickel, (v) standard LME grade nickel has a minimum of 99.8% nickel, and (vi) high purity nickel has a minimum of 99.9% nickel and does not contain specific elemental impurities;
- shape (such as pellets, discs, squares, and strips); and
- size.

In 2014, the principal end-use applications for nickel were:

- stainless steel (68% of global nickel consumption);
- non-ferrous alloys, alloy steels and foundry applications (16% of global nickel consumption);
- nickel plating (7% of global nickel consumption); and

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- specialty applications, such as batteries, chemicals and powder metallurgy (9% of global nickel consumption).

In 2014, 61% of our refined nickel sales were made into non-stainless steel applications, compared to the industry average for primary nickel producers of 32%, which brings more stability to our sales volumes. As a result of our focus on such higher-value segments, our average realized nickel prices for refined nickel have typically exceeded LME cash nickel prices.

We offer sales and technical support to our customers on a global basis. We have a well-established global marketing network for finished nickel, based at our head office in Toronto, Canada. We also have sales and technical support offices in St. Prex (Switzerland), Saddle Brook, New Jersey (United States), Tokyo (Japan), Shanghai (China), Singapore and Kaohsiung (Taiwan). For information about demand and prices, see *Operating and financial review and prospects Major factors affecting prices*.

2.1.4 Competition

The global nickel market is highly competitive. Our key competitive strengths include our long-life mines, our low cash costs of production relative to other nickel producers, sophisticated exploration and processing technologies, and a diversified portfolio of products. Our global marketing reach, diverse product mix, and technical support direct our products to the applications and geographic regions that offer the highest margins for our products.

Our nickel deliveries represented 14% of global consumption for primary nickel in 2014. In addition to us, the largest suppliers in the nickel industry (each with its own integrated facilities, including nickel mining, processing, refining and marketing operations) are Mining and Metallurgical Company Norilsk Nickel ("Norilsk"), Jinchuan Nonferrous Metals Corporation ("Jinchuan"), Glencore Xstrata and BHP Billiton. Together with us, these companies accounted for about 46% of global refined primary nickel production in 2014.

While stainless steel production is a major driver of global nickel demand, stainless steel producers can use nickel products with a wide range of nickel content, including secondary nickel (scrap). The choice between primary and secondary nickel is largely based on their relative prices and availability. In recent years, secondary nickel has accounted for about 40-43% of total nickel used for stainless steels, and primary nickel has accounted for about 57-60%. Nickel pig iron, a low-grade nickel product made in China from imported lateritic ores, is primarily suitable for use in stainless steel production. In recent years, Chinese domestic production of nickel pig iron accounted for the majority of world nickel supply growth. From January 2014 onwards, Chinese nickel pig iron production was adversely affected by export restriction of unprocessed ores from Indonesia. As a result, nickel pig iron production is estimated to have declined 8% year-over-year to approximately 460,000 metric tons, representing 23% of world primary nickel supply. The delivery of previously shipped ores and the significant stockpiles of Indonesian ores within China mitigated the effect of this decrease in nickel pig iron production in 2014. We anticipate that Chinese nickel pig iron production will decline further in 2015 and 2016, with the depletion of Indonesian ore stockpiles in China.

Competition in the nickel market is based primarily on quality, reliability of supply and price. We believe our operations are competitive in the nickel market because of the high quality of our nickel products and our relatively low production costs.

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2.2 Copper

2.2.1 Operations

We conduct our copper operations at the parent-company level in Brazil and through our subsidiaries in Canada.

Mining Site/Location	Location	Description/History	Mineralization/Operations	Mining Title	Power Source	Access/Transportation
Brazil						
Vale/Sossego	Carajás, state of Pará.	Two main copper ore bodies, Sossego and Sequeirinho and a processing facility to concentrate the ore. Sossego was developed by Vale and started production in 2004.	The copper ore is mined using the open-pit method, and the run-of-mine is processed by means of standard primary crushing and conveying, SAG milling (a semi-autogenous mill that uses a large rotating drum filled with ore, water and steel grinding balls to transform the ore into a fine slurry), ball milling, copper concentrate flotation, tailings disposal, concentrate thickening, filtration and load out.	Mining concession for indefinite period.	Supplied through the national electricity grid. Acquired from Eletronorte, pursuant to power purchase agreements or supplied by Aliança Geração or directly by Vale.	We truck the concentrate to a storage terminal in Parauapebas and then transport it via the EFC railroad to the Ponta da Madeira maritime terminal in São Luís, in the state of Maranhão. We constructed an 85-kilometer road to link Sossego to Parauapebas.
Vale/Salobo	Carajás, state of Pará.	Salobo I processing plant is ramping up to a total capacity of 100,000 tpy of copper in concentrates. Salobo is expected to reach a total capacity of approximately 200,000 tpy by 2016, after Salobo II expansion.	Our Salobo copper and gold mine is mined using the open-pit method, and the run-of-mine is processed by means of standard primary and secondary crushing, conveying, roller press grinding, ball milling, copper concentrate flotation, tailings disposal, concentrate thickening, filtration and load out.	Mining concession for indefinite period.	Supplied through the national electricity grid. Acquired from Eletronorte, pursuant to power purchase agreements.	We truck the concentrate to a storage terminal in Parauapebas and then transport it via the EFC railroad to the Ponta da Madeira maritime terminal in São Luís, in the state of Maranhão. We constructed a 90-kilometer road to link Salobo to Parauapebas.

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Mining Site/Location	Location	Description/History	Mineralization/Operations	Mining Title	Power Source	Access/Transportation
Canada						
Vale Canada	Canada Sudbury, Ontario	See *Base metals Nickel Operations*	We produce two intermediate copper products, copper concentrates and copper anodes, and we also produce electrowon copper cathode as a by-product of our nickel refining operations.	Please refer to the table in our Nickel Operations		
Vale Canada/ Voisey's Bay	Canada Voisey's Bay, Newfoundland and Labrador	See *Base metals Nickel Operations*	At Voisey's Bay, we produce copper concentrates.	Please refer to the table in our Nickel Operations		
Zambia						
Lubambe	Zambian Copperbelt	Lubambe (previously Konkola North) copper mine, which includes an underground mine, plant and related infrastructure. TEAL (our 50/50 joint venture with ARM) has an 80% indirect stake in Lubambe. Zambia Consolidated Copper Mines Investment Holding PLC Ltd. holds the remaining (20%) stake.	Nominal production capacity of 45,000 metric tons per year of copper in concentrates. Production started in October 2012 and is ramping up.	Mining concessions expiring in 2033.	Long-term energy supply contract with Zesco (Zambian state owned power supplier).	Copper concentrates are transported by truck to local smelters.

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2.2.2 Production

The following table sets forth information on our copper production.

Mine	Type	Production for the year ended December 31, 2012	2013	2014
			(thousand metric tons)	
Brazil:				
Salobo	Open pit	13	65	98
Sossego	Open pit	110	119	110
Canada:				
Sudbury	Underground	79	103	98
Voisey's Bay	Open pit	42	36	33
Thompson	Underground	3	2	2
External(1)		29	24	29
Chile:				
Tres Valles(2)	Open pit and underground	14	11	
Zambia:				
Lubambe(3)	Underground	1	9	10
Total		290	370	380

(1) We process copper at our facilities using feed purchased from unrelated parties.

(2) We sold the Tres Valles mine in December 2013. The 2013 production level in the table is through the end of October.

(3) Vale's attributable production capacity of 40%.

2.2.3 Customers and sales

We sell copper concentrates from Sossego and Salobo under medium and long-term contracts to copper smelters in South America, Europe, India and Asia. We have medium-term copper supply agreements with Glencore Canada Corporation for the sale of copper anodes and most of the copper concentrates produced in Sudbury. We sell copper concentrates from Voisey's Bay under medium-term contracts to customers in Europe. We sell electrowon copper from Sudbury in North America under short-term sales agreements.

2.2.4 Competition

The global refined copper market is highly competitive. Producers are integrated mining companies and custom smelters, covering all regions of the world, while consumers are principally wire rod and copper-alloy producers. Competition occurs mainly on a regional level and is based primarily on production costs, quality, reliability of supply and logistics costs. The world's largest copper cathode producers are Corporación Nacional del Cobre de Chile ("Codelco"), Freeport-McMoRan Copper & Gold Inc. ("Freeport-McMoRan"), Aurubis AG, Jiangxi Copper Corporation Ltd. and Glencore, operating at the parent-company level or through subsidiaries. Our participation in the global refined copper market is marginal as we position ourselves more competitively in the copper concentrate market.

Copper concentrate and copper anode are intermediate products in the copper production chain. Both the concentrate and anode markets are competitive, having numerous producers but fewer participants and smaller volumes than in the copper cathode market due to the high levels of integration by the major copper producers.

In the copper concentrate market, mining occurs on a world basis with a predominant share from South America, while consumers are custom smelters located in Europe and Asia. Competition in the custom copper concentrate market occurs mainly on a global level and is based on production costs, quality, logistics costs and reliability of supply. The largest competitors in the copper concentrate market are BHP Billiton, Antofagasta plc, Codelco, Freeport McMoRan, Glencore Xstrata and Anglo American, operating at the parent-company level or through subsidiaries. Our market share in 2014 was about 3% of the total custom copper concentrate market.

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The copper anode/blister market has very limited trade within the copper industry; generally, anodes are produced to supply each company's integrated refinery. The trade in anodes/blister is limited to those facilities that have more smelting capacity than refining capacity or to those situations where logistics cost savings provide an incentive to source anodes from outside smelters. The largest competitors in the copper anode market in 2014 included Codelco, Glencore Xstrata and China Nonferrous Metals, operating at the parent-company level or through subsidiaries.

2.3 PGMs and other precious metals

As by-products of our Sudbury nickel operations in Canada, we recover significant quantities of PGMs, as well as small quantities of gold and silver. We operate a processing facility in Port Colborne, Ontario, which produces PGMs, gold and silver intermediate products using feed from our Sudbury operation. We have a refinery in Acton, England, where we process our intermediate products, as well as feeds purchased from unrelated parties and toll-refined materials. In 2014, PGM concentrates from our Canadian operations supplied about 46.1% of our PGM production, which also includes metals purchased from unrelated parties. Our base metals marketing department sells our own PGMs and other precious metals, as well as products from unrelated parties and toll-refined products, on a sales agency basis. Our copper concentrates from our Salobo and Sossego mines in Carajás, in the Brazilian state of Pará, also contain gold, the value of which we realize in the sale of those concentrates.

In February 2013, we sold to Silver Wheaton 25% of the gold produced as a by-product at our Salobo copper mine, in Brazil, for the life of that mine, and 70% of the gold produced as a by-product at our Sudbury nickel mines, in Canada, for 20 years. Pursuant to the gold stream contract, Silver Wheaton received 74,325 oz. of gold in 2014.

In March 2015, we agreed to sell to Silver Wheaton an additional 25% of the gold produced as a by-product at our Salobo copper mine. See *Business Overview Significant changes in our business.*

The following table sets forth information on our precious metals production.

Mine	Type	2012	2013	2014
			(thousand troy ounces)	
Sudbury:				
Platinum	Underground	134	145	182
Palladium	Underground	251	352	398
Gold	Underground	69	91	83
Salobo:				
Gold	Open pit	20	117	160
Sossego:				
Gold	Open pit	75	78	78

2.4 Cobalt

We recover significant quantities of cobalt as a by-product of our nickel operations. In 2014, we produced 1,362 metric tons of refined cobalt metal at our Port Colborne refinery, 1,124 metric tons of cobalt in a cobalt-based intermediate product at our nickel operations in Canada and New Caledonia, and our remaining cobalt production consisted of 1,257 metric tons of cobalt contained in other intermediate products (such as nickel concentrates). As a result of the ramp-up of VNC operations in New Caledonia, our production of cobalt intermediate as a by-product of our nickel production will increase. We sell cobalt on a global basis. Our cobalt metal is electro-refined at our Port Colborne refinery and has very high purity levels (99.8%), which is superior to the LME contract specification. Cobalt metal is used in the production of various alloys, particularly for aerospace applications, as well as the manufacture of cobalt-based chemicals.

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The following table sets forth information on our cobalt production.

Mine	Type	Production for the year ended December 31, 2012	2013	2014
			(metric tons)	
Sudbury	Underground	589	853	833
Thompson	Underground	96	292	489
Voisey's Bay	Open pit	1,221	1,256	952
New Caledonia	Open pit	385	1,117	1,384
External sources(1)		52	13	84
Total		2,343	3,532	3,743

(1) These figures do not include tolling of feeds for unrelated parties.

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Lines of business

3. Coal

3.1 Operations

We produce metallurgical and thermal coal through our subsidiaries Vale Moçambique, which operates the Moatize mine, and Vale Australia, which operates coal assets in Australia through wholly-owned companies and unincorporated joint ventures. We also have a minority interest in two Chinese companies, Henan Longyu Energy Resources Co., Ltd. ("Longyu") and Shandong Yankuang International Coking Company Limited ("Yankuang").

Company/Mining Site	Location	Description/History	Mineralization/Operations	Mining Title	Power Source	Access/Transportation
Vale Moçambique						
Moatize	Tete, Mozambique	Open-cut mine, which was developed directly by Vale. Operations started in August 2011, and are expected to reach a nominal production capacity of 22 Mtpy, considering the Moatize expansion, comprised of metallurgical and thermal coal and the Nacala Logistics Corridor ramp up. Vale has an indirect 95.0% stake, and the remaining is owned by Empresa Moçambicana de Exploração Mineira, S.A. Upon conclusion of the agreement signed in December 2014, Mitsui will acquire 15% of Vale's stake in Vale Moçambique.	Produces metallurgical and thermal coal. Moatize's main branded product is the Chipanga premium hard coking coal, but there is operational flexibility for multiple products. The optimal product portfolio will come as a result of market trials. Coal from the mines is currently processed at a coal handling and processing plant ("CHPP") with a capacity of 4,000 metric tons per hour. An additional CHPP is under construction, which will increase capacity by additional 4,000 metric tons per hour.	Mining concession expiring in 2032, renewable thereafter.	Supplied by local utility company. Back up supply on site.	The coal is transported from the mine by the Linha do Sena railway to the port of Beira and in the future also by the Nacala Corridor to the port of Nacala.
Vale Australia						
Integra Coal	Hunter Valley, New South Wales	Open-cut and underground coal mines, acquired from AMCI in 2007, located 10 kilometers northwest of Singleton in the Hunter Valley of New South Wales, Australia. Vale had a 61.2% stake until December 2014, when it increased its stake to 64.8%. The remaining stakes are owned by Nippon Steel ("NSC"), JFE Group ("JFE"), Posco, Toyota Tsusho Australia, Chubu Electric Power Co. Ltd.	Produces metallurgical and thermal coal. The operations are comprised of an underground coal mine that produces coal by longwall methods and an open-cut mine. Coal from the mines is processed at a CHPP with a capacity of 1,200 metric tons per hour. Operations at Integra coal mine were suspended in May 2014, as they were not economically feasible under current market conditions.	Mining tenements expiring in 2023, 2026, 2030 and 2033.	Supplied through the national electricity grid. Acquired from local utility companies.	Production is loaded onto trains and transported 83km to the port of Newcastle, New South Wales, Australia.
Carborough Downs	Bowen Basin, Queensland	Acquired from AMCI in 2007. Carborough Downs mining leases overlie the Rangal Coal Measures of the Bowen Basin with the seams of Leichardt and Vermont. Both seams have coking properties and can be beneficiated to produce coking coal and pulverized coal injection ("PCI")	Metallurgical coal mined by longwall methods. The Leichardt seam is currently our main target for development and constitutes 100% of the current reserve and resource base. Carborough Downs coal is processed at the Carborough Downs CHPP, which is capable of processing 1,000 metric tons per hour	Mining tenements expiring in 2035 and 2039.	Supplied through the national electricity grid. Acquired from local utility companies.	The product is loaded onto trains at a rail loadout facility and transported 163 kilometers to the Dalrymple Bay Coal Terminal, Queensland, Australia.

	products. Vale has a 90.0% stake and the remaining is owned by JFE and Posco.

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Company/Mining Site	Location	Description/History	Mineralization/Operations	Mining Title	Power Source	Access/Transportation
Isaac Plains	Bowen Basin, Queensland	The Isaac Plains open-cut mine, acquired from AMCI in 2007, is located close to Carborough Downs in central Queensland. The mine is managed by Isaac Plains Coal Management on behalf of the joint venture parties. Vale has a 50.0% stake, and the remaining shares are owned by a subsidiary of Sumitomo.	Metallurgical and thermal coal mined predominantly using dragline method. The coal is classified as a medium volatile bituminous coal with low sulfur content. Coal is processed at the Isaac Plains CHPP, which has a capacity of 500 metric tons per hour. Operations at Isaac Plains mine were suspended in November 2014, as they were not economically feasible under current market conditions.	Mining tenements expiring in 2025.	Supplied through the national electricity grid. Acquired from local utility companies.	Railed 172 kilometers to the Dalrymple Bay Coal Terminal.

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3.2 Production

The following table sets forth information on our marketable coal production.

Operation	Mine type	Production for the year ended December 31, 2012	2013	2014
			(thousand metric tons)	
Metallurgical coal:				
Vale Australia				
Integra Coal(1)(4)	Underground and open-cut	962	1,410	715
Isaac Plains(2)	Open-cut	709	656	746
Carborough Downs(3)	Underground	911	2,447	1,857
Vale Moçambique				
Moatize(5)	Open-cut	2,501	2,373	3,124
Total metallurgical coal		5,083	6,885	6,443
Thermal coal:				
Vale Australia				
Integra Coal(1)	Open-cut	351	87	92
Isaac Plains(2)	Open-cut	381	347	326
Vale Moçambique				
Moatize(5)	Open-cut	1,267	1,444	1,784
Total thermal coal		1,999	1,878	2,202

(1) These figures correspond to our 61.2% equity interest in Integra Coal, an unincorporated joint venture. Our equity interest in Integra Coal increased to 64.8% in December 2014.

(2) These figures correspond to our 50.0% equity interest in Isaac Plains, an unincorporated joint venture.

(3) These figures correspond to our 85.0% equity interest in Carborough Downs, an unincorporated joint venture. Our equity interest in Carborough Downs increased to 90% in December 2014.

(4) Operations at Integra Coal and Isaac Plains have been suspended since May and November 2014, respectively.

(5) These figures correspond to 100% production at Moatize, and are not adjusted to reflect our ownership.

3.3 Customers and sales

Coal sales from our Australian operations are primarily focused on Asia. Coal sales from our Moatize operations, in Mozambique, target global steel markets, including Asia, Africa, Europe and the Americas. Our Chinese coal joint ventures direct their sales into the Chinese domestic market.

3.4 Competition

The global coal industry comprises markets for black (metallurgical and thermal) and brown (lignite) coal, and is highly competitive.

Growth in the demand for steel, especially in Asia, underpins demand for metallurgical coal, while growth in demand for electricity supports demand for thermal coal. We expect robust supply and lower prices for metallurgical coal in the next few years, which will reduce investments in new greenfield projects and may result in supply imbalances in the long term. Port and rail constraints in certain supply regions,

which cannot be solved without significant capital expenditures, could lead only to limited availability of incremental metallurgical coal production.

Competition in the coal industry is based primarily on the economics of production costs, coal quality and transportation costs. Our key competitive strengths are the ownership of a transportation corridor, the proximity to the Atlantic and Indian markets (as compared to our main competitors) and our lower production costs (as compared to other producers).

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Major participants in the seaborne coal market are subsidiaries, affiliates and joint ventures of BHP Billiton, Glencore Xstrata, Anglo American, Rio Tinto, Teck Cominco, Peabody, Walter Energy and the Shenhua Group, among others.

4. Fertilizer nutrients

4.1 Phosphates

We operate our phosphates business through subsidiaries and joint ventures, as set forth in the following table.

Company	Location	Our share of capital		Partners
		Voting	Total	
		(%)		
Vale Fertilizantes	Uberaba, Brazil	100.0	100.0	
MVM Resources International, B.V.	Bayóvar, Peru	51.0	40.0	Mosaic, Mitsui

Vale Fertilizantes is a producer of phosphate rock, phosphate fertilizers ("P") (e.g., monoammonium phosphate ("MAP"), dicalcium phosphate ("DCP"), triple superphosphate ("TSP") and single superphosphate ("SSP") and nitrogen ("N") fertilizers (e.g., ammonia and ammonium nitrate). It is the largest producer of phosphate and nitrogen crop nutrients in Brazil. Vale Fertilizantes operates the following phosphate rock mines, through concessions for indefinite period: Catalão, in the state of Goiás, Tapira, Patos de Minas and Araxá, all in the state of Minas Gerais, and Cajati, in the state of São Paulo, in Brazil. In addition, Vale Fertilizantes has nine processing plants for the production of phosphate and nitrogen nutrients, located at Catalão, Goiás; Araxá, Patos de Minas and Uberaba, Minas Gerais; Guará, Cajati, and three plants in Cubatão, São Paulo.

Since 2010 we have also operated the Bayóvar phosphate rock mine in Peru, with nominal capacity of 3.9 Mtpy, through a concession for indefinite period.

The following table sets forth information about our phosphate rock production.

Mine	Type	Production for the year ended December 31,		
		2012	2013	2014
		(thousand metric tons)		
Bayóvar	Open pit	3,209	3,546	3,801
Catalão	Open pit	1,026	1,057	1,055
Tapira	Open pit	2,068	1,869	2,005
Patos de Minas	Open pit	44	53	73
Araxá	Open pit	1,084	1,111	883
Cajati	Open pit	550	640	605
Total		7,982	8,277	8,421

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The following table sets forth information about our phosphate and nitrogen nutrients production.

Product	Production for the year ended December 31, 2012	2013	2014
	(thousand metric tons)		
Monoammonium phosphate (MAP)	1,201	1,128	1,065
Triple superphosphate (TSP)	913	905	910
Single superphosphate (SSP)	2,226	2,102	1,854
Dicalcium phosphate (DCP)	511	444	502
Ammonia(1)	475	347	178
Urea(2)	483	219	0
Nitric acid	478	416	469
Ammonium nitrate	490	419	485

(1) After the sale of Araucária in June 2013, we only produce ammonia in our Cubatão plant.

(2) After the sale of Araucária in June 2013, we no longer produce urea.

4.2 Potash

We conduct potash operations in Brazil at the parent-company level, with mining concessions of indefinite duration. We have leased Taquari-Vassouras, the only potash mine in Brazil (in Rosario do Catete, in the state of Sergipe), from Petrobras since 1992. In April 2012, we extended the lease for 30 more years. The following table sets forth information on our potash production.

Mine	Type	Production for the year ended December 31, 2012	2013	2014	2014 Process Recovery
		(thousand metric tons)			(%)
Taquari-Vassouras	Underground	549	492	492	82.9

4.3 Customers and sales

All potash sales from the Taquari-Vassouras mine are to the Brazilian market. In 2014, our sales represented approximately 5% of total potash sold in Brazil. We have a strong presence and long-standing relationships with the major market participants in Brazil, with more than 50% of our sales in 2014 generated from four long-term customers.

Our phosphate products are mainly sold to fertilizer blenders. In 2014, our sales represented approximately 27% of total phosphate sold in Brazil, with imports representing around 58% of total supply. In the high-concentration segment our production represented 86% of total Brazilian production, with products like MAP and TSP. In the low-concentration phosphate nutrients segment our production represented 71% of total Brazilian production, with products like SSP.

4.4 Competition

The industry is divided into three major nutrients: potash, phosphate and nitrogen. There are limited resources of potash around the world, with Canada, Russia and Belarus being the most important sources, each of which having only a few producers. The industry presents a high level of investment and a long time required for a project to mature. In addition, the potash industry is highly concentrated, with the five major producers accounting for 83% of total world production capacity. While potash is a scarcer resource, phosphate is more available, but the major exporters are located in the northern region of Africa (Morocco, Algeria and Tunisia) and in the United States. The top five phosphate rock producing countries (China, Morocco, United States, Russia and Jordan) account for 77% of global production in 2014, of which roughly 11% is exported. However, higher value-added products such as MAP and DAP are usually traded instead of phosphate rock due to cost efficiency.

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Brazil is one of the largest agribusiness markets in the world due to its high production, exports and consumption of grains and biofuels. It is the fourth-largest consumer of fertilizers in the world and one of the largest importers of potash, phosphates, phosphoric acid and urea. Brazil imports 95% of its potash consumption, which amounted to approximately 9 Mtpy of KCl (potassium chloride) in 2014, 14% higher than 2013, from Belarusian, Canadian, Russian, German, Chilean and Israeli producers, in descending order. In terms of global consumption, China, the United States, Brazil and India represent 61% of the total, with Brazil alone representing 15% of the total. Our fertilizer projects are highly competitive in terms of cost and logistics to supply the Brazilian market.

Most phosphate rock concentrate is consumed locally by downstream integrated producers, with the seaborne market corresponding to 14% of total phosphate rock production. Major phosphate rock exporters are concentrated in North Africa, mainly through state-owned companies, with Moroccan OCP Group holding 33% of the total seaborne market. Brazil imports 58% of the total phosphate nutrients it needs through phosphate fertilizer products. The phosphate rock imports supply non-integrated producers of phosphate fertilizer products such as SSP, TSP and MAP.

Nitrogen-based fertilizers are derived primarily from ammonia (NH3), which, in turn, is made from nitrogen present in the air and natural gas, making this an energy-intensive nutrient. Ammonia and urea are the main inputs for nitrogen-based fertilizers. Consumption of nitrogen-based fertilizers has a regional profile due to the high cost associated with transportation and storage of ammonia, which requires refrigerated and pressurized facilities. As a result, only 10% of the ammonia produced worldwide is traded. Asia receives the largest volume of imports, accounting for 37% of global trade. Main exporting countries are Russia, Trinidad and Saudi Arabia.

5. Infrastructure

5.1 Logistics

We have developed our logistics business based on the transportation needs of our mining operations and we also provide transportation services for other customers.

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We conduct our logistics businesses at the parent-company level and through subsidiaries and joint ventures, as set forth in the table below.

Company	Business	Location	Our share of capital		Partners
			Voting	Total	
			(%)		
Vale	Railroad (EFVM and EFC), port and maritime terminal operations	Brazil			
VLI(1)	Railroad, port, inland terminal and maritime terminal operations. Holding of certain general cargo logistics assets	Brazil	37.6	37.6	FI-FGTS, Mitsui and Brookfield
MRS	Railroad operations	Brazil	46.8	47.6	CSN, Usiminas and Gerdau
CPBS	Port and maritime terminal operations	Brazil	100	100	
PTV	Port and maritime terminal operations	Indonesia	59.2	59.2	Sumitomo, public investors
Vale Logística Argentina	Port operations	Argentina	100	100	
CEAR(2)(4)	Railroad	Malawi	43.4	43.4	Portos e Caminhos de Ferro de Moçambique, E.P.
CDN(3)(4)	Railroad and maritime terminal operations	Mozambique	43.4	43.4	Portos e Caminhos de Ferro de Moçambique, E.P.
CLN(4)	Railroad and port operations	Mozambique	80.0	80.0	Portos e Caminhos de Ferro de Moçambique, E.P.
Vale Logistics Limited(4)	Railroad operations	Malawi	100	100	
Transbarge Navegación	Paraná and Paraguay Waterway System (Convoys)	Paraguay	100	100	
VNC	Port and maritime terminal operations	New Caledonia	80.5	80.5	Sumic, SPMSC
VMM	Port and maritime terminal operations	Malaysia	100	100	

(1) BNDES holds debentures issued by Vale that are exchangeable into part of Vale's stake in VLI. Vale's equity interests in VLI may be reduced by up to 8% if BNDES exercises its rights under those debentures.

(2) Vale controls its interest in CEAR through an 85% interest in SDCN, which owns 51% of CEAR.

(3) Vale controls its interest in CDN through an 85% interest in SDCN, which owns 51% of CDN.

(4) Upon completion of the transaction with Mitsui, we will hold 21.7% of the voting and total capital of CEAR, 21.7% of the voting and total capital of CDN, 40% of the voting and total capital of CLN and 50% of the voting and total capital of VLL.

5.1.1 Railroads

Brazil

Vitória a Minas railroad ("EFVM"). The EFVM railroad links our Southeastern System mines in the Iron Quadrangle region in the Brazilian state of Minas Gerais to the Tubarão Port, in Vitória, in the Brazilian state of Espírito Santo. We operate this 905-kilometer railroad under a 30-year renewable concession, which expires in 2027. The EFVM railroad consists of two lines of track extending for a distance of 601 kilometers to permit continuous railroad travel in opposite directions, and single-track branches of 304 kilometers. Industrial manufacturers are located in this area and major agricultural regions are also accessible to it. VLI has rights to use railroad transportation capacity on our EFVM railroad. In 2014, the EFVM railroad transported a daily average of 326.8 metric tons of iron ore, or a total of 79.4 billion ntk of iron ore and other cargo, of which 17.2 billion ntk, or 21.7%, consisted of cargo transported for customers, including iron ore for Brazilian customers. The EFVM railroad also carried 955 thousand passengers in 2014. In 2014, we had a fleet of 323 locomotives and 15,146 wagons at EFVM.

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Carajás railroad ("*EFC*"). The EFC railroad links our Northern System mines in the Carajás region in the Brazilian state of Pará to the Ponta da Madeira maritime terminal, in São Luis, in the Brazilian state of Maranhão. We operate the EFC railroad under a 30-year renewable concession, which expires in 2027. EFC extends for 892 kilometers from our Carajás mines to our Ponta da Madeira maritime terminal complex facilities located near the Itaqui Port. Its main cargo is iron ore, principally carried for us. VLI has rights to use railroad transportation capacity on our EFC railroad. In 2014, the EFC railroad transported a daily average of 319.0 metric tons of iron ore. In 2014, the EFC railroad carried a total of 105.9 billion ntk of iron ore and other cargo, 3.5 billion ntk of which was cargo for customers, including iron ore for Brazilian customers. EFC also carried 307 thousand passengers in 2014. EFC supports the largest train, in terms of capacity, in Latin America, which measures 3.5 kilometers, weighs 42.01 gross metric tons when loaded and has 330 cars. In 2014, EFC had a fleet of 277 locomotives and 16,158 wagons.

The principal items of cargo of the EFVM and EFC railroads are:

- iron ore and iron ore pellets and manganese ore, carried for us and customers;
- steel, coal, pig iron, limestone and other raw materials carried for customers with steel mills located along the railroad;
- agricultural products, such as soybeans, soybean meal and fertilizers; and
- other general cargo, such as pulp, fuel and chemical products.

We charge market prices for customer freight, including iron ore pellets originating from joint ventures and other enterprises in which we do not have a 100% equity interest. Market prices vary based on the distance traveled, the type of product transported and the weight of the freight in question, and are regulated by the Brazilian transportation regulatory agency, ANTT (*Agência Nacional de Transportes Terrestres*).

VLI. VLI provides integrated logistics solutions through 7,920 kilometers of railroads in Brazil (FCA and FNS), five inland terminals with a total storage capacity of 240,000 tons and three maritime terminals and ports operations. We hold a 37.6% stake in VLI, and are party to a shareholders' agreement with FI-FGTS, Mitsui and Brookfield. VLI's main railroad assets are:

- *Ferrovia Centro-Atlântica ("FCA").* Central-east regional railway network of the Brazilian national railway system, held under a 30-year renewable concession, which expires in 2026. The central east network has 7,220 kilometers of track, extending into the states of Sergipe, Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, Goiás and the Federal District of Brazil;

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- *Ferrovia Norte-Sul railroad ("FNS").* A 30-year renewable subconcession for the commercial operation of a 720-kilometer stretch of the North-South railroad in Brazil, between the cities Açailandia, in the state of Maranhão, and Porto Nacional, in the state of Tocantins. This railway is connected to EFC railroad, and creates a new corridor for the transportation of general cargo, mainly for the export of soybeans, rice and corn produced in the center-northern region of Brazil; and

- Right to use capacity of our EFVM and EFC railroads for general cargo.

In 2014, VLI transported a total of 31.95 billion ntk of general cargo, including 18.7 billion ntk from FCA and FNS and 13.3 billion ntk through operational agreements with Vale.

MRS Logística S.A. ("*MRS*"). The MRS railroad is 1,643 kilometers long and links the Brazilian states of Rio de Janeiro, São Paulo and Minas Gerais. In 2014, the MRS railroad carried a total of 164 million metric tons of cargo, including 70.5 million metric tons of iron ore and other cargo from Vale.

Africa

We are ramping up the Nacala Corridor, which connects the Moatize site to the Nacala-à-Velha maritime terminal, located in Nacala, Mozambique, and which crosses into the Republic of Malawi. The Nacala Corridor consists of railway and port infrastructure, including greenfield and existing railways in Mozambique and Malawi and a new coal port in Mozambique. The Nacala Corridor will allow for the expansion of the Moatize mine and support our operations in Southeastern Africa. In Mozambique, we are operating under two concession agreements held by our subsidiary Corredor Logístico Integrado de Nacala S.A. ("CLN"), which will expire in 2043, subject to renewal, and we are rehabilitating existing railroads under a concession held by our subsidiary Corredor de Desenvolvimento do Norte S.A. ("CDN"), which will expire in 2035. In Malawi, we are operating under a concession held by our subsidiary Vale Logistics Limited ("VLL"), which will expire in 2041, subject to renewal, and we are rehabilitating existing railroads under a concession held by our subsidiary Central East African Railway Company Limited ("CEAR"), which was extended in 2013 for a 30-year period from the commencement of rail services under VLL's greenfield railway concession.

In December 2014, we entered into an investment agreement providing for Mitsui to acquire half of our stake in the Nacala Corridor. Our equity stake in CLN, CDN, VLL and CEAR will be transferred to a holding company jointly owned (50% each) and controlled by Vale and Mitsui. Mitsui will invest US$313 million in this holding company, in equity and quasi-equity instruments, which will be used to fund the project. Vale and Mitsui are seeking project financing, without recourse to Vale or Mitsui, to fund the remaining capital expenditures required for the Nacala Corridor project and to replace part of the funding provided by Vale. The transaction is subject to certain conditions precedent, and closing is expected for 2015.

5.1.2 Ports and maritime terminals

Brazil

We operate a port and maritime terminals principally as a means to complete the delivery of our iron ore and iron ore pellets to bulk carrier vessels serving the seaborne market. See *Ferrous Minerals Iron ore and pellets Iron ore operations*. We also use our port and terminals to handle customers' cargo.

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Tubarão Port. The Tubarão Port, which covers an area of 18 square kilometers, is located near the Vitória Port in the Brazilian state of Espírito Santo and contains the iron ore maritime terminal and the general cargo terminals (Praia Mole Terminal and the Terminal de Produtos Diversos).

- The iron ore maritime terminal has two piers. Pier I can accommodate two vessels at a time, one of up to 170,000 DWT on the southern side and one of up to 200,000 DWT on the northern side. Pier II can accommodate one vessel of up to 405,000 DWT at a time, limited at 23 meters draft. In Pier I there are two ship loaders, which can load up to 13,500 metric tons per hour each. In Pier II there are two ship loaders that work alternately and can each load up to 16,000 metric tons per hour continuously. In 2014, 101.5 million metric tons of iron ore and iron ore pellets were shipped through the terminal for us. The iron ore maritime terminal has a storage yard with a capacity of 3.4 million metric tons.

- Praia Mole terminal is principally a coal terminal and handled 11.3 million metric tons in 2014. VLI has rights to use the capacity of the Praia Mole terminal.

- Terminal de Produtos Diversos handled 7.4 million metric tons of grains and fertilizers in 2014. VLI has rights to use the capacity of the Terminal de Produtos Diversos.

Ponta da Madeira maritime terminal. Our Ponta da Madeira maritime terminal is located near the port of Itaqui, in the Brazilian state of Maranhão. Pier I can accommodate vessels of up to 420,000 DWT and has a maximum loading rate of 16,000 tons per hour. Pier III, which has two berths and three shiploaders, can accommodate vessels of up to 200,000 DWT at the south berth and 180,000 DWT at the north berth (or two vessels of 180,000 DWT simultaneously), subject to tide conditions, and has a maximum loading rate of 8,000 metric tons per hour in each shiploader. Pier IV (south berth) is able to accommodate vessels of up to 420,000 DWT and have two ship loaders that work alternately with a maximum loading rate of 16,000 tons per hour. Cargo shipped through our Ponta da Madeira maritime terminal consists of our own iron ore production. Other cargo includes manganese ore produced by us and pig iron and soybeans for unrelated parties. In 2014, 112.3 million metric tons of iron ore were handled through the terminal. The Ponta da Madeira maritime terminal has a storage yard with a static capacity of 8.9 million tons, which will be expanded to 10.7 million tons.

Itaguaí maritime terminal Cia. Portuária Baía de Sepetiba ("CPBS"). CPBS is a wholly-owned subsidiary that operates the Itaguaí terminal, in the Sepetiba Port, in the Brazilian state of Rio de Janeiro. Itaguaí's maritime terminal has a pier with one berth that allows the loading of ships up to 17.8 meters of draft and approximately 200,000 DWT of capacity. In 2014, the terminal uploaded 23.8 million metric tons of iron ore.

Guaíba Island maritime terminal. We operate a maritime terminal on Guaíba Island in the Sepetiba Bay, in the Brazilian state of Rio de Janeiro. The iron ore terminal has a pier with two berths that allows the loading of ships of up to 350,000 DWT. In 2014, the terminal uploaded 40.6 million metric tons of iron ore.

VLI also operates Inácio Barbosa maritime terminal (TMIB), owned by Petrobras, in the state of Sergipe; Santos maritime terminal (TIPLAM), in the state of São Paulo, which is jointly owned by VLI and Vale Fertilizantes; and Pier II in the Itaqui port, which can accommodate vessels of up to 155,000 DWT and has a maximum loading rate of 8,000 tons per hour.

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Argentina

Vale Logística Argentina S.A. ("Vale Logística Argentina") operates a terminal at the San Nicolas port located in the province of Buenos Aires, Argentina, where Vale Logística Argentina has a permit to use a storage yard covering 20,000 square meters until October 2016 and an agreement with third parties for an extra storage yard of 15,000 square meters. We handled 1.12 million metric tons of iron and manganese ore through this port in 2014, which came from Corumbá, Brazil, via the Paraguay and Paraná rivers, for shipment to Brazilian, Asian and European markets. The loading rate of this port is 24,000 tons per day and the unloading rate is 13,200 tons per day.

Oman

Vale Oman Distribution Center LLC ("VODC") operates a distribution center in Liwa, Sultanate of Oman. The maritime terminal has a 1.4 kilometer deep water jetty, which is integrated with a storage yard that has a throughput capacity to handle 40 Mtpy of iron ore and pellets per year. The loading nominal capacity is 10,000 tons per hour and the unloading nominal capacity is 9,000 tons per hour.

Indonesia

PTVI owns and operates two ports in Indonesia to support its nickel mining activities.

- The Balantang Special Port is located in Balantang Village, South Sulawesi, and has two types of piers, with total capacity of 10,000 DWT a two barge slips for barges with capacity of up to 4,000 DWT each for dry bulk cargo and a general cargo wharf for vessels of up to 2,000 DWT.

- The Tanjung Mangkasa Special Port is located in Lampia Village, South Sulawesi, with mooring buoys that can accommodate vessels with capacity of up to 20,000 DWT, and a terminal that can accommodate fuel tanker vessels with capacity of up to 2,000 DWT, totaling capacity of 22,000 DWT.

New Caledonia

We own and operate a port in Prony Bay, Province Sud, New Caledonia. This port has three terminals, including a passenger ferry terminal able to berth two ships up to 50m long, a dry bulk wharf where vessels of up to 55,000 DWT can unload at a rate of 8,000 tons per day and a general cargo wharf where vessels up to 215m long can berth. The general cargo wharf can move containers at a rate of 10 per hour and liquid fuels (LPG, HFO, Diesel) at a rate of 350 cubic meters per hour, and break-bulk. The port's container yard, covering an area of approximately 13,000 square meters, can receive up to 1,000 units. A bulk storage yard is linked to the port by a conveyor and has a storage capacity of 94,000 tons of limestone, 95,000 tons of sulfur, and 60,000 tons of coal.

Malaysia

Teluk Rubiah Maritime Terminal ("TRMT"). TRMT is located in the Malaysian state of Perak and has a pier with two berths that allows the unloading of vessels of approximately 400,000 DWT of capacity and the loading of vessels up to 220,000 DWT of capacity. In 2014, the terminal unloaded 3.09 million metric tons of iron ore and uploaded 2.58 million metric tons of iron ore.

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5.1.3 Shipping

We continue to develop and operate a low-cost fleet of vessels, comprised of our own ships and ships chartered pursuant to medium and long-term contracts to transport our cargoes from Brazil to our markets. We have 32 vessels in operation, including 19 Valemax vessels, with a capacity of 400,000 DWT each, and 13 capsize vessels with capacities ranging from 150,000 to 250,000 DWT. We have 16 Valemax vessels under long-term contracts. To support our iron ore delivery strategy, Vale owns and operates two floating transfer stations in Subic Bay, Philippines that transfer iron ore from Valemax vessels to smaller vessels that deliver the cargo to its destinations. We expect this service to enhance our ability to offer our iron ore products in the Asian market at competitive prices and to increase our market share in China and the global seaborne market. In 2014, we shipped approximately 158 million metric tons of iron ore and pellets on a CFR and CIF basis.

In 2014, we entered into framework agreements for strategic cooperation in iron ore transportation with shipping companies and financial institutions based in China and Hong Kong. Pursuant to these framework agreements, we are negotiating (i) long-term contracts for affreightment to secure long-term access to shipping capacity for the transportation of our iron ore from Brazil to Asia and to protect against volatility in freight, and (ii) the sale of six of our very large ore carriers of 400,000 DWT.

In the Paraná and Paraguay waterway system, we transport iron ore and manganese ores through our subsidiary Transbarge Navegación, which transported 2.35 million tons through the waterway system in 2014, and other chartered convoys. The barges are discharged in our local customers' terminals, in contracted terminals in Argentina or in the facilities of our subsidiary Vale Logística Argentina, which load the ore into ocean-going vessels. Vale Logística Argentina loaded 1.05 million tons of ore, of a total loading capacity of 3 million tons, at San Nicolas port into ocean-going vessels in 2014. In 2010, we purchased two tugboats, Morro Alto and Morro Azul, that will begin operations in 2015.

We manage a fleet of 26 tug boats in total, of which we own 25 and one is leased. We directly operate ten tug boats, which are operated in the ports of Vitória and Mangaratiba, in the states of Espírito Santo and Rio de Janeiro, respectively. Six tug boats, operated in the ports of São Luís and Aracaju, in the Brazilian states of Maranhão and Sergipe respectively, are operated by consortium companies, in which we have a 50% stake. Ten other tug boats are freighted to and operated by third parties, under their responsibility, in other ports in Brazil.

5.2 Energy

We have developed our energy assets based on the current and projected energy needs of our operations, with the goal of reducing our energy costs and minimizing the risk of energy shortages.

Brazil

Energy management and efficient supply in Brazil are priorities for us, given the uncertainties associated with changes in the regulatory environment and the risk of rising electricity prices. In 2014, our installed capacity in Brazil was 1.3 GW. We use the electricity produced by these plants for our internal consumption needs. We currently have stakes in nine hydroelectric power plants and four small hydroelectric power plants in operation. The hydroelectric power plants of Igarapava, Porto Estrela, Funil, Candonga, Aimorés, Capim Branco I, Capim Branco II and Machadinho are located in the Southeastern and Southern regions, and Estreito is located in the Northern region. The small hydroelectric power plants of Ituerê, Melo, Glória and Nova Maurício are localized in the Southeastern region. Our joint venture Aliança Geração holds our and CEMIG GT's interests in the following hydroelectric power plants: Porto Estrela, Igarapava, Funil, Capim Branco I e II, Aimorés and Candonga. See *Business Overview Significant changes in our business*.

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In 2014, we have a 9% stake in Norte Energia, the company established to develop and operate the Belo Monte hydroelectric plant in the Brazilian state of Pará. Upon completion of the transaction we entered into with CEMIG GT, we will indirectly hold a 4.59% stake in Norte Energia through Aliança Norte Energia. Our participation in the Belo Monte project gives us the right to purchase 9% of the electricity generated by the plant, which has already been contracted through a long term power purchase agreement entered into with Norte Energia. This power purchase agreement will not be affected by the transactions described in *Business Overview Significant changes in our business Restructuring our investments in power generation*.

We also produce palm oil in the Brazilian state of Pará, which will be used to produce biodiesel, through an extraction plant with an installed capacity of 100,000 tons of palm oil per year. The biodiesel is blended with regular diesel to produce a fuel called B20 (containing 20% biodiesel), which will be used to power our fleet of mining trucks, heavy machinery and locomotives in the Northern System operations.

Canada

In 2014, our wholly-owned and operated hydroelectric power plants in Sudbury generated 17% of the electricity requirements of our Sudbury operations. The power plants consist of five separate generation stations with an installed generator nameplate capacity of 56 MW. The output of the plants is limited by water availability, as well as by constraints imposed by a water management plan regulated by the provincial government of Ontario. Over the course of 2014, average demand for electrical energy was 195 MW to all surface plants and mines in the Sudbury area.

In 2014, diesel generation provided 100% of the electric requirements of our Voisey's Bay operations. We have six diesel generators on-site producing 12 MW.

Indonesia

Energy costs are a significant component of our nickel production costs for the processing of lateritic and saprolitic ores at PTVI operations in Indonesia. A major portion of PTVI's electric furnace power requirements is supplied at a low cost by its three hydroelectric power plants on the Larona River: (i) the Larona plant, which has an average generating capacity of 165 MW, (ii) the Balambano plant, which has an average capacity of 110 MW and (iii) the Karebbe plant, with 90 MW of average generating capacity. These plants help reduce production costs by substituting oil used for power generation with hydroelectric power, reduce CO_2 emissions by replacing non-renewable power generation, and enable us to increase our current nickel production capacity in Indonesia.

6. Other investments

We have a 25% stake in two iron ore pelletizing plants in China, Zhuhai YPM and Anyang. The remaining stake in Zhuhai YPM is owned by Zhuhai Yueyufeng Iron and Steel Co. Ltd. and Halswell Enterprises Limited, and the remaining stake in Anyang is owned by Anyang Iron & Steel Co., Ltd.

We have a 25% stake in coal operations in China, Longyu (in the Henan province) and Yankuang (in the Shandong Province). Longyu produces metallurgical and thermal coal and other related products, and the remaining interests are owned by Yongmei Group Co., Ltd. (former Yongcheng Coal & Electricity (Group) Co. Ltd.), Shanghai Baosteel International Economic & Trading Co., Ltd. and other minority shareholders. Yankuang produces metallurgical coke, methanol, tar oil and benzene, the remaining interests are owned by Yankuang Group Co. Ltd. and Itochu Corporation.

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We own a 50% stake in California Steel Industries, Inc. ("CSI"), a producer of flat-rolled steel and pipe products located in California, United States. The remainder is owned by JFE Steel. CSI's annual production capacity is approximately 2.8 million metric tons of flat and pipe products. In addition, we have a 26.9% stake in the ThyssenKrupp Companhia Siderúrgica do Atlântico ("TKCSA") integrated steel slab plant in the Brazilian state of Rio de Janeiro. The plant started operations in 2010, and produced 4.1 Mt of slabs in 2014. TKCSA production capacity of 5.0 Mtpy of slabs and will consume 8.5 million metric tons of iron ore and iron ore pellets per year, when at full capacity, supplied exclusively by Vale. We are also involved in two other steel projects in Brazil: Companhia Siderúrgica do Pecém ("CSP"), which is currently under construction, and Aços Laminados do Pará ("Alpa"), which is under review pending discussions with the Brazilian government.

We own minority interests in two bauxite mining businesses that are both located in Brazil: Mineração Rio do Norte S.A. ("MRN") and Mineração Paragominas S.A. ("Paragominas"). We have agreed to transfer our interests in Paragominas to Hydro in two equal tranches in 2014 and 2016. We completed the transfer of the 2014 tranche in December, and we currently have a 13.63% indirect interest in Paragominas.

We also have an onshore and offshore hydrocarbon exploration portfolio in Brazil and Peru. This portfolio is under review, and some concessions are being relinquished while others are in the process of being assigned, subject to regulatory approvals.

RESERVES

Presentation of information concerning reserves

The estimates of proven and probable ore reserves at our mines and projects and the estimates of mine life included in this annual report have been prepared by our staff of experienced geologists and engineers, unless otherwise stated, and calculated in accordance with the technical definitions established by the SEC. Under the SEC's Industry Guide 7:

- Reserves are the part of a mineral deposit that could be economically and legally extracted or produced at the time of the reserve determination.
- Proven (measured) reserves are reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, working or drill holes; grade and/or quality are computed from the results of detailed sampling; and (b) the sites for inspection, sampling and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well-established.
- Probable (indicated) reserves are reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.

We periodically revise our reserve estimates when we have new geological data, economic assumptions or mining plans. During 2014, we performed an analysis of our reserve estimates for certain projects and operations, which is reflected in new estimates as of December 31, 2014. Reserve estimates for each operation assume that we either have or expect to obtain all of the necessary rights and permits to mine, extract and process ore reserves at each mine. For some of our operations, the projected exhaustion date includes stockpile reclamation that occurs after mining has ceased. Where we own less than 100% of the operation, reserve estimates have not been adjusted to reflect our ownership interest. Certain figures in the tables, discussions and notes have been rounded. For a description of risks relating to reserves and reserve estimates, see *Risk factors*.

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Our reserve estimates are based on certain assumptions about future prices. We have determined that our reported reserves could be economically produced if future prices for the products identified in the following table were equal to the three-year average historical prices through December 31, 2014. For this purpose, we used the three-year historical average prices set forth in the following table.

Commodity	**Three-year average historical price (US$ per metric ton, unless otherwise stated)**	**Pricing source**
Iron ore:		
Vale(1)	120.76	Average Platts IODEX (62% Fe CFR China, US$/dmt)
Samarco(2)	141.94	Average realized price for pellets and pellet feeds (US$/dmt)
Coal:		
Metallurgical Moatize	134.40	Average realized hard metallurgical coal price
Metallurgical Integra underground	125.18	Average realized semi hard metallurgical coal price
Metallurgical Integra open cut	97.28	Average semi soft metallurgical coal realized price
Metallurgical Carborough Downs	135.16	Average hard metallurgical coal realized price
Metallurgical Isaac Plains	113.50	Average semi hard metallurgical coal realized price
PCI Carborough Downs	116.84	Average PCI realized price
PCI Isaac Plains(3)	119.80	Average PCI realized price
Thermal Integra open cut	88.09	Average thermal realized price
Thermal Isaac Plains	84.39	Average thermal realized price
Thermal Moatize	68.80	Average thermal realized price
Base metals:		
Nickel(4)	7.47	LME Ni (US$/lb)
Copper	3.35	LME Cu (US$/lb)
Nickel by-products:		
Platinum	1,475.00	Average realized price (US$/oz)
Palladium	724.00	Average realized price (US$/oz)
Gold	1,449.00	Average realized price (US$/oz)
Cobalt(4)	12.95	99.3% low cobalt metal (US$/lb) (source: Metal Bulletin)
Fertilizer nutrients:		
Phosphate	148.09	Average benchmark price for phosphate concentrate, FOB Morocco (source: Fertilizer Week)
Potash	378.60	Average benchmark price for potash, FOB Vancouver (source: Fertilizer Week)
Manganese ore(5):		
Manganese lump ore	177.53	Average realized price (US$/dmt)
Manganese sinter feed	147.08	Average realized price (US$/dmt)

(1) The economic assessment of our iron ore reserves is based on the average Platts IODEX prices, as adjusted to reflect the effects of freight, moisture and the quality premium for our iron ore.

(2) US$ per dry metric ton of iron ore pellets is used for pricing at Samarco.

(3) Both semi soft coking coal (SSCC) and PCI are considered the same product at the operation in compiling the average three yearly sales price.

(4) Premiums (or discounts) are applied to the nickel and cobalt spot prices at certain operations to derive realized prices. These premiums (or discounts) are based on product form, long-term contracts, packaging and market conditions.

(5) Prices mostly on a Delivery Duty Unpaid (DDU) and Cost, Insurance & Freight (CIF) China basis.

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Iron ore reserves

The following tables set forth our iron ore reserves and other information about our iron ore mines. Total iron ore reserves increased 0.2% from 2013 to 2014, after mine production depletion, reflecting new reserves from MCR, Jangada and Apolo. These reserves increased as a result of updated geological models based on new drilling and revisions in some grade cutoffs and pit limits.

Summary of total iron ore reserves(1)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Southeastern System	1,768.2	46.5	3,371.9	46.5	5,140.0	46.5	5,247.7	46.5
Southern System	2,072.1	45.8	3,509.8	43.6	5,581.9	44.4	5,599.6	44.4
Midwestern System	85.7	63.3	254.0	61.8	339.7	62.2	31.4	62.3
Northern System	4,674.8	66.7	2,405.9	66.6	7,080.7	66.7	7,184.0	66.7
Total Systems	8,600.8	57.5	9,541.5	51.0	18,142.3	54.0	18,062.7	53.9
Samarco(2)	1,384.2	40.5	1,525.5	38.8	2,909.7	39.6	2,946.1	39.7
Total	9,985.1	55.1	11,067.1	49.3	21,052.0	52.0	21,008.8	51.9

(1) Tonnage is stated in millions of metric tons of wet run-of-mine, based on the following moisture contents: Southeastern System 3.9%; Southern System 4.3%; Midwestern System 8.1%; Northern System 5.8%; and Samarco 6%. Grade is % of Fe.

(2) Our equity interest in Samarco is 50.0% and the reserve figures have not been adjusted to reflect our ownership interest.

Iron ore reserves per mine in the Southeastern System(1)(2)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Itabira								
Conceição	456.6	45.6	93.3	47.9	549.9	46.0	584.8	46.1
Minas do Meio	189.5	50.5	60.9	48.9	250.4	50.1	272.6	50.8
Minas Centrais								
Água Limpa(3)	15.3	41.9	5.2	42.8	20.5	42.1	27.0	42.2
Brucutu	192.1	50.1	240.3	48.1	432.4	49.0	470.3	49.3
Apolo(4)	47.9	57.4	622.3	56.3	670.2	56.3	632.1	56.1
Mariana								
Alegria	203.3	45.9	141.8	43.8	345.1	45.1	356.8	45.4
Fábrica Nova	363.9	43.3	775.3	40.9	1,139.2	41.6	1,158.3	41.8
Fazendão	299.6	45.7	306.2	40.6	605.8	43.1	619.2	43.2
Capanema			610.7	47.1	610.7	47.1	610.7	47.1
Conta História			515.9	45.4	515.9	45.4	515.9	45.4
Total Southeastern System	1,768.2	46.5	3,371.9	46.5	5,140.0	46.5	5,247.7	46.5

(1)

Tonnage is stated in millions of metric tons of wet run-of-mine, based on the following moisture contents: Itabira 1.5%; Minas Centrais 5.9%; Mariana 3.9%. Grade is % of Fe. Approximate drill hole spacing used to classify the reserves were: 100m × 100m to proven reserves and 200m × 200m to probable reserves.

(2) Average product recovery (tonnage basis) is: 57% for Itabira, 71% for Minas Centrais and 54% for Mariana.

(3) Vale's equity interest in Água Limpa is 50.0% and the reserve figures have not been adjusted to reflect our ownership interest.

(4) Apolo increased reserves due to updated geological resource model and new final pit limits.

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Iron ore reserves per mine in the Southern System(1)(2)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Minas Itabiritos								
Segredo	144.3	51.6	96.8	44.3	241.1	48.7	245.5	48.7
João Pereira	623.4	40.8	336.6	40.8	960.0	40.8	986.7	40.9
Sapecado	325.3	44.7	260.1	42.6	585.4	43.7	606.6	44.0
Galinheiro	255.7	45.5	889.0	43.5	1,144.7	43.9	1,153.8	44.0
Vargem Grande								
Tamanduá	48.4	59.5	349.0	47.5	397.4	49.0	402.8	49.2
Capitão do Mato	217.9	50.6	954.0	45.3	1,171.9	46.3	1,186.5	46.5
Abóboras	313.8	41.6	596.4	40.0	910.1	40.5	917.1	40.7
Paraopeba								
Jangada(3)	90.1	61.3	23.4	58.5	113.4	60.7	35.7	66.6
Capão Xavier	53.4	65.0	4.4	64.0	57.7	64.9	64.9	65.0
Total Southern System	2,072.1	45.8	3,509.8	43.6	5,581.9	44.4	5,599.6	44.4

(1) Tonnage is stated in millions of metric tons of wet run-of-mine. Grade is % of Fe, based on the following moisture contents: Minas Itabirito 5.0%; Vargem Grande 3.1%; Paraopeba 5%. Approximate drill hole spacing used to classify the reserves were: 100m × 100m to proven reserves and 200m × 200m to probable reserves.

(2) Average product recovery (tonnage basis) is: 48% for Minas Itabirito, 49% for Vargem Grande and 91% for Paraopeba.

(3) Jangada mine reserves increased due to new cut off limits and new product definition.

Iron ore reserves per mine in the Midwestern System(1)(2)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Corumbá								
Urucum	6.1	63.0	22.8	62.2	28.9	62.4	31.4	62.3
MCR	79.7	63.3	231.2	61.8	310.8	62.2		
Total Midwestern System	85.7	63.3	254.0	61.8	339.7	62.2	31.4	62.3

(1) Tonnage is stated in millions of metric tons of wet run-of-mine, based on the following moisture contents: 8.1%. Grade is % of Fe. Approximate drill hole spacing used to classify the reserves were: 70m × 70m to proven reserves and 140m × 140m to probable reserves.

(2) Average product recovery (tonnage basis) for Corumbá is 82%.

Iron ore reserves per mine in the Northern System(1)(2)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Serra Norte								
N4W	1,072.0	66.5	273.8	66.1	1,345.8	66.5	1,374.7	66.5

N4E	220.2	66.5	81.5	66.0	301.7	66.4	325.2	66.4
N5	194.9	66.9	693.1	67.3	887.9	67.2	937.1	67.2
Serra Sul								
S11	3,045.8	66.8	1,193.7	66.7	4,239.6	66.7	4,239.6	66.7
Serra Leste								
SL1	141.9	65.7	163.7	65.2	305.6	65.4	307.4	65.4
Total Northern System	4,674.8	66.7	2,405.9	66.6	7,080.7	66.7	7,184.0	66.7

(1) Tonnage is stated in millions of metric tons of wet run-of-mine, based on the following moisture contents: Serra Norte 8.3%; Serra Sul 4.6%; Serra Leste 4.3%. Grade is % of Fe. Approximate drill hole spacing used to classify the reserves were: 150m × 100m to proven reserves and 300m × 200m to probable reserves, except SL1 which is 100m × 100m to proven reserves and 200m × 200m to probable reserves.

(2) Average product recovery (tonnage basis) is 100%.

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Iron ore reserves per Samarco(1)(2)(3)(4)

	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Samarco								
Alegria								
Norte/Centro	818.70	42.1	925.3	40.4	1,744.0	41.2	1,762.3	41.3
Alegria Sul	511.8	38.0	573.6	36.2	1,085.4	37.0	1,103.6	37.1
Germano	53.7	40.0	26.5	39.2	80.2	39.8	80.2	39.8
Total Samarco	1,384.2	40.5	1,525.5	38.8	2,909.7	39.6	2,946.1	39.7

(1) Tonnage is stated in millions of metric tons of wet run-of-mine based on moisture content of 6.5%. Grade is % of Fe. Approximate drill hole spacing used to classify the reserves were: Alegria Norte/Centro, 150m × 100m to proven reserves and 300m × 200m to probable reserves; Alegria Sul, 100m × 100m to proven reserves and 200m × 200m to probable reserves.

(2) Vale's equity interest in Samarco mines is 50.0% and the reserve figures have not been adjusted to reflect our ownership interest.

(3) Samarco's probable reserves increased due to the conversion of proved to probable reserves in areas impacted by environmental uncertainties.

(4) Samarco recovery was 82% (metal basis).

Southeastern System iron ore mines

	Type	Operating since	Projected exhaustion date	Vale interest (%)
Itabira				
Conceição	Open pit	1957	2025	100.0
Minas do Meio	Open pit	1976	2022	100.0
Minas Centrais				
Água Limpa	Open pit	2000	2017	50.0
Brucutu	Open pit	1994	2023	100.0
Apolo	Open pit		2046	100.0
Mariana				
Alegria	Open pit	2000	2033	100.0
Fábrica Nova	Open pit	2005	2040	100.0
Fazendão	Open pit	1976	2048	100.0
Capanema	Open pit		2057	100.0
Conta História	Open pit		2052	100.0

Southern System iron ore mines

	Type	Operating since	Projected exhaustion date	Vale interest (%)
Minas Itabiritos				
Segredo	Open pit	2003	2047	100.0
João Pereira	Open pit	2003	2045	100.0
Sapecado	Open pit	1942	2046	100.0
Galinheiro	Open pit	1942	2046	100.0
Vargem Grande				
Tamanduá	Open pit	1993	2039	100.0
Capitão do Mato	Open pit	1997	2059	100.0
Abóboras	Open pit	2004	2050	100.0
Paraopeba				
Jangada	Open pit	2001	2027	100.0
Capão Xavier	Open pit	2004	2018	100.0

	Midwestern System iron ore mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Corumbá				
Urucum	Open pit	1994	2029	100.0
MCR	Open pit	1978	2060	100.0

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Northern System iron ore mines				
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Serra Norte				
N4W	Open pit	1994	2033	100.0
N4E	Open pit	1984	2028	100.0
N5	Open pit	1998	2035	100.0
Serra Sul				
S11	Open pit		2064	100.0
Serra Leste				
SL1	Open pit	2014	2065	100.0

Samarco iron ore mines				
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Samarco				
Alegria Norte/Centro	Open pit	2000	2053	50.0
Alegria Sul	Open pit	2000	2053	50.0
Germano	Open pit		2037	50.0

Manganese ore reserves

The following tables set forth manganese ore reserves and other information about our mines. Total manganese reserves increased 6% from 2013 to 2014, after mine production depletion, reflecting the revision of the Azul ore reserves.

Manganese ore reserves(1)(2)(3)								
	Proven Tonnage	2014 Grade	Probable Tonnage	2014 Grade	Total Tonnage	2014 Grade	Total Tonnage	2013 Grade
Azul(4)	44.6	29.6	2.4	25.8	47.0	29.4	37.9	40.1
Urucum	9.4	46.3	1.8	46.5	11.2	46.4	11.6	46.3
Morro da Mina	8.7	25.5	5.6	25.3	14.3	25.4	14.4	25.1
Total	62.6	31.5	9.8	29.3	72.4	31.2	63.9	37.9

(1) The average moisture of the manganese ore reserves is: Azul 16.2%, Urucum 4.2%, Morro da Mina 3.4%.

(2) The average recovery of the manganese ore reserves is: Azul 58%, Urucum 80%, Morro da Mina 58%.

(3) The Statement of Ore Reserves as of December 31, 2014 has been reported as wet metric tons and dry % Mn grade.

(4) Up to 2013 Azul's reserves were reported as product manganese grade. In 2014, reserves are reported as ROM manganese grade.

Manganese ore mines				
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Azul	Open pit	1985	2028	100.0
Urucum	Underground	1976	2026	100.0
Morro da Mina	Open pit	1902	2053	100.0

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Coal reserves

Our coal reserve estimates have been provided on an in-place material basis after adjustments for depletion, moisture content, anticipated mining losses and dilution, but excluding any adjustment for losses associated with beneficiation of raw coal mined to meet saleable product requirements.

		Coal ore reserves(1)							
		ROM(2)						Marketable Reserves(3)	
	Coal type	Proven 2014 (tonnage)	Probable 2014 (tonnage)	Total (tonnage)	2014 (calorific value)	Total (tonnage)	2013 (calorific value)	2014 (tonnage)	2013 (tonnage)
Integra Coal:									
Integra Open-cut	Metallurgical & thermal	0	0	0	n/a	19.4	29.7 (thermal)	0	10.1
Integra Underground Middle Liddell Seam	Metallurgical	0	0	0	n/a	6.9		0	4.7
Integra Underground Hebden Seam	Metallurgical	0	0	0	n/a	29.5		0	20.6
Total Integra Coal		0	0	0	n/a	55.8		0	35.4
Carborough Downs Underground(4)	Metallurgical & PCI	21.2	2.5	23.7	31.2 (PCI)	26.8	31.2 (PCI)	15.7	17.4
Isaac Plains North Open Cut	Metallurgical, PCI & thermal	0	0	0	n/a	10.8	30.1 (PCI)	0	8.2
Moatize	Metallurgical & thermal l	276.3	1,148.2	1,424.5	28.3 (thermal)	1,437.0	28.3 (thermal)	510.5	515.0
Total		297.5	1,150.7	1,448.2		1,530.4		526.2	576.0

(1) The reserves stated above by deposit are on a 100% shareholding basis. Vale's ownership interest in accordance with the table below should be used to calculate the portion of reserves directly attributable to Vale.

(2) Tonnage is stated in millions of metric tons. Reserves are reported on a variable basis in regard to moisture: Integra Open Cut on ROM estimated basis, Integra Underground on ROM estimated basis, Carborough Downs on air dry basis, and Isaac Plains North on ROM estimated basis + 2%.Moatize is reported on in situ 6.5% moisture basis. Calorific value of product coal derived from beneficiation of ROM coal is typically stated in MJ/kg. Calorific value is used in marketing thermal (th) and PCI coals.

(3) Tonnage is stated in millions of metric tons.

(4) In calculating reserves, gas drainage is assumed to have been completed in accordance with the mine plan. Reduced reserves are primarily a function of mining depletion during the year.

Reserves at Integra Open Cut, the Middle Liddell Seam for Integra Underground and Isaac Plains decreased to zero in 2014 partially due to depletion but mainly on account primarily of the coal price forecast. Reserves for the Hebden Seam for Integra Underground were depleted to zero on account of the coal price forecast. Reserves at Carborough Downs and Moatize were reduced due to production depletion.

	Coal mines		
Type	Operating since	Projected exhaustion date	Vale interest (%)

Integra Coal:				
Open-cut(1)	Open pit	1991	n/a	64.8
Middle Liddell Seam(1)	Underground	1999	n/a	64.8
Hebden Seam(1)	Underground		n/a	64.8
Carborough Downs(2)	Underground	2006	2021	90.0
Isaac Plains	Open pit	2006	n/a	50.0
Moatize	Open pit	2011	2042	95.0

(1) Vale's stakes in Integra Open-cut, Middle Liddell Seam and Hebden Seam increased to 64.8% as of December 19, 2014.

(2) Vale's stake in Carborough Downs increased to 90.0% in December 2014.

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Nickel ore reserves

Our nickel mineral reserve estimates are of in-place material after adjustments for depletion and mining losses (or screening and drying in the cases of PTVI and VNC) and recoveries, with no adjustments made for metal losses due to processing.

	Nickel ore reserves(1)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Canada								
Sudbury	47.2	1.25	37.9	1.27	85.2	1.26	101.4	1.25
Thompson	6.2	1.97	15.5	1.67	21.8	1.76	23.9	1.75
Voisey's Bay	11.9	2.76	2.8	0.70	14.7	2.37	17.2	2.38
Indonesia								
PTVI	108.0	1.80	17.4	1.75	125.4	1.79	127.5	1.79
New Caledonia								
VNC	55.3	1.34	67.0	1.49	122.3	1.42	124.2	1.42
Brazil								
Onça Puma	58.7	1.68	40.0	1.39	98.7	1.56	95.3	1.61
Total	287.4	1.64	180.6	1.45	468.0	1.57	489.5	1.57

(1) Tonnage is stated in millions of dry metric tons. Grade is % of nickel.

In Canada, our Sudbury operations mineral reserves decreased due to mining depletions, and the reclassification of mineral reserves to mineral resource at Stobie and at Copper Cliff Mine. Mineral reserves at Thompson and Voisey's Bay operations decreased mainly due to mining depletion. Mineral reserves changes at PTVI were due to mining depletion, block model update, reclassification of mineral resources into mineral reserves at Soroako East and, West Blocks and Petea E and F Blocks, and reclassification of mineral reserves to mineral resources in at Lantoa North, Lantoa South and Petea. Mineral reserves at VNC decreased due to mining depletion of the Goro Plateau. Mineral reserves at Onça Puma increased due to the inclusion of unplanned dilution offset by mining depletion.

	Nickel ore mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Canada				
Sudbury	Underground	1885	2039	100.0
Thompson	Underground	1961	2033	100.0
Voisey's Bay	Open pit	2005	2022	100.0
Indonesia				
PTVI	Open pit	1977	2035	59.2
New Caledonia				
VNC	Open pit	2011	2044	80.5
Brazil				
Onça Puma	Open pit	2011	2056	100.0

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Copper ore reserves

Our copper mineral reserve estimates are of in-place material after adjustments for depletion and mining losses and recoveries, with no adjustments made for metal losses due to processing.

	Copper ore reserves(1)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Canada								
Sudbury	47.2	1.75	37.9	1.44	85.2	1.61	101.4	1.51
Voisey's Bay	11.9	1.54	2.8	0.39	14.7	1.32	17.2	1.34
Brazil								
Sossego	111.5	0.70	15.2	0.71	126.6	0.70	137.5	0.77
Salobo	663.3	0.71	515.8	0.61	1,179.1	0.67	1,136.4	0.71
Zambia								
Lubambe(2)	2.6	2.22	40.5	2.24	43.1	2.24	n/a	n/a
Total	836.5	0.78	612.2	0.77	1,448.7	0.78	1,392.5	0.78

(1) Tonnage is stated in millions of dry metric tons. Grade is % of copper.

(2) Prior to 2014, the Lubambe operation mineral reserves were not reported.

In Canada, our Sudbury operations mineral reserves decreased due to mining depletion, and the reclassification of mineral reserves to mineral resource at Stobie and at Copper Cliff Mine. Mineral reserves at the Voisey's Bay operations decreased due to mining depletion. In Brazil, the Sossego operations mineral reserves decreased due to mining depletion and a cutoff grade re-evaluation. The mineral reserve estimates at the Salobo operation increased due to the inclusion of unplanned dilution offset by cutoff grade changes and mining depletion.

	Copper ore mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Canada				
Sudbury	Underground	1885	2039	100.0
Voisey's Bay	Open pit	2005	2022	100.0
Brazil				
Sossego	Open pit	2004	2024	100.0
Salobo	Open pit	2012	2065	100.0
Zambia				
Lubambe	Underground	2013	2038	40.0

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PGMs and other precious metals reserves

We expect to recover significant quantities of precious metals as by-products of our Sudbury, Sossego and Salobo operations. Our mineral reserve estimates are of in-place material after adjustments for mining depletion and mining losses and recoveries, with no adjustments made for metal losses due to processing.

	Precious metals reserves(1)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Canada								
Sudbury								
Platinum	47.2	0.9	37.9	1.1	85.2	1.0	101.4	0.9
Palladium	47.2	1.0	37.9	1.3	85.2	1.2	101.4	1.1
Gold	47.2	0.4	37.9	0.4	85.2	0.4	101.4	0.4
Brazil								
Sossego								
Gold	111.5	0.2	15.2	0.2	126.6	0.2	137.5	0.2
Salobo								
Gold	663.3	0.4	515.8	0.3	1,179.1	0.4	1,136.4	0.4
Total Pt + Pd(2)	47.2	1.9	37.9	2.4	85.2	2.2	101.4	2.0
Total Gold	822.0	0.4	568.9	0.3	1,390.9	0.4	1,375.3	0.4

(1) Tonnage is stated in millions of dry metric tons. Grade is grams per dry metric ton.

(2) Pt+Pd is the sum of Platinum and Palladium grades

In Sudbury our mineral reserve estimates for platinum, palladium and gold decreased for the same reasons discussed above in connection with the nickel mineral reserves. In Brazil, mineral reserve estimates for gold changed for the same reasons discussed above in connection with the copper mineral reserves.

	Precious metals mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Canada				
Sudbury	Underground	1885	2039	100.0
Brazil				
Sossego	Open pit	2004	2024	100.0
Salobo	Open pit	2012	2065	100.0

Cobalt ore reserves

We expect to recover significant quantities of cobalt as a by-product of our Canadian operations and from the VNC project. Our cobalt reserve estimates are of in-place material after adjustments for depletion and mining losses (or screening in the case of VNC) and recoveries, with no adjustments for metal losses due to processing.

	Cobalt ore reserves(1)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Canada								

Sudbury	47.2	0.04	37.9	0.04	85.2	0.04	101.4	0.04
Voisey's Bay	11.9	0.13	2.8	0.03	14.7	0.11	17.2	0.11
New Caledonia								
VNC	55.3	0.12	67.0	0.11	122.3	0.11	124.2	0.11
Total	114.4	0.09	107.7	0.08	222.2	0.08	242.8	0.08

(1) Tonnage is stated in millions of metric tons. Grade is % of cobalt.

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Our cobalt reserve estimates decreased in 2014 for the same reasons discussed above in connection with the nickel mineral reserves.

	Cobalt ore mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Canada				
Sudbury	Underground	1885	2039	100.0
Voisey's Bay	Open pit	2005	2022	100.0
New Caledonia				
VNC	Open pit	2011	2043	80.5

Phosphate reserves

The total phosphate reserves have increased due to new reserves estimation for Catalão mine and also for Patrocínio project. We had a growth of 49.2% of proven reserves, mostly at Patrocínio project, but also Tapira mine had probable reserves converted into proven reserves as result of new drilling and studies. Our phosphate reserves estimates are of in-place material after adjustments for depletion and mining dilution.

	Phosphate reserves(1)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Bayóvar(2)	159.7	16.3	249.6	14.9	409.3	15.4	415.9	15.5
Catalão	67.5	10.5	30.3	10.6	97.9	10.5	52.8	10.4
Tapira	301.0	7.8	378.1	7.4	679.2	7.6	680.9	6.8
Araxá	124.3	11.7	6.3	9.5	130.6	11.6	132.1	11.7
Cajati	63.9	5.6	45.7	4.7	109.6	5.2	114.4	5.2
Patrocinio project(3)	183.8	13.7	302.3	11.1	486.1	12.1	205.7	11.4
Total	900.2	11.1	1012.3	10.3	1912.5	10.7	1601.8	10.1

(1) Tonnage is stated in millions of dry metric tons. Grade is % of P_2O_5.

(2) Vale holds 51% of the voting capital and 40% of the total capital of MVM Resources International, B.V., the entity that controls Bayóvar. The reserves figures have not been adjusted to reflect our ownership interest.

(3) Patrocínio project refers to Salitre project and is still subject to approval of our Board of Directors.

	Phosphate rock ore mine			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Bayóvar	Open pit	2010	2045	40.0
Catalão	Open pit	1982	2033	100.0
Tapira	Open pit	1979	2054	100.0
Arax	Open pit	1977	2027	100.0
Cajati	Open pit	1970	2035	100.0
Patrocinio project	Open pit		2045(1)	100.0

(1) Projected exhaustion date limited to economic feasibility study. The life of mine is higher than 2045.

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Potash ore reserves

The reserve estimates are of in-place material after adjustments for depletion, mining losses and recoveries, with no adjustments made for metal losses due to processing. Carnalita project, located at Sergipe state, Brazil, is still subject to approval of our Board of Directors.

	Potash ore reserves(1)(2)							
	Proven	2014	Probable	2014	Total	2014	Total	2013
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
Taquari-Vassouras(3)	5.9	25.6	4.6	22.4	10.6	24.2	12.9	24.1
Carnalita Project(4)	247.1	12.2	54.5	12.2	301.6	12.2	301.5	12.1
Total	253.0	12.5	59.1	13.0	312.2	12.6	314.4	12.6

(1) Tonnage is stated in millions of dry metric tons. Grade is % of KCl.

(2) Tonnage is before processing recovery.

(3) Silvinite potash reserves.

(4) Carnalite potash reserves.

	Potash ore mines			
	Type	Operating since	Projected exhaustion date	Vale interest (%)
Taquari-Vassouras(1)	Underground	1986	2018	100.0
Carnalita Project	Solution mining		2042	100.0

(1) We have a 30-year lease with Petrobras, which was signed in 2012.

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CAPITAL EXPENDITURES

We have an extensive program of investments in the organic growth of our businesses. The figures discussed in this section are for project execution and sustaining existing operations.

The 2015 investment budget approved by our Board of Directors is US$6.358 billion for project execution, reflecting a 31.2% decrease compared to the 2014 investment budget, and US$3.809 billion for sustaining existing operations, reflecting a 15.6% decrease compared to 2014. This is the fourth consecutive year in which we reduce our capital expenditures, maintaining capital discipline and focusing only on world class projects.

Most of the capital expenditures budget for project execution will be invested in Brazil (87.3%) and in Mozambique (9.3%). The remaining part has been allocated to investments in Canada, New Caledonia and Indonesia, among others.

	2013 expenditures (US$ million)	2014 expenditures (US$ million)	2015 budget (US$ million)	2015 budget (% of total)
Project execution	9,648	7,920	6,358	62.5%
Investments to sustain existing operations	4,585	4,059	3,809	37.5%
Total	US$14,233	US$11,979	US$10,167	100.0%

We are developing a focused organic growth portfolio with fewer projects, but higher expected rates of return. Our main initiatives, which are described below, account for 71% of the US$6.358 billion budgeted for project execution in 2015.

- Expansion of our integrated iron ore operations in Carajás (US$3.696 billion) through the S11D and CLN S11D projects.
- Completion of the Itabirites projects for the replacement of capacity, increase in production and quality improvement in the iron ore production from the Southern and Southeastern Systems (US$659 million), including the Conceição Itabiritos II, Vargem Grande Itabiritos and Cauê Itabiritos projects.

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The following table sets forth total expenditures in 2014 for our main investment projects and expenditures budgeted for those projects in 2015, together with estimated total expenditures for each project and the estimated start-up date of each project as of December 31, 2014.

			Executed CAPEX		Expected CAPEX	
Business area	**Main projects(1)**	**Actual or Estimated Start-up**	**2014(2)**	**Total Executed(3)**	**2015(2)**	**Total Expected(4)**
			(US$ million)			
Iron ore	Carajás Serra Sul S11D(5)	2H16	973	3,492	1,321	6,878
	CLN S11D(6)	1H14 to 2H18	1,559	2,653	2,375	9,484
	Serra Leste(7)	1H14	32	440		478
	Vargem Grande Itabiritos(7)	2H14	433	1,683	129	1,910
	Conceição Itabiritos II	1H15	228	863	179	1,189
	Cauê Itabiritos	2H15	346	686	350	1,504
	Teluk Rubiah(7)	2H14	236	1,217	5	1,371
Pellet plants	Tubarão VIII(7)	1H14	141	1,187	30	1,321
Coal mining and logistics	Moatize II	2H15	570	1,384	629	2,068
	Nacala Corridor(7)	2H14 to 1H15	1,584	2,892	648	4,444
Copper mining	Salobo II(7)	1H14	350	1,371	72	1,707
Nickel mining and refining	Long Harbour(8)	2H14	65	4,250		4,331
Steelmaking	CSP(9)	2H15	182	1,055	185	2,570

(1) Projects approved by the board of directors.

(2) All figures presented on a cash basis.

(3) Total executed CAPEX through December 31, 2014, including capital expenditures in prior periods.

(4) Estimated total capital expenditure cost for each project, including capital expenditures in prior periods. Total expected CAPEX includes expenses, in line with the budget approved by our Board of Directors, while these expenses are not included in the expected CAPEX for the year or in the total executed CAPEX figures.

(5) Original expected CAPEX for S11D was US$8.089 billion.

(6) Original expected CAPEX for CLN S11D was US$11.582 billion.

(7) Projects delivered in 2014.

(8) We completed construction in 2013 and started up in the second half of 2014.

(9) Expected CAPEX and funding is relative to Vale's stake in the project.

The paragraphs below describe the status of each project as of December 31, 2014 and have not been updated to reflect any developments after that date.

Ferrous minerals and logistics projects

Iron ore mining and logistics projects:

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Carajás Serra Sul S11D. Development of a mine and processing plant, located in the southern range of Carajás, in the Brazilian state of Pará. The project has a nominal capacity of 90 Mtpy. The project is 56% complete, with total realized expenditures of US$3,492 million. We have received all electrocenters of the truckless system, and we initiated electromechanical assembly services of the mine and the long-distance conveyor belts. The start-up is expected for the second half of 2016.

- *CLN S11D.* Increase in the logistics capacity of the Northern System to support the S11D project, including the duplication of approximately 570 km of railway (70 km of which we have already built), construction of a rail spur with 101 km, acquisition of wagons and locomotives and onshore and offshore expansions at Ponta da Madeira maritime terminal. This project is expected to increase EFC's nominal logistics capacity to approximately 230 Mtpy. We have obtained the environmental installation license and the authorization from ANTT required for civil construction. Civil foundation construction on the port expansion are ongoing, with 43% completion of pile driving in the offshore north berth. Regarding the onshore expansion, nine of the 48 duplication segments of the railroad were delivered in 2014. The project is 32% complete, with total realized expenditures of US$2,653 million. The start-up is expected from the first half of 2014 to second half of 2018.

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- *Conceição Itabiritos II.* Adaptation of the plant, located in the Southeastern System, to process low-grade itabirites. The project has a nominal capacity of 19 Mtpy, without net additional capacity. We have concluded commissioning and powering the secondary and tertiary crushing substations of the hematite and initiated testing on dry grinding the hematite. The project is 94% complete, with total realized expenditures of US$863 million. The start-up is expected for the first half of 2015.

- *Cauê Itabiritos.* Adaptation of the plant, located in the Southeastern System, to process low-grade itabirites. We finalized civil engineering work of the main operational areas, and the assembly of equipment's is in progress. We have also finalized commissioning the grinding substation. The project has a nominal capacity of 24 Mtpy. The project is 78% complete, with total realized expenditures of US$686 million. The start-up is expected for the second half of 2015.

Coal mining and logistics projects:

Moatize II. New pit and duplication of the Moatize coal handling processing plant (CHPP), as well as all related infrastructure, located in Tete, Mozambique. The project will increase Moatize's total nominal capacity to 22 Mtpy. We have received the first train from the Nacala corridor in the rail loop. The civil works scope and primary crusher installation are complete. The electromechanical assembly of the CHPP (coal handling and preparation plant) is in progress. The project is 79% complete, with total realized expenditures of US$1,384 million. The start-up is expected for the second half of 2015.

- *Nacala Corridor.* Railway and port infrastructure connecting Moatize site to the Nacala-à-Velha maritime terminal, located in Nacala, Mozambique. The total realized expenditure is US$2,892 million. In the second half of 2014, we completed the greenfield and the brownfield sections of the railway and successfully transported the first coal shipment from Moatize to the Nacala à Velha port. We expect the upgrade of a 500-kilometer portion of the brownfield section of the railway, which is already operational, to be completed in the third quarter of 2015. The nominal capacity after completion is initially 18 Mtpy. The start-up of the port infrastructure is expected for the first half of 2015.

Steel projects

- *Companhia Siderúrgica do Pecém* ("*CSP*"). Construction of a steel integrated slab plant in the Brazilian state of Ceará in partnership with Dongkuk Steel Mill Co. ("Dongkuk") and Posco, two major steel producers in South Korea. We own 50% of the joint venture, while Dongkuk owns 30% and Posco owns 20%. The project will have a nominal capacity of 3.0 Mtpy. We have already obtained preliminary and installation environmental licenses, and assembly of the steel structure and rails are in progress. We have realized US$1,055 million of expenditures, and the start-up is expected for the second half of 2015.

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REGULATORY MATTERS

We are subject to a wide range of governmental regulation in all the jurisdictions in which we operate worldwide. The following discussion summarizes the kinds of regulation that have the most significant impact on our operations.

Mining rights and regulation of mining activities

Mining and mineral processing are subject to extensive regulation. In order to conduct these activities, we are generally required to obtain and maintain some form of governmental or private permits, which may include concessions, licenses, claims, tenements, leases or permits (all of which we refer to below as "concessions"). The legal and regulatory regime applicable to the mining industry and governing concessions differs among jurisdictions, often in important ways. In most jurisdictions, including Brazil, mineral resources belong to the State and may only be exploited pursuant to a governmental concession. In other jurisdictions, such as Ontario in Canada, a substantial part of our mining operations is conducted pursuant to mining rights we own (private permits). Government agencies are typically in charge of granting mining concessions and monitoring compliance with mining law and regulations.

The table below summarizes our principal concessions and other similar rights. In addition to the concessions described below, we have exploration licenses and exploration applications covering 5.1 million hectares in Brazil and 7.6 million hectares in other locations.

Location	Mining title	Approximate area covered (in hectares)	Expiration date
Brazil	Mining concessions (including under applications)	662,932	Indefinite
Canada	Mining concessions (terminology varies among provinces)	278,208	2015(5)-2035
Indonesia(1)	Contract of work	118,435	2025
Australia	Mining leases	19,209	2015-2041
New Caledonia	Mining concessions	20,157	2015-2051
Peru(2)	Mining concessions	199,398	Indefinite
Argentina(3)	Mining concessions	40,108	Indefinite
Mozambique(4)	Mining concessions	23,780	2032

(1) Entitled to two 10-year extensions, subject to approval of the Indonesian government.

(2) Non-producing concessions have expiration dates between 2023 and 2028.

(3) We returned part of our mining rights in Argentina, due to market conditions. We have been and will keep honoring our commitments related to the Rio Colorado potash concession and reviewing alternatives to enhance the prospects for the project.

(4) Entitled to 25-year extensions, subject to approval by the Government of Mozambique.

(5) In Sudbury, expiry is subject to current renewal applications that take years to approve but are in process. In Newfoundland & Labrador, mineral licenses were reorganized and some were surrendered in 2014.

There are several proposed or recently adopted changes in mining legislation and regulations in the jurisdiction where we have operations that could materially affect us. These include the following:

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Brazil. In June 2013, the Brazilian government sent to Congress a bill with proposed changes to the Brazilian mining law. This bill provides for the preservation of the main provisions applicable to the existing mining rights as of the date of its enactment, a new royalties regime, a new regime for mining concessions and the creation of a mining agency. The bill is under discussion in Congress.

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- *Indonesia.* As required by the 2009 mining law, PTVI renegotiated the terms of its contract of work with the government, which resulted in the execution of an amendment in October 2014. The renegotiation primarily focused on six government-identified strategic items: (1) size of the area under of contract of work; (2) continuity of business operations; (3) state revenues; (4) domestic processing and refining; (5) divestment; and (6) priority use of domestic manpower, goods and services. The executed amendment secures PTVI's future and our business strategy; it provides investment certainty in respect of our rights and obligations. Under the terms of the amendment, PTVI's contract of work is set to expire in 2025 and PTVI may apply to extend its operations by way of business license for a period of two consecutive ten-year extensions upon approval of the Indonesian government. Under the amendment, we secured a detailed land package, reduced our contract of work area from 190,510 hectares to 118,435 hectares, increased Vale's divestment obligation in PTVI to 15% in the next five years and agreed to pay a royalty rate tied to the nickel market price, ranging from 2% to 3%. Further, the amendment outlines investment commitments consistent with PTVI's growth strategy and which reflects PTVI's commitment to prioritize domestic manpower, goods and services.

- *New Caledonia.* A mining law passed in 2009 requires mining projects to obtain authorization from governmental authorities, rather than a declaration, as required under the former statute. We submitted an updated application for this authorization in March 2014 and our authorization is expected by April 2015. A recently proposed bill of law, if approved, may delay the approval of our authorization to April 2016. Our existing mining declaration will remain valid and effective until our application is approved. Although we believe it is unlikely that our application will be rejected, the authorities may impose new conditions in connection with the authorization. Also, in 2014, the local authorities of New Caledonia created a protected wetland area, which covers 27% of the surface area of the total VNC tenements and could affect potential mining activities. Part of this protected wetland area is adjacent to the location of VNC's next tailings storage facility, and may impact the design of the facility, which, in turn may result in additional capital costs.

- *Guinea.* We owned a 51% interest in VBG Vale BSGR Limited, which held iron ore concession rights in Simandou South (Zogota) and iron ore exploration permits in Simandou North (Blocks 1 & 2) in Guinea. In connection with the Guinean mining code adopted in 2011 and amended in 2013, the Government of Guinea launched in 2012 a contract review process to harmonize existing mining contracts with the new mining code. After the technical committee set up by the Government of Guinea began the review of the VBG mining rights, VBG suspended work on the ground.

  In April 2014, the Government of Guinea revoked the mining rights held by VBG following the recommendation of the technical committee, which concluded from its investigation that VBG's mining rights had been acquired through corrupt practices committed by BSGR, Vale's joint venture partner in VBG, prior to Vale's investment in the project. Vale acquired its interest in VBG after the completion of extensive due diligence conducted by outside advisors and on the basis of representations that VBG had obtained its mining rights lawfully and without any improper promises or payments. The Government of Guinea's decision does not indicate any involvement by Vale in the alleged corrupt practices and does not prohibit Vale from participating in any reallocation of the mining titles in the future. We are pursuing remedies against BSGR.

  In March 2015, we transferred our equity interest in VGB to BSGR. This transfer does not represent any form of settlement with BSGR, and we have retained rights to pursue BSGR with respect to the loss of our investment in VBG.

- *Mozambique.* The Congress approved a new mining law in August 2014. Although the new mining law revoked the previous mining law, it preserved the mining rights granted under the previous regime. So, we do not expect that our operations will be adversely affected by this change. The holders of mining rights granted under the previous regime have the option to convert their titles into mining rights subject to the new mining law regime. The regulation of the new mining law is still pending.

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Royalties and other taxes on mining activities

We are required in many jurisdictions to pay royalties or taxes on our revenues or profits from mineral extractions and sales. These payments are an important element of the economic performance of a mining operation. The following royalties and taxes apply in some of the jurisdictions in which we have our largest operations:

- *Brazil.* We pay a royalty known as the CFEM (*Compensação Financeira pela Exploração de Recursos Minerais*) on the revenues from the sale of minerals we extract, net of taxes, insurance costs and costs of transportation. The current rates on our products are: 2% for iron ore, copper, nickel, fertilizers and other materials; 3% for bauxite, potash and manganese ore; and 1% for gold.

- *Brazilian states.* Several Brazilian states impose a tax on mineral production (*Taxa de Fiscalização de Recursos Minerais* TFRM), which is assessed at rates ranging from R$0.50 to R$2.5697 per metric ton of minerals produced in or transferred from the state.

- *Canada.* The Canadian provinces in which we operate charge us a tax on profits from mining operations. Profit from mining operations is generally determined by reference to gross revenue from the sale of mine output and deducting certain costs, such as mining and processing costs and investment in processing assets. The statutory mining tax rates are 10% in Ontario; with graduated rates up to 17% in Manitoba; and a combined mining and royalty tax rate of 16% in Newfoundland and Labrador. The mining tax paid is deductible for corporate income tax purposes.

- *Indonesia.* Our subsidiary PTVI pays a royalty fee on, among other items, nickel produced in its concession area. The royalty payment has been based on sales volume (for contained nickel matte, US$78 per metric ton, and for contained cobalt, US$140 per metric ton for total production below 500 tons, or US$156 per metric ton for total production above 500 tons). In 2014, the royalty payment was equal to 1.13% of revenues from the sale of nickel in matte products, while the average yearly royalty payment for the period from 2011 to 2014 was equal to 0.80% of revenues from the sale of nickel in matte products, including the additional royalty payment in 2014 for production beyond 160 million pounds in 2013, as agreed in the previous regime. As a result of the amendment of its Contract of Work in October 2014, PTVI started to pay mining royalties of 2% of its nickel matte revenue when LME nickel prices are below US$21,000 per metric ton and 3% of its nickel matte revenue when LME nickel prices are above or equal to US$21,000 per metric ton.

- *Australia.* Royalties are payable on revenues from the sale of minerals. In the state of Queensland, the applicable royalty for coal is 7% of the value (net of freight, late dispatch and other certain costs) up to A$100 per ton; 12.5% of the value between A$100 and A$150 per ton; and 15% thereafter. In the state of New South Wales, for coal, the applicable royalty is a percentage of the value of production total revenue (which is net of certain costs and levies) less allowable deductions of 6.2% for deep underground mines, 7.2% for underground mines and 8.2% for open cut mines. There is also a supplementary royalty payable of 1.95% (for coal recovered between December 1, 2012 and June 30, 2013) and 1% (for coal recovered on or after July 1, 2013) of the value of coal recovered, payable only by holders of mining leases who are liable to pay minerals resource rent tax.

- *Mozambique.* The Congress approved, in September 2014, a new tax regime for the mining and oil sectors that could affect mining projects in Mozambique. The new law granted the stabilization and security of the tax regimes prescribed on the mining contracts signed prior to the new tax law. We are still assessing the effect of this change in our operations in Mozambique.

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- *Zambia.* Zambia's government recently enacted substantial changes to the fiscal regime for the mining industry. These changes became effective on January 1, 2015. The government has replaced corporate income taxes applicable to mining operations with an 8% mineral royalty on the revenue from underground mining operations and a 20% mineral royalty on the revenue from open-pit operations. Operations generating income from tolling and the processing of purchased mineral ores, concentrates and any other semi-processed minerals will be subject to 30% corporate income tax. Previously, royalty rates for both underground and open-pit operations were 6%. The impact of these changes on mine operators will depend on the copper price and their operating costs. An increased mineral royalty will place a greater burden on high-cost operators, especially when copper prices are low, as compared to the previous profit-based corporate income tax. As our joint venture's operations are underground, it will be subject to an 8% mineral royalty.

Environmental regulations

We are also subject to environmental regulations that apply to the specific types of mining and processing activities we conduct. We require approvals, licenses, permits or authorizations from governmental authorities to operate, and in most jurisdictions the development of new facilities requires us to submit environmental impact statements for approval and often to make investments to mitigate environmental impacts. We must also operate our facilities in compliance with the terms of the approvals, licenses, permits or authorizations.

We are taking several steps to improve the efficiency of the licensing process, including stronger integration of our environmental and project development teams, the implementation of a Best Practices Guide for Environmental Licensing and the Environment, the deployment of highly-skilled specialist teams, closer interaction with environmental regulators and the creation of an executive committee to expedite internal decisions regarding licensing.

Environmental regulations affecting our operations relate, among other matters, to emissions into the air, soil and water; recycling and waste management; protection and preservation of forests, coastlines, caves, watersheds and other features of the ecosystem; water use; financial provisions and closure plans needed since the mining license; climate change and decommissioning and reclamation. Environmental legislation is becoming stricter worldwide, which could lead to greater costs for environmental compliance. In particular, we expect heightened attention from various governments to reducing greenhouse gas emissions as a result of concern over climate change. There are several examples of environmental regulation and compliance initiatives that could affect our operations.

- *Canada and Indonesia.* In Canada, more stringent water effluent regulations are being proposed, which may affect our operations. In Canada and Indonesia, we are making significant capital investments to ensure compliance with air emission regulations that address, among other things, sulfur dioxide, particulates and metals.

- *China.* An amendment to the environment protection law was approved in April 2014, imposing stricter pollution prevention and control obligations on companies and providing for more severe penalties.

- *New Caledonia.* A new law enacted by the South Province of New Caledonia in February 2014 imposes stricter limits on emissions of nitrogen oxide and sulfur oxide and particulates from large combustion power stations, which will affect the power station that supplies electricity to VNC. To meet these standards, this 100 MW power station will need to be upgraded, which is expected to result in the increase in the price of power paid by VNC.

- *United Kingdom.* A recent effluent regulatory change has been introduced, which resulted in a material increase in the closure cost of the Clydach facility associated with landfill tax.

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- *Brazil.* There is legislation for the protection of caves, including a broad decree published in October 1990 and revised in 2008. As a consequence of that revision, the Ministry of Environment published an ordinance in 2009 that established a methodology to classify the relevance of caves. These regulations require us to conduct extensive technical studies and to engage in complex discussions with Brazilian environmental regulators. These discussions are ongoing, and as a result, we cannot yet assess the final impact of these regulations on our operations. However, it is possible that in certain of our iron ore mining operations or projects, we may be required to limit or modify our mining plans or to incur additional costs to preserve caves or to compensate for the impact on them, with potential consequences for production volumes, costs or reserves in our iron ore business.

Regulation of other activities

In addition to mining and environmental regulation, we are subject to comprehensive regulatory regimes for some of our other activities, including rail transport, port operations and electricity generation. We are also subject to more general legislation on workers' health and safety, safety and support of communities near mines, and other matters. The following descriptions relate to some of the other regulatory regimes applicable to our operations:

- *Brazilian railway regulation.* Our Brazilian railroad business operates pursuant to concession contracts granted by the federal government, and our railroad concessions are subject to regulation and supervision by the Brazilian Ministry of Transportation and the transportation regulatory agency (ANTT). Our railroad concession contracts have duration of 30 years and may be renewed at the federal government's discretion. The FCA and MRS concessions expire in 2026, and the concessions for EFC and EFVM expire in 2027. VLI also owns a subconcession for commercial operation of a 720-kilometer segment of the FNS railroad in Brazil, which expires in 2037. Rail transportation prices can be negotiated directly with the users of such services, subject to tariff ceilings approved by ANTT for each of the concessionaires and each of the different products transported. ANTT regulations also require concessionaires to give trackage rights to other concessionaires, and authorized railway independent operators, to make investments in the railway network, and to meet certain productivity requirements, among other obligations.

- *Brazilian port regulation.* Port operations in Brazil are subject to regulation and supervision by ANTAQ, the federal agency in charge of maritime transportation, and the Secretary of Ports of the Federal Government (SEP). In June 2013, a new law provided a new set of rules for projects and existing terminals. The statute removed restrictions on servicing third party cargo and provides for ANTAQ's involvement in determining third party access to private terminals. In 2014, we entered into new contracts with SEP related to its private terminals, adapting the provisions to the new regime.

- *Regulation of chemicals.* Some of our products are subject to regulations applicable to the marketing, distribution and use of chemical substances present in their composition. For example, the European Commission has adopted a European Chemicals Policy, known as REACH ("Registration, Evaluation and Authorization of Chemicals"). Under REACH, European manufacturers and importers are required to register substances prior to their entry into the European market and in some cases may be subject to an authorization process. A company that fails to comply with the REACH regulations could face fines and penalties.

- *Regulation of the seaborne transport of iron ore and iron ore fines.* We are subject to rules issued by the International Maritime Organization ("IMO") governing safe shipping of products, including iron ore. The IMO is discussing the harmful impact of certain substances on to marine environment, which may result in changes to the waste management procedures currently employed in the seaborne transportation.

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II. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

OVERVIEW

We had a strong operational performance in 2014, with record annual production of iron ore, copper and gold, and the highest production of nickel since 2008. We also had a sound financial performance, despite the decline of commodity prices in the international market, reflecting our cost-cutting efforts and discipline in capital expenditures.

In 2014, we reduced our expenses by more than US$1.2 billion, building on the significant reduction in costs and expenses we had achieved in 2013. Our selling and administrative expenses decreased approximately 15%, and our pre-operating and stoppage expenses decreased approximately 40%. We reduced our capital expenditures for the fourth consecutive year, from US$14.2 billion in 2013 to US$12.0 billion in 2014.

We had many important accomplishments in 2014, such as obtaining the environmental license to open the N4WS mine pit in Carajás; completing eight projects, most on time and on budget; and concluding the renegotiation of PTVI's Contract of Work in Indonesia. We also negotiated investment agreements with Mitsui and are negotiating a non-recourse project financing in connection with our coal operations in Mozambique and the Nacala Corridor, with an expected impact of up to US$3.7 billion, including both sharing capital expenditure costs and cash inflow once the transactions are completed.

Our health and safety indicators continued to improve in 2014, with our total recordable injury frequency rate (TRIFR) decreasing from 2.6 to 2.3 per million hours worked. We remain focused on achieving a record of zero harm in our operations.

Finally, in spite of declining commodity prices and still high capital expenditures, we paid US$4.2 billion in dividends in 2014, without increasing our net debt.

Sales volumes

Our financial performance depends, among other factors, on the volume of production at our facilities. We publish a production report in a quarterly basis, which is available on our website and furnished to the SEC on Form 6-K. Increases in the capacity of our facilities resulting from our capital expenditure program have an important effect on our performance. Our results are also affected by acquisitions and dispositions of businesses or assets, and they may be affected in the future by new acquisitions or dispositions. For more information on dispositions since the beginning of 2014, see *Information on the company Business overview Significant changes in our business*.

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The following table sets forth, for our principal products, the total volumes we sold in each of the periods indicated.

	Year ended December 31,		
	2012	2013	2014
	(thousand metric tons)		
Iron ore fines	244,911	251,029	255,877
Iron ore pellets	45,382	40,991	43,682
Manganese	1,745	2,115	1,879
Ferroalloys	267	183	150
Coal:			
Thermal coal	3,134	726	1,152
Metallurgical coal	4,864	7,353	6,330
Nickel	232	261	272
Copper	285	352	353
PGMs (oz)	386	510	577
Gold (oz)	168	297	351
Silver (oz)	1,862	2,154	1,889
Cobalt	2.033	2,939	3,188
Potash	581	531	475
Phosphates:			
MAP	1,221	1,133	1,040
TSP	713	681	749
SSP	2,446	1,969	2,091
DCP	474	461	493
Phosphate rock	3,314	3,154	3,259
Nitrogen	1,342	890	680

Average realized prices

The following table sets forth our average realized prices for our principal products for each of the periods indicated. We determine average realized prices based on gross operating revenues, which consist of the price charged to customers and certain items that we deduct in arriving at net operating revenues, mainly value-added tax.

	Year ended December 31,		
	2012	2013	2014
	(US$ per metric ton, except where indicated)		
Iron ore	109.99	112.05	75.97
Iron ore pellets	148.89	150.22	124.17
Manganese	134.10	157.37	120.28
Ferroalloys	1,340.82	1,303.92	1,453.33
Coal:			
Thermal coal	82.39	81.17	67.65
Metallurgical coal	171.38	129.34	104.37
Nickel	17,866.38	14,900.24	16,426.47
Copper	7,595.44	6,709.18	6,015.47
Platinum (US$/oz)	1,590.87	1,469.78	1,261.87
Gold (US$/oz)	1,755.52	1,339.37	1,192.51
Silver (US$/oz)	33.82	20.02	19.42
Cobalt (US$/lb)	12.27	10.95	10.67
Potash	530.12	417.32	355.79
Phosphates:			
MAP	646.58	571.86	542.44
TSP	526.67	472.51	428.98
SSP	268.58	271.88	212.61
DCP	628.36	611.54	591.51
Phosphate rock	124.82	90.68	70.88
Nitrogen	597.01	610.27	604.41

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Major factors affecting prices

Iron ore and iron ore pellets

Demand for our iron ore and iron ore pellets is a function of global demand for carbon steel. Demand for carbon steel, in turn, is strongly influenced by global industrial production. Iron ore and iron ore pellets are priced based on a wide array of quality levels and physical characteristics. Various factors influence price differences among the several types of iron ore, such as the iron content of specific ore deposits, the various beneficiation processes required to produce the desired final product, particle size, moisture content and the type and concentration of contaminants (such as phosphorus, alumina, silica and manganese ore) in the ore. Fines, lump ore and pellets typically command different prices.

Demand from China has been a principal driver of world demand and prices. We expect China's economic growth to continue in 2015, still driven by domestic demand, but in a slower pace. We expect that certain measures adopted by the Chinese government at the end of 2014, such as the simplification of the mortgage requirements and drop of interest rates, will benefit certain industries in 2015, particularly the real estate industry. The facilitation of approval processes for infrastructure projects, effective since November 2014, is also expected to contribute to the economic growth and steel consumption. We also expect that the Chinese real estate sector will continue to grow, driven by urbanization.

Prices are also influenced by the supply of iron ore and iron ore pellets in the international market. In 2014, an excess in the iron ore supply, resulting from an estimated net additional volume of 140 Mt supplied in the seaborne market, had a negative impact in our prices. The expected conclusion of certain iron ore projects in the coming years, especially in Australia in 2015 and 2016 and in Brazil in 2016, may result in additional pressures on prices.

Our iron ore prices are based on a variety of pricing options, which generally use spot price indices as a basis for determining the customer price. Our pricing is generally linked to the IODEX spot market price index, and uses a variety of mechanisms, including current spot prices and average prices over an agreed period (quarter-lagged) and future prices on delivery. In cases where the final price is only determinable on a future date after shipment, we recognize the sale based on a provisional price at the time of shipment with a subsequent adjustment reflecting the final price.

Coal

Demand for metallurgical coal is driven by steel demand, and future growth continues to be expected across Asia. Asia, including India, accounts for more than half of the steel market and consumes approximately 70% of seaborne metallurgical coal. Chinese seaborne demand decreased by 25% to 60 million metric tons in 2014 compared to 77 million metric tons imported in 2013.

A 3% drop in global metallurgical imports in 2014 resulted in oversupply and continuous price depression. Seaborne exports were steady, with a surge in Australian exports, which grew 9% in 2014, countered by decreases in the United States, due to mine closures, Indonesia and Colombia. Due to the excess supply, there is no incentive to expand metallurgical coal supply in the short term.

Demand for thermal coal is closely related to electricity consumption, which continues to be driven by global economic growth and urbanization, with the highest levels of growth found in Asia and emerging markets. Global demand in 2014 was generally stable, compared to 2013, but there were significant changes in trade flows. Chinese demand declined by 13% due to lower electricity consumption and stronger contribution from hydropower, while Indian demand increased by 10% due to strong economic growth and legal developments that halted some domestic coal production.

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Various other factors influence coal prices. The latest trend is an increased use of short-term pricing mechanisms on coal sales agreements, as opposed to quarterly benchmark reference prices. Also, the depreciation of commodity currencies (such as Australian dollar, Canadian dollar, Russian ruble and South African rand) against the U.S. dollar in the second half of 2014 provided relief to producers and sustained the low price environment.

A Chinese statute that became effective in January 2015 imposed certain quality standards on coal imported into China. Despite initial market uncertainty, we do not expect a significant impact on coal imports. However, the full effect might only be felt in the second half of 2015, as stricter standards are expected to be implemented after July 2015. If this occurs, prices in the seaborne market may suffer downward pressure as volumes will have to be redirected from China to other markets.

Nickel

Nickel is an exchange-traded metal, listed on the LME. Most nickel products are priced using a discount or premium to the LME price, depending on the nickel product's physical and technical characteristics. Demand for nickel is strongly affected by stainless steel production, which represents, on average, 68% of global nickel consumption.

We have short-term fixed-volume contracts with customers for the majority of our expected annual nickel sales. These contracts, together with our sales for non-stainless steel applications (alloy steels, high nickel alloys, plating and batteries), provide stable demand for a significant portion of our annual production. In 2014, 61% of our refined nickel sales were made for non-stainless steel applications, compared to the industry average for primary nickel producers of 32%, bringing more stability to our sales volumes. As a result of our focus on such higher-value segments, our average realized nickel prices for refined nickel have typically exceeded LME cash nickel prices.

Primary nickel (including ferro-nickel, nickel pig iron and nickel cathode) and secondary nickel (i.e., scrap) are competing nickel sources for stainless steel production. The choice between different types of primary and secondary nickel is largely driven by their relative price and availability. In recent years, secondary nickel has accounted for about 40-43% of total nickel used for stainless steels, and primary nickel has accounted for about 57-60%. In 2014, Chinese nickel pig iron production is estimated at approximately 460,000 metric tons, representing 23% of world primary nickel supply, compared to 25% and 19% of the world's supply in 2013 and 2012, respectively. The implementation of the Indonesian mining law, which restricts the export of unprocessed ores, adversely affected Chinese nickel pig iron production in 2014. We estimate that Indonesia represented as much as 80% of the saprolite ores used in the production of nickel pig iron in China and over 20% of world refined production in 2013. We anticipate that Chinese nickel pig iron production will decline, as previously imported stockpiles of Indonesian ores within China are depleted. The restriction on Indonesian ore exports, if it remains in place, is expected to have an increasing impact on the market in the coming years.

Copper

Growth in copper demand in recent years has been driven primarily by China, given the important role copper plays in construction in addition to electrical and consumer applications. Copper prices are determined on the basis of (i) prices of copper metal on terminal markets, such as the LME and the NYMEX, and (ii) in the case of intermediate products such as copper concentrate (which comprise most of our sales) and copper anode, treatment and refining charges negotiated with each customer. Under a pricing system referred to as MAMA ("month after month of arrival"), sales of copper concentrates and anodes are provisionally priced at the time of shipment, and final prices are settled on the basis of the LME price for a future period, generally one to three months after the shipment date.

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Demand for refined copper grew by an estimated 4% in 2014, and China was responsible for an equivalent of 44% of worldwide consumption. The supply of refined copper increased with the 5% growth in global mine output in 2014, as a result of the ramp up of new projects. Throughout 2014, prices remained under pressure. For 2015, we expect mine production to continue expanding based on prior investments.

Fertilizers

Demand for fertilizers is based on market fundamentals similar to those underlying global demand for minerals, metals and energy. Rapid per capita income growth in emerging economies generally causes dietary changes marked by an increase in the consumption of proteins, which ultimately contributes to increased demand for fertilizer nutrients, including potash and phosphates, as they help boost production of grains to feed more livestock. Demand is also driven by the demand for bio-fuels, which have emerged as an alternative source of energy to reduce world reliance on sources of climate-changing greenhouse gases, because key inputs for the production of biofuels sugar cane, corn and palm are intensive in the use of fertilizers.

Sales of fertilizers are mainly on a spot basis using international benchmarks, although some large importers in China and India often sign annual contracts. Seasonality is an important factor for price determination throughout the year, since agricultural production in each region depends on climate conditions for crop production.

In 2014, global fertilizer market conditions were weak due to lower agriculture commodities prices. Global grain inventories sharply increased since 2013, due to two consecutives bumper crops. In this scenario, despite the declining crop prices, India and Brasil had a key role in sustaining the demand in the international market throughout the year.

Currency price changes

Our results of operations are affected in several ways by changes in currency exchange rates. The most important of these are the following:

- Most of our revenues are denominated in U.S. dollars, while most of our costs of goods sold are denominated in other currencies, including the *real* (54% in 2014) and the Canadian dollar (13% in 2014). In 2014, 30% of our costs of goods sold were denominated in U.S. dollars. As a result, changes in exchange rates, particularly with respect to the U.S. dollar, affect our costs and operating margins.

- Most of our long-term debt is denominated in currencies other than the *real* (US$22.160 billion at December 31, 2014, not considering accrued charges), principally the U.S. dollar. Because the functional currency of our parent company for accounting purposes is the Brazilian *real*, changes in the value of the U.S. dollar against the *real* result in exchange gain or loss on our net liabilities.

- We had *real*-denominated debt of US$6.210 billion at December 31, 2014, excluding accrued charges. Since most of our revenues are in U.S. dollars, we use swaps to convert our debt service from *reais* to U.S. dollars. Changes in the value of the U.S. dollar against the *real* result in fair value variation on these derivatives, affecting our financial results. For more information on our use of derivatives, see *Risk management*.

A decline in the value of the U.S. dollar tends to result in: (i) lower operating margins and (ii) higher financial results due to currency gains on our net U.S. dollar-denominated liabilities and fair value gains on our currency derivatives. Conversely, an increase in the value of the U.S. dollar tends to result in: (i) better operating margins and (ii) lower financial results due to exchange losses on our net U.S. dollar-denominated liabilities and fair value losses on our currency derivatives.

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Several factors, including lower output growth in Brazil, lower commodity prices and the recovery of the U.S. economy, led to a sharp nominal appreciation of the U.S. dollar against the *real* during the second half of 2014. On average, the U.S. dollar was 9.0% stronger in 2014 against the *real* than in 2013. As of December 31, 2014, the U.S. dollar had appreciated 13.4% against the *real* relative to December 31, 2013.

Overall, in 2014 exchange rate fluctuations affected our operating margins positively but resulted in net foreign exchange losses and losses on derivatives, as described under *Critical accounting policies and estimates Derivatives*.

Recent changes in Brazilian tax law

New Brazilian tax legislation that took effect in 2015 provides for changes in taxation of profits and income earned abroad by Brazilian companies through direct and indirect foreign subsidiaries. In general, the new law provides for taxation in Brazil, on an accrual basis, of the profits earned by direct and indirect subsidiaries in accordance with local practices and, on a cash basis, of the profits received from associates. Tax credits will be available for taxes paid abroad. If certain conditions under the law are met, the law permits: (1) the consolidation of income (profit and loss) of eligible direct and indirect subsidiaries for taxation purposes, until 2022, and (2) the deferred payment for up to eight years of taxes due on profits of eligible foreign companies. This change may result in an increase in our income tax, beginning in the year 2015.

Effect of freight on our financial performance

The decrease in freight spot prices in the second half of 2014, mainly driven by the decline in bunker oil prices, did not directly impact our financial performance in 2014. Our freight costs are not totally correlated to freight spot market because: (i) we have a portfolio of short-, medium- and long-term chartering contracts, in addition to our own fleet, (ii) freight costs are impacted by changes in routes, resulting from sales to different geographical areas, and (iii) our freight cost is impacted by a time lag between the date of the spot contract and the date of recognition of the expenditure, which is booked when the revenue from the sale of the iron ore cargo is recognized.

Also, the effect of bunker oil prices in our performance is mitigated by our hedge positions:

- We hedge approximately 50% of our total exposure to bunker oil prices relating to our owned fleet and long-term charter agreements under our hedge accounting program. Fluctuations in the actual bunker oil prices affect out costs of goods sold, but they are offset by the hedge.

- We hedge approximately 60% of our total exposure to bunker oil price relating to our FOB and domestic sales, which hedge does not qualify for our hedge accounting program. Fluctuations in the actual bunker oil prices are accounted as financial expenses and marked to market in each quarter.

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RESULTS OF OPERATIONS

In 2014, we generated net income attributable to the Company's stockholders of US$657 million compared to US$584 million in 2013. In 2014, the most relevant factors impacting our results were the decrease in average price for iron ore and pellets and certain non-recurring items, including (i) US$1.152 billion in charges for impairment of some iron ore, coal, fertilizers and nickel assets, partially offset by a reversal of impairment at Onça Puma due to recovery of the furnace, (ii) US$2.200 billion in foreign exchange and monetary losses and (iii) US$1.334 billion in net fair value losses on derivatives. In 2013, our results were also significantly impacted by non-recurring items, especially (i) US$4.049 billion of income taxes from continued operations paid in connection with the REFIS, after deductions, (ii) US$2.637 billion of net financial expenses related to the REFIS, (iii) US$2.940 billion of foreign exchange and monetary losses, and (iv) US$2.298 billion in charges for impairment on assets, mainly related to the Rio Colorado potash project.

The following discussion addresses our continuing operations only, except as otherwise specified.

Revenues

In 2014, our net operating revenues decreased 19.7% to US$37.539 billion, primarily resulting from lower iron ore and iron ore pellets sales prices, partially offset by higher sales volume of iron ore and iron ore pellets and higher prices for nickel. Net operating revenues of each business segment are discussed below under *Results of operations by segment*.

The following table summarizes our net operating revenues by product for the periods indicated.

	Year ended December 31,				
	2012	**% change**	**2013**	**% change**	**2014**
	(US$ million, except for %)				
Ferrous minerals:					
Iron ore	US$26,691	4.3%	US27,844	(30.7)%	US$19,301
Iron ore pellets	6,560	(8.5)	6,000	(12.3)	5,263
Ferroalloys and manganese	543	(3.7)	523	(25.1)	392
Other ferrous products and services	486	(12.6)	425	74.4	741
Subtotal	34,280	1.5	34,792	(26.1)	25,697
Coal	1,092	(7.5)	1,010	(26.8)	739
Base metals:					
Nickel and other products(1)	5,975	(2.3)	5,839	6.9	6,241
Copper concentrate(2)	1,156	25.2	1,447	0.3	1,451
Subtotal	7,131	2.2	7,286	5.6	7,692
Fertilizers:					
Potash	290	(30.7)	201	(23.4)	154
Phosphates	2,507	(17.6)	2,065	(11.9)	1,820
Nitrogen	699	(32.9)	469	(25.6)	349
Others fertilizer products	74	6.8	79	16.5	92
Subtotal	3,570	(21.2)	2,814	(14.2)	2,415
Other products and services(3)	480	80.2	865	15.1	996
Net operating revenues	US$46,553	0.5%	US$46,767	(19.7)	US$37,539

(1) Includes nickel co-products (copper) and by-products (precious metals, cobalt and others).

(2) Does not include copper produced as a nickel co-product.

(3) Includes pig iron and energy.

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The following table summarizes, for the periods indicated, the distribution of our net operating revenues based on the geographical location of our customers.

	Net operating revenues by destination					
	2012		2013		2014	
	(US$ million)	(% of total)	(US$ million)	(% of total)	(US$ million)	(% of total)
North America						
Canada	US$1,015	2.2%	US$1,043	2.2%	US$1,393	3.7%
United States	1,334	2.9	1,311	2.8	1,368	3.6
Mexico	29	0.1	29	0.1	10	0.1
	2,378	5.2	2,383	5.1	2,771	7.4
South America						
Brazil	6,926	14.9	6,190	13.2	5,927	15.8
Other	779	1.7	776	1.7	685	1.8
	7,705	16.6	6,966	14.9	6,612	17.6
Asia						
China	17,636	37.9	18,920	40.5	12,657	33.7
Japan	4,931	10.6	4,035	8.6	3,627	9.7
South Korea	2,103	4.5	1,795	3.8	1,555	4.1
Taiwan	901	1.9	982	2.1	721	1.9
Other	1,047	2.2	825	1.8	1,029	2.8
	26,617	57.1	26,558	56.8	19,589	52.2
Europe						
Germany	2,935	6.3	3,285	7.0	2,111	5.6
United Kingdom	920	2.0	1,003	2.1	709	1.9
Italy	1,310	2.8	1,055	2.3	849	2.3
France	658	1.4	977	2.1	565	1.5
Other	2,376	5.1	2,442	5.2	2,463	6.5
	8,199	17.6	8,762	18.7	6,697	17.8
Rest of the world	1,653	3.6	2,099	4.5	1,870	5.0
Total	US$46,553	100.0%	US$46,767	100.0%	US$37,539	100.0%

Operating costs and expenses

The following table summarizes the components of our operating costs and expenses for the periods indicated.

	Year ended December 31,				
	2012	% change	2013	% change	2014
	(US$ million, except for %)				
Cost of goods sold and services rendered	US$25,390	(4.5)%	US$24,245	3.4%	US$25,064
Selling, general and administrative expenses	2,172	(40.1)	1,302	(15.6)	1,099
Research and evaluation expenses	1,465	(45.3)	801	(8.4)	734
Pre-operating and stoppage expenses	1,592	16.8	1,859	(41.5)	1,088
Other operating expenses, net	1,996	(50.7)	984	7.4	1,057
Impairment on non-current assets	4,023	(42.9)	2,298	(49.9)	1,152
Loss on measurement or sales of non-current assets	506	(57.5)	215	(22.3)	167

Total operating costs and expenses	US$37,144	(14.6)%	US$31,704	(5.8)%	US$30,361

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Cost of goods sold and services rendered

The following table summarizes, for the periods indicated, the components of our cost of goods sold by their nature.

	Year ended December 31,				
	2012	% change	2013	% change	2014
	(US$ million)				
Maintenance, materials and services:					
Maintenance	US$1,878	(0.5)%	US$1,868	30.3%	US$2,434
Materials and services	6,990	(12.3)	6,128	(12.1)	5,389
Subtotal	8,868	(9.8)	7,996	(2.1)	7,823
Energy:					
Fuel	1,947	(7.3)	1,804	(9.1)	1,639
Electric energy	863	(23.2)	663	(9.2)	602
Subtotal	2,810	(12.2)	2,467	(9.2)	2,241
Acquisition of products:					
Iron ore and pellets	700	(42.1)	405	9.4	443
Nickel	338	37.6	465	45.2	675
Other	329	64.7	542	(8.3)	497
Subtotal	1,367	3.3	1,412	14.4	1,615
Personnel	3,413	(4.3)	3,265	(6.6)	3,051
Depreciation and depletion	3,659	1.8	3,724	3.5	3,856
Freight	2,801	13.9	3,189	12.6	3,592
Others	2,472	(11.3)	2,192	31.7	2,886
Total	US$25,390	(4.5)%	US$24,245	3.4%	US$25,064

2014 compared to 2013. In 2014, our cost of goods sold was US$25.064 billion, an increase of 3.4%, or US$819 million, compared to 2013, mainly due to higher volumes sold, partially offset by a net gain in nominal exchange rate variations.

- Maintenance, materials and services decreased 2.1%, primarily reflecting the depreciation of the Brazilian *real* against the U.S. dollar and the suspension of Integra and Isaac Plains coal mines in Australia.
- Energy costs decreased 9.2%, primarily reflecting the depreciation of the Brazilian *real* against the U.S. dollar. This effect was partially offset by the ramp-up of Salobo and Onça Puma.
- Costs of purchasing products from third parties increased 14.4%, primarily driven by increased purchases of nickel to meet some customer demand.
- Personnel costs decreased 6.6%, primarily due to the depreciation of the Brazilian *real* against the U.S. dollar, partially offset by a 5.4% increase in wages.
- Depreciation and depletion increased 3.5% mainly reflecting the ramp-up of Serra Leste, Long Harbor, Salobo II, and Tubarão VIII pellet plant, partially offset by the depreciation of the Brazilian *real* against the U.S. dollar.
-

Freight costs increased 12.6%, primarily due to the 15% increased volume of iron ore and iron ore pellets we sold on a CFR basis.

- Other costs of goods sold, which consist mainly of leasing fees relating to our joint-venture pelletizing assets, demurrage and royalties, increased 31.7% in 2014, mainly due to a US$199 million increase in leasing costs of pellet plant facilities, as a consequence of price adjustment based on pellet premiums and production.

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2013 compared to 2012. In 2013, our cost of goods sold was US$24.245 billion, a decrease of 4.5%, or US$1.145 billion, compared to 2012. The decrease in costs was mainly a result of a US$1.638 billion gain in nominal exchange rate variations and a US$1.198 billion reduction in costs, primarily from the renegotiation of contracts and the increased supply of energy from our own plants. Those effects were partially offset by an increase of US$1.691 billion in costs resulting from higher volumes sold, especially of iron ore, base metals and metallurgical coal.

- Maintenance, materials and services decreased 9.8%, which was primarily driven by the depreciation of the Brazilian *real* against the U.S. dollar, partially offset by an increase in costs of maintenance materials in our iron ore and phosphates operations, as a result of the maintenance activities we conducted in 2013, reassessment of contracts with suppliers and the relocation of some personnel of our outsourced service providers to other operational activities due to the stoppage of some of our plants.

- Energy costs decreased 12.2%, primarily reflecting the depreciation of the Brazilian *real* against the U.S. dollar, lower prices and the increased use of energy from our power plants, which have a lower cost in our energy portfolio, despite higher fuel prices.

- Costs of purchasing products from third parties increased 3.3%, primarily driven by increased purchases of precious metals to be processed at our refinery in Acton, England, to reduce idle capacity and sales of surplus energy at the spot market that we receive from our long-term energy contracts.

- Personnel costs decreased 4.3%, primarily due to the depreciation of the Brazilian *real* against the U.S. dollar, partially offset by a 6% increase in wages.

- Depreciation and depletion increased 1.8% reflecting the ramp-up of new projects, partially offset by the depreciation of the Brazilian *real* against the U.S. dollar.

- Freight costs increased 13.9%, primarily due to the increased volume of iron ore and iron ore pellets we sold on a CFR basis relative to sales on an FOB basis.

- Other costs of goods sold decreased 11.3% in 2013. These costs consist mainly of leasing fees related to our joint-venture pelletizing assets, demurrage and royalties and a full year of TFRM, which is a tax on mineral production created by certain Brazilian states in 2012.

Selling, general and administrative expenses

2014 compared to 2013. In 2014, selling, general and administrative expenses decreased 15.6%, or US$203 million, mainly as a result of the depreciation of the Brazilian *real* against the U.S. dollar and the continuation of our efforts to simplify our organizational structure, which were partially offset by the effects of a new two-year collective bargaining agreement in Brazil that increased wages by 5.4%.

2013 compared to 2012. In 2013, selling, general and administrative expenses decreased 40.1%, or US$870 million, mainly as a result of the simplification of our organizational structure and the depreciation of the Brazilian *real* against the U.S. dollar, which was partially offset by the effects of a new two-year collective bargaining agreement in Brazil that increased wages by 6.0%.

Research and development expenses

Our research and development expenses consist primarily of (i) expenditures for feasibility and other studies for new projects, (ii) expenditures on mineral exploration, which are recorded as expenses until the economic viability of the related mining activities can be established, and (iii) expenditures to develop new processes and technological innovation.

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2014 compared to 2013. In 2014, research and development expenses decreased 8.4%, as we focused our research on brownfield projects and productivity-focused research, rather than greenfield projects. The depreciation of the Brazilian *real* against the U.S. dollar also contributed to the decrease.

2013 compared to 2012. In 2013, research and development expenses decreased 45.3%, which reflects the reduction of our portfolio of projects and closure of certain exploration activities.

Pre-operating and stoppage expenses

Pre-operating expenses refer to expenses incurred by a project shortly before initial sales are made, and stoppage expenses are expenses incurred by suspension of projects and shut down of operations.

2014 compared to 2013. Pre-operating and stoppage expenses decreased US$771 million in 2014, from US$1.859 billion in 2013 to US$1.088 billion in 2014. While in 2013 we incurred in US$381 million expenses in connection with our Rio Colorado project in Argentina and US$120 million in connection with Onça Puma, in 2014 we had no pre-operating or stoppage expenses related to Onça Puma and only US$22 million related to Rio Colorado.

2013 compared to 2012. Pre-operating and stoppage expenses increased by US$267 million in 2013, from US$1.592 billion in 2012 to US$1.859 billion in 2013, mainly due to the expense of US$381 million related to stoppage of our Rio Colorado project in 2013.

Other operating expenses, net

Other operating expenses, net, include provisions for losses, litigation and contingencies, among other items.

2014 compared to 2013. Other operating expenses, net, increased from US$984 million in 2013 to US$1.057 billion in 2014. The increase mainly resulted from the non-recurring effects of US$244 million in income related to the gold stream transaction with Silver Wheaton in 2013.

2013 compared to 2012. Other operating expenses, net, decreased by US$1.012 billion in 2013, from US$1.996 billion in 2012 to US$984 million in 2013, mainly due to the one-off effect of CFEM expenses incurred in 2012.

Impairment of non-current assets

2014 compared to 2013. In 2014, we recognized impairment of non-current assets amounting to US$1.152 billion, while in 2013 we recognized impairment of US$2.298 billion. In 2014, our impairment charges were (i) US$343 million relating to our Australian coal assets, (ii) US$1.053 billion relating to our fertilizers assets in Brazil, (iii) US$238 million relating to our nickel assets in New Caledonia, and (iv) US$1.135 billion relating to VBG's assets in Simandou, which were partially offset by (v) the reversal of Onça Puma impairment in the amount of US$1.617 billion. In 2013, we recognized impairment of (i) US$2.116 billion with respect to our potash assets at the Rio Colorado project, following our decision to cancel the implementation of the project, and (ii) US$182 million with respect to the temporary stoppage and uncertainty regarding the resumption of pelletizing plants in Brazil. See Note 15 to our consolidated financial statements.

2013 compared to 2012. In 2013, we recognized impairments of non-current assets amounting to US$2.298 billion, as discussed above, while in 2012 we recognized impairments of US$4.023 billion, mainly relating to Onça Puma and Australian coal assets. See Note 16 to our consolidated financial statements.

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Loss on measurement or sales of non-current assets

2014 compared to 2013. In 2014, we had a loss of US$167 million on measurement of non-current assets due to the reduction of the area under of contract of work in Indonesia, as a result of the renegotiation of our contract of work imposed by recent statutory change, while in 2013 we had a US$215 million loss on the sale of our Tres Valles copper assets in Chile.

2013 compared to 2012. In 2013, we had a loss of US$215 million on the sale of our Tres Valles copper assets, while in 2012 we had a loss of US$506 million, resulting from the sale of our (i) European manganese ferroalloy operations (US$22 million), (ii) coal operations in Colombia (US$355 million) and (iii) wholly-owned subsidiary in the fertilizer business, Araucaria (US$129 million).

Operating income

The following table provides, for the years indicated, information about our operating income (loss) by product from continued operations and, for each product, as a percentage of net operating revenues from sales of that product.

	Segment operating income (loss)					
	Year ended December 31,					
	2012		2013		2014	
	(US$ million)	(% of net operating revenues)	(US$ million)	(% of net operating revenues)	(US$ million)	(% of net operating revenues)
Ferrous Minerals:						
Iron ore	US$12,327	46.2%	US$15,565	55.9%	US$5,383	27.9%
Iron ore pellets	3,556	54.2	3,083	51.4	2,225	42.3
Manganese ore and ferroalloys	123	22.7	130	24.9	63	16.1
Other ferrous products and services	7	1.4	122	28.7	59	8.0
Total	16,013	46.7	18,900	54.3	7,730	30.1
Coal	(2,031)		(668)		(1,160)	
Base metals:						
Nickel and other products	(3,817)		(459)		1,575	25.2
Copper concentrate	(76)		(127)		367	25.3
Other			244			
Total	(3,893)		(342)		1,942	
Fertilizers:						
Potash	23	7.9	(2,525)		(61)	
Phosphates	100	4.0	(133)		(1,264)	
Nitrogen	(159)		(20)		39	11.1
Other fertilizer products	74	100.0	77	97.5	92	100.0
Total	38	100.0	(2,601)		(1,194)	
Other	(718)		(226)		(140)	
Total	US$9,409	20.2%	US$15,063	32.2%	US$7,178	19.1%

We discuss the operating income for each business segment below under *Results of operations by segment*.

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Non-operating income (expenses)

The following table details our net non-operating income (expenses) for the periods indicated.

	Year ended December 31,		
	2012	2013	2014
	(US$ million)		
Financial income	US$411	US$643	US$401
Financial expenses	(2,421)	(5,002)	(2,936)
Gains (losses) on derivatives, net	(120)	(1,033)	(1,334)
Foreign exchange gains (losses), net	(1,918)	(2,765)	(2,115)
Indexation gains (losses), net	26	(175)	(85)
Non-operating income (expenses)	US$(4,022)	US$(8,332)	US$(6,069)

2014 compared to 2013. Our non-operating expenses decreased 27.2%, to US$6.069 billion in 2014 from US$8.332 billion in 2013. This decrease principally resulted from:

- A decrease in financial expenses of US$2.225 billion, from US$5.002 billion in 2013 to US$2.936 billion in 2014, attributable primarily to the US$2.637 billion net effect of fines and interest recognized under the REFIS in 2013, while the effect of interest on REFIS obligations in 2014 was US$683 million.

- The net effect of fair value changes in derivatives, which represented a loss of US$1.334 billion in 2014 compared to a loss of US$1.033 billion in 2013. This reflected the following main categories of derivatives transactions:

  Currency and interest rate swaps. We recognized a net loss of US$683 million in 2014 from currency and interest rate swaps, compared to net loss of US$861 million in 2013. These swaps are primarily used to convert debt denominated in other currencies into U.S. dollars in order to protect our cash flow from exchange rate volatility.

  Nickel derivatives. We recognized a gain of US$9 million in 2014 compared to a gain of US$11 million in 2013. These derivatives are part of our nickel price protection program.

  Bunker oil derivatives. We recognized a net loss of US$614 million in 2014 compared to a net loss of US$114 million in 2013. These derivatives are structured to minimize the volatility of the cost of maritime freight and the variation is due to the sharp decrease in the spot bunker oil price.

  Warrants. We recognized a net loss of US$6 million in 2014 compared to a net loss of US$60 million in 2013. These derivatives were part of the consideration we received under the 2013 gold sale contract with Silver Wheaton.

- Net foreign exchange losses of US$2.115 billion in 2014 compared to net foreign exchange losses of US$2.765 billion in 2013, principally due to the depreciation of the Brazilian *real* against the U.S. dollar in each year.

- A net indexation loss of US$85 million in 2014 compared to a loss of US$175 million in 2013, mainly due to changes in the amount of certain tax assets.

A decrease in financial income of US$242 million to US$401 million in 2014, mainly due to fair value gains of US$214 million as a result of the sale of Hydro shares in 2013, which was classified as held for sale.

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2013 compared to 2012. Our non-operating expenses increased 107.2%, to US$8.332 billion in 2013 from US$4.022 billion in 2012. This increase principally resulted from:

- An increase in financial expenses of US$2.581 billion, attributable primarily to the US$2.637 billion net effect of fines and interest recognized under the REFIS.
- The net effect of fair value changes in derivatives, which represented a loss of US$1.033 billion in 2013 compared to a loss of US$120 million in 2012. This reflected the following main categories of derivatives transactions:

  Currency and interest rate swaps. We recognized a net loss of US$861 million in 2013 from currency and interest rate swaps, compared to net loss of US$263 million in 2012. These swaps are primarily made to convert debt denominated in other currencies into U.S. dollars in order to protect our cash flow from exchange rate volatility.

  Nickel derivatives. We recognized a net gain of US$11 million in 2013 compared to a gain of US$171 million in 2012. These derivatives are part of our nickel price protection program.

  Bunker oil derivatives. We recognized a net loss of US$114 million in 2013 compared to a net gain of US$14 million in 2012. These derivatives are structured to minimize the volatility of the cost of maritime freight.

  Warrants. We recognized a net loss of US$60 million in 2013. These derivatives were part of the payment received under the 2013 gold sale contract with Silver Wheaton.
- Net foreign exchange losses of US$2.765 billion in 2013 compared to net foreign exchange losses of US$1.918 billion in 2012, principally due in both years to the depreciation of the Brazilian *real* against the U.S. dollar.
- A net indexation loss of US$175 million in 2013 compared to a gain of US$26 million in 2012, primarily due to the retrospective application of IAS 19 resulting in a gain for 2012.
- An increase in other financial income of US$232 million, mainly due to fair value gains of US$214 million as a result of the sale of Hydro shares, which was classified as held for sale.

Income taxes

For 2014, we recorded net income tax expense of US$1.200 billion, compared to an income tax expense of US$6.833 billion in 2013. In 2014, we had a nondeductible impairment related to VBG's operations in Guinea and our nickel operations in New Caledonia. Excluding the effect of these impairment charges and the reversal for tax loss carryforward, the effective tax rate would have been 35.5%.

In 2013, we had a tax expense from continued operations of US$4.048 billion in connection with the REFIS, a federal tax settlement program for payment of amounts relating to Brazilian corporate income tax and social contribution, in order to settle the claims related to the net income of our non-Brazilian subsidiaries and affiliates from 2003 to 2012. Our participation in the REFIS resulted in a substantial reduction in the amounts in dispute. For more information, see *Additional information Legal proceedings Litigation on Brazilian taxation of foreign subsidiaries* and Notes 6, 20 and 21 to our consolidated financial statements. The effective tax rate on our pretax income, excluding the income tax expense and financial expenses in connection with the REFIS, as well as the impairment of fixed assets, was 23.3%, which is lower than the statutory rate, mainly because of the tax benefit of shareholder distributions categorized as interest on shareholders' equity.

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For 2012, we recorded an income tax gain of US$1.174 billion, resulting from the reversal of the US$1.236 billion deferred tax liability generated by the acquisition of Vale Fertilizantes S.A. (Vale Fertilizantes) by our subsidiary Mineração Naque S.A. (Naque) in 2010, which was followed by the merger of Naque and Vale Fertilizantes in June 2012. Excluding this factor, as well as the impact of the impairment of fixed assets, our effective tax rate was 17.2% in 2012.

Equity in results of affiliates, joint ventures and other investments

We recorded a net gain in our equity in the results of affiliates and joint ventures of US$505 million in 2014, compared to a net gain of US$469 million in 2013 and US$645 million in 2012. The changes from 2013 to 2014 are mainly attributed to the positive results for VLI, which we began to account for as equity in results of affiliates, joint ventures and other investments in 2014, after the sale of part of our interest. The changes from 2012 to 2013 were principally attributable to lower results from our joint venture Samarco, resulting from lower sales prices for its iron ore pellets.

Impairment on investments

In 2014 we recognized an impairment of US$31 million on our investment in Vale Soluções em Energia S.A. In 2013, we recognized no impairment. In 2012, we recognized an impairment of US$1.941 billion on our investments, including (i) US$975 million on our interest in Norsk Hydro, due to volatility of aluminum prices and uncertainties about the European economy, (ii) US$883 million on our interest in CSA Thyssenkrupp due to changed expectations about future performance and (iii) US$83 million corresponding to Vale Soluções em Energia due to changes in our investment strategy.

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Results of operations by segment

Our management assesses each segment's contribution to our performance using margin before depreciation and amortization, which is determined by adding back to the segment's operating income the amounts charged as (i) depreciation, depletion and amortization, (ii) impairment of non-current assets and (iii) loss on measurement or sale of non-current assets. See Note 26 to our consolidated financial statements. Our management also considers, in its performance analysis, the amount of dividends received from our joint ventures and associates operating in each of these segments. This management segment analysis is summarized as follows:

	Year ended December 31,					
	2012		2013		2014	
	Margin before depreciation and amortization (US$ million)	(% of net operating revenues)	Margin before depreciation and amortization (US$ million)	(% of net operating revenues)	Margin before depreciation and amortization (US$ million)	(% of net operating revenues)
Ferrous Minerals:						
Iron ore	US$13,733	51.5%	US$16,958	60.9%	US$8.032	41.6%
Iron ore pellets	3,791	57.8	3,449	57.5	2,499	47.5
Manganese ore and ferroalloys	190	34.5	159	30.4	95	24.2
Other ferrous products and services	127	26.1	262	61.7	169	22.8
Total	17,841	52.0	20,828	59.9	10,795	42.0
Coal	(449)		(495)		(697)	
Base metals:						
Nickel and other products	539	9.0	1,133	19.4	1,980	31.7
Copper concentrate	63	5.5	262	18.1	541	37.3
Other			244			
Total	602	8.4	1,639	22.5	2,521	32.8
Fertilizers:						
Potash	46	15.9	(365)		(35)	
Phosphates	431	17.2	179	8.7	134	7.4
Nitrogen	79	11.3	55	11.7	87	24.9
Other fertilizer products	74	100.0	77	97.5	92	100.0
Total	630	17.7	(54)		278	11.5
Other	(531)		(192)		(112)	
Subtotal	18,093	38.9%	21,726	45.5%	12,785	34.1%
Dividends received	460		834		568	
Total	US$18,553		US$22,560		US$13,353	

We discuss below the changes in each segment's net operating revenues, margin before depreciation and amortization (as explained above) and operating income.

Ferrous minerals

2014 compared to 2013. Our net operating revenues from sales of ferrous minerals decreased 26.1%, from US$34.792 billion in 2013 to US$25.697 billion in 2014, reflecting lower prices, partially offset by higher sale volumes of iron ore and iron ore pellets. In 2014, our average

realized prices were 32.2% lower for iron ore and 17.3% lower for iron ore pellets, reflecting the decrease in the average reference price index of Platt's IODEX 62% CFR China in 2014. The volume of our iron ore sales in 2014 increased by 2.0%, due to the ramp-up of Carajás plant 2 (formerly known as Carajás Additional 40 Mtpy), Serra Leste and Conceição Itabiritos, while the volume of our iron ore pellets sales increased by 6.6% due to the start-up of Tubarão VIII pelletizing plant and the ramp-up of the Oman pellet plants.

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For these reasons, margin before depreciation and amortization for the ferrous minerals segment was US$10.795 billion in 2014, 48.2% lower than in 2013. Dividends received from joint ventures and associates operating in the ferrous minerals segment totaled US$526 million in 2014 and US$715 million in 2013.

Our operating income from the ferrous materials segment was US$7.730 billion in 2014 and US$18.900 billion in 2013. The 59.1% decrease reflects, in addition to the effects discussed in our management analysis, the impairment of Vale's equity stake in VBG's operations in Guinea.

2013 compared to 2012. Net operating revenues from sales of ferrous minerals increased to US$34.792 billion in 2013, from US$34.280 billion in 2012. The 1.5% increase primarily reflected higher iron ore prices and volumes, partially offset by lower volumes of iron ore pellets. Our average realized prices were 1.9% higher for iron ore and 0.9% for iron ore pellets, reflecting the increase in the average value of Platt's IODEX 62% CFR China index in 2013 and higher sales on a CFR basis. The volume of our iron ore pellets sales in 2013 decreased by 9.7% due to the stoppage of our Tubarão I and II and São Luis pelletizing plant.

For the same reasons, margin before depreciation and amortization for the ferrous minerals segment was US$20.828 billion in 2014, 16.7% higher than in 2012. Dividends received from joint ventures and associates operating in ferrous minerals segment totaled US$715 million in 2013 and US$338 million in 2012.

Our operating income from ferrous materials segment was US$18.900 billion in 2013 and US$16.013 billion in 2012. The 18.0% increase reflects the higher prices above discussed, partially offset by an impairment charge on our pelletizing plants recognized in 2013.

Coal

2014 compared to 2013. Net operating revenues from sales of coal decreased to US$739 million in 2014, from US$1.010 billion in 2013. This 26.8% decrease primarily reflected lower prices for both thermal and metallurgical coal, and lower volume sold for metallurgical coal, partially offset by higher sales volume of thermal coal.

Margin before depreciation and amortization for the coal segment was a loss of US$697 million in 2014, 40.8% higher than the US$495 million loss in 2013, reflecting lower prices and lower sales volume due to the suspension of the Integra and Isaac Plains mines in Australia. Dividends received from joint ventures and associates operating in the coal segment amounted to US$29 million in 2014 and US$40 million in 2013.

Our operating loss from the coal segment increased 73.7%, from US$668 million in 2013 to US$1.160 billion in 2014, reflecting, in addition to the negative effects discussed above, a US$343 million impairment charge on our assets in Australia.

2013 compared to 2012. Net operating revenues from sales of coal decreased to US$1.010 billion in 2013, from US$1.092 billion in 2012. Our revenues from the coal segment were positively affected by the 51.2% increase in metallurgical coal sales volumes, resulting from the ramp-up of Moatize and better performance at Carborough Downs.

Margin before depreciation and amortization for the coal segment was a loss of US$495 million in 2013, in line with the loss of US$449 million in 2012. Dividends received from joint ventures and associates operating in the coal segment totaled US$40 million in 2013 and US$60 million in 2012.

Our operating loss from coal segment in 2013 decreased to US$668 million, from US$2.031 billion in 2012, primarily due to the effect of the US$1.029 billion impairment charge on our Australian coal assets and a US$355 million loss on the sale of our Colombian coal assets in 2012.

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Base metals

2014 compared to 2013. Net operating revenues from sales of base metals increased to US$7.692 billion in 2014 from US$7.286 billion in 2013. The 5.6% increase primarily reflected higher nickel prices, resulting from recovery of market after a cycle of decrease and higher nickel and copper sales volume due to the ramp-up of Onça Puma and Salobo operations.

For the same reasons, margin before depreciation and amortization for the base metals segment was US$2.521 billion in 2014, 53.8% higher than in 2013. In addition to the lower costs and expenses, adjusted by the increase in sales volume, certain non-recurring items, such as insurance proceeds received in 2014 and the proceeds received in the gold stream transaction in 2013, contributed to our income generation.

We recorded an operating income from the base metals segment of US$1.942 billion in 2014, while we had an operating loss of US$342 million in 2013. A partial reversal of the impairment on our Onça Puma nickel assets positively affected our operating income in 2014.

2013 compared to 2012. Net operating revenues from sales of base metals increased to US$7.286 billion in 2013, from US$7.131 billion in 2012. The 2.2% increase primarily reflected higher volume sold from Salobo operations, partially offset by lower prices for the segment.

Margin before depreciation and amortization for the base metals segment was US$1.639 billion in 2013, 172.3% higher than in 2012, due to the increase in sales volume of copper, reduction in costs and expenses and recognition of a US$244 million revenue related to the gold stream transaction in 2013.

We recorded an operating loss from base metals segment of US$342 million in 2013, while we had an operating loss of US$3.893 billion in 2012. The decrease in selling, general and administrative expenses and other expenses contributed positively to the result in 2013, while the loss on sale of Tres Valles contributed negatively with US$215 million. In 2012, we registered a US$2.848 billion impairment on our Onça Puma nickel assets.

Fertilizers

2014 compared to 2013. Net operating revenues from sales of fertilizers decreased to US$2.415 billion in 2014, from US$2.814 billion in 2013. The 14.2% decrease was a result of lower prices and lower sales volumes due to the sale of our Araucaria nitrogen operation in June 2013.

Margin before depreciation and amortization for the fertilizers segment was US$278 million in 2014, against a loss of US$54 million in 2013. The increase resulted from the reduction of costs and expenses of US$355 million, the reduction of the pre-operating and stoppage expenses with the Rio Colorado project (US$376 million), which were partially off-set by lower prices (approximately US$270 million).

Our operating loss from the fertilizers segment was US$1.194 billion in 2014 compared to an operating loss of US$2.601 billion in 2013. These losses primarily reflected the impairment of fertilizers assets in 2014, in the amount of US$1.053 billion, and the impairment of the Rio Colorado project in 2013, in the amount of US$2.116 billion. Lower costs and lower pre-operating and stoppage expenses in the Rio Colorado project contributed to mitigate these operating losses.

2013 compared to 2012. Net operating revenues from sales of fertilizers segment decreased to US$2.814 billion in 2013, from US$3.570 billion in 2012. The 21.2% decrease was a result of lower sales prices and volumes. The main reason for reduced volumes was the sale of Araucaria, a nitrogen producing operation, in June 2013.

Margin before depreciation and amortization for the fertilizers segment was a loss of US$54 million in 2013, compared to a gain of US$630 million in 2012, reflecting lower prices and the pre-operating and stoppage expenses recorded in 2013 related to Rio Colorado project, in the amount of US$398 million.

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Our operating loss on fertilizers segment was US$2.601 billion in 2013, compared to an operating income of US$38 million in 2012. The change primarily reflected the impairment of the Rio Colorado project in 2013, amounting to US$2.116 billion.

LIQUIDITY AND CAPITAL RESOURCES

Overview

In the ordinary course of business, our principal funding requirements are for capital expenditures, dividend payments and debt service. We have historically met these requirements by using cash generated from operating activities and through borrowings, supplemented occasionally by dispositions of assets.

For 2015, we have budgeted capital expenditures of US$10.167 billion, including US$6.358 billion for project execution and US$3.809 billion for sustaining existing operations. Our Board of Executive Officers has proposed a minimum dividend payment for 2015 of US$2.0 billion, subject to approval by our Board of Directors. Also, a principal amount of US$982 million of our debt will mature in 2015.

We expect our cash flow, cash holdings and the proceeds we will receive from divestments and new joint venture investors to be sufficient to meet these anticipated requirements. As a result of the decrease in global commodity prices, we expect our operating cash flow to decrease in 2015. We have taken measures to reduce our capital expenditures, and we are constantly evaluating opportunities for additional cash generation, in order to mitigate the effect of this expected decrease in our operating cash flow. We entered into transactions that will reduce our funding requirements with respect to our business in Mozambique, including our 2014 investment agreements with Mitsui for the Moatize operations and the Nacala project, and we are seeking non-recourse project financing for the Nacala project. We expect to receive an upfront payment of US$900 million, and ongoing payments upon delivery of gold, as consideration for the sale to Silver Wheaton of an additional 25% of the gold stream from our Salobo copper mine. We are negotiating the sale of six of our very large ore carriers. We are also considering the issuance of redeemable non-voting shares in some of our subsidiaries, the sale of certain investments, and joint ventures for certain of our businesses. Finally, we are committed to continue the reduction in our expenses and to maintain discipline in capital expenditures. If necessary, we may fund our cash requirements for 2015 with additional borrowing.

We also regularly review acquisition and investment opportunities and, when suitable opportunities arise, we make acquisitions and investments to implement our business strategy. We may fund these investments with borrowings.

Sources of funds

Our principal sources of funds are operating cash flow and borrowings. The amount of operating cash flow is strongly affected by global prices for our products. In 2014, our operating activities generated cash flows from continued operations of US$12.807 billion, compared to US$14.542 billion in 2013, reflecting primarily the lower prices of iron ore and pellets.

Our major new borrowing transactions in 2014 are summarized below:

- In February 2014, we issued R$1.0 billion in infrastructure debentures that will mature between 2021 and 2029 to finance part of our CLN S11D Project.
- In January 2014, we entered into a new credit line with Export Development Canada, in the amount of US$775 million.
- In May 2014, we entered into a new credit facility with Banco Nacional de Desenvolvimento Econômico Social ("BNDES") of R$6.2 billion, which will mature in July 2024, to finance part of our Carajás Serra Sul S11D and CLN S11D projects.

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In 2014, we borrowed US$2.320 billion under our new and existing financing agreements.

In April 2014, we received R$709 million from Mitsui, as part of the consideration for the sale of 20% of the total capital of VLI. In August 2014, we received R$2 billion from Brookfield, as consideration for the sale of 26.5% of the total capital of VLI. See *Information on the company Business overview Significant changes in our business*.

Uses of funds

Capital expenditures

Capital expenditures in 2014 amounted to US$12.0 billion, including US$7.8 billion for project execution and US$4.0 billion dedicated to sustaining existing operations. Our actual capital expenditures detailed in other part of these report may differ from those reported in our cash flow statements, because actual figures include some amounts that are treated as current expenses for accounting purposes, such as expenses for project development and maintenance of existing assets. There may also be differences due to the fact that some actual figures are converted into U.S. dollars at the exchange rate on the date of each cash disbursement, while figures reported in our cash flow statements are converted into U.S. dollars based on average exchange rates. For more information about the specific projects for which we have budgeted funds, see *Information on the Company Capital expenditures*.

Distributions and repurchases

We paid total dividends of US$4.2 billion in 2014 (including distributions classified as interest on shareholders' equity), consisting of US$2.1 billion in April and US$2.1 billion in October. The minimum dividend proposed by our Board of Executive Officers for 2015 is US$2 billion, subject to approval by our Board of Directors.

We did not repurchase any of our shares in 2014.

Tax payments

We paid US$504 million in income tax in 2014, disregarding the payments in connection with REFIS, compared to US$2.405 billion in 2013. In connection with our participation in the REFIS, our outstanding commitment totals US$6.3 billion, which will be paid in 166 monthly installments.

Debt

At December 31, 2014, our outstanding debt was US$28.807 billion (including US$28.370 billion of principal and US$437 million of accrued interest) compared with US$29.445 billion at the end of 2013. At December 31, 2014, US$1.312 billion of our debt was secured by liens on some of our assets. At December 31, 2014, the debt amortization average term was 9.10 years, compared to 9.89 years in 2013.

At December 31, 2014, the short term debt and the current portion of long-term debt was US$1.419 billion, including charges.

Our major categories of indebtedness are as follows. The principal amounts given below exclude accrued charges.

Our major categories of long-term indebtedness are as follows. The principal amounts given below include the current portion of long-term debt and exclude accrued charges.

- *U.S. dollar-denominated loans and financing (US$7.029 billion at December 31, 2014).* This category includes export financing lines, loans from export credit agencies, and loans from commercial banks and multilateral organizations.

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- *U.S. dollar-denominated fixed rate notes (US$13.308 billion at December 31, 2014).* We have issued in public offerings several series of fixed-rate debt securities, directly by Vale and through our finance subsidiary Vale Overseas Limited, guaranteed by Vale, totaling US$12.757 billion. Our subsidiary Vale Canada has outstanding fixed rate debt in the amount of US$400 million.

- *Euro-denominated fixed rate notes (US$1.822* billion *at December 31, 2014).* We have issued in public offerings two series of fixed-rate debt securities denominated in Euro totaling €1.500 billion.

- *Other debt (US$6.210* billion at December 31, 2014). We have outstanding debt, principally owed to BNDES, Brazilian commercial banks and infrastructure debentures, denominated in Brazilian *reais* and other currencies.

We have a variety of credit lines available, including the following, at December 31, 2014:

- A US$1.2 billion facility with The Export-Import Bank of China and the Bank of China Limited to finance the construction of 12 very large ore carriers. As of December 31, 2014, we had drawn US$1.062 billion under this facility.

- Credit lines for R$7.3 billion, or US$2.748 billion, with BNDES to finance our investment program. As of December 31, 2014, we had drawn the equivalent of US$1.831 billion under these facilities.

- A R$3.9 billion, or US$1.462 billion, financing agreement with BNDES to finance part of the implementation of the CLN 150 Mtpy project, which will expand the logistics infrastructure in Vale's Northern System. As of December 31, 2014, we had drawn the equivalent of US$1.257 billion under this facility.

- A R$6.2 billion, or US$2.320 billion, financing agreement with BNDES to finance part of the implementation of S11D project and its infrastructure (CLN S11D). As of December 31, 2014, we had drawn the equivalent of US$700 million under this facility.

In November 2014, we redeemed certain bonds issued by Vale Canada with maturity in 2015, in the amount of US$300 million.

We have two revolving credit facilities with syndicates of international banks, which will mature in April 2016 and July 2018. At December 31, 2014, the total amount available under these facilities was US$5 billion, which can be drawn by Vale, Vale Canada and Vale International. As of December 31, 2014, we had not drawn any amounts under this facility.

Some of our long-term debt instruments contain financial covenants. Our principal covenants require us to maintain certain ratios, such as debt to EBITDA and interest coverage.

We have a 9% interest in Norte Energia, a joint venture formed to build the Belo Monte hydroelectric facility. We have committed to guarantee a portion, equal to our share ownership percentage, of the debt incurred by Norte Energia under a R$22.5 billion credit facility from BNDES and other lenders to finance the construction. We have also agreed to pledge our interest in Norte Energia to secure the financing. As part of the restructuring of our investments in power generation, we are in the process of selling 49% of our 9% interest in Norte Energia. As a result, our interest in the Belo Monte project will be reduced to 4.59%, and we expect that our guarantee of the debt under the credit facility will be reduced accordingly.

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CONTRACTUAL OBLIGATIONS

The following table summarizes our contractual obligations at December 31, 2014. This table excludes other common non-contractual obligations that we may have, including pension obligations, deferred tax liabilities and contingent obligations arising from uncertain tax positions, all of which are discussed in the notes to our consolidated financial statements.

	Payments due by period				
	Total	Less than 1 year	2016-2017	2018-2019	Thereafter
			(US$ million)		
Debt less accrued interest	US$28,370	US$982	US$4,400	US$6,813	US$16,175
Interest payments(1)	17,035	1,523	2,954	2,451	10,108
Operating lease obligations(2)	220	72	105	43	
Purchase obligations(3)	10,135	5,486	2,691	0,889	1,068
Total	US$55,760	US$8,063	US$10,150	US$10,196	US$27,351

(1) Consists of estimated future payments of interest on our loans, financings and debentures, calculated based on interest rates and foreign exchange rates applicable at December 31, 2014 and assuming that (i) all amortization payments and payments at maturity on our loans, financings and debentures will be made on their scheduled payments dates, and (ii) our perpetual bonds are redeemed on the first permitted redemption date.

(2) Amounts include fixed payments related to the operating lease contracts for the pellet plants.

(3) Obligations to purchase materials. Amounts are based on contracted prices, except for purchases of iron ore from mining companies located in Brazil.

OFF-BALANCE SHEET ARRANGEMENTS

At December 31, 2014, we did not have any off-balance sheet arrangements as defined in the SEC's Form 20-F. For information on our contingent liabilities see Note 30 to our consolidated financial statements.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We believe that the following are our critical accounting policies. We consider an accounting policy to be critical if it is important to our financial condition and results of operations and if it requires significant judgments and estimates on the part of our management. For a summary of all of our significant accounting policies, see Note 3 to our consolidated financial statements.

Mineral reserves and useful life of mines

We regularly evaluate and update our estimates of proven and probable mineral reserves. Our proven and probable mineral reserves are determined using generally accepted estimation techniques. Calculating our reserves requires us to make assumptions about future conditions that are uncertain, including future ore and metal prices, currency prices, inflation rates, mining technology, availability of permits, production and capital costs. Changes in some or all of these assumptions could have a significant impact on our recorded proven and probable reserves.

One of the ways we make our ore reserve estimates is to determine the mine closure dates used in recording the fair value of our asset retirement obligations for environmental and site reclamation costs and the periods over which we amortize our mining assets. Any change in our estimates of total expected future mine or asset lives could have an impact on the depreciation, depletion and amortization charges recorded in our consolidated financial statements under cost of goods sold. Changes in the estimated lives of our mines could also significantly impact our estimates of environmental and site reclamation costs, which are described in greater detail below.

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Asset retirement obligation

Expenditures relating to ongoing compliance with environmental regulations are charged against earnings or capitalized as appropriate. These ongoing programs are designed to minimize the environmental impact of our activities.

We recognize a liability for the fair value of our estimated asset retirement obligations in the period in which they are incurred, if a reasonable estimate can be made. We consider the accounting estimates related to reclamation and closure costs to be critical accounting estimates because:

- we will not incur most of these costs for a number of years, requiring us to make estimates over a long period;
- reclamation and closure laws and regulations could change in the future or circumstances affecting our operations could change, either of which could result in significant changes to our current plans;
- calculating the fair value of our asset retirement obligations requires us to assign probabilities to projected cash flows, to make long-term assumptions about inflation rates, to determine our credit-adjusted risk-free interest rates and to determine market risk premiums that are appropriate for our operations; and
- given the significance of these factors in the determination of our estimated environmental and site reclamation costs, changes in any or all of these estimates could have a material impact on net income. In particular, given the long periods over which many of these charges are discounted to present value, changes in our assumptions about credit-adjusted risk-free interest rates could have a significant impact on the size of our provision.

Our Environmental Department defines the rules and procedures that should be used to evaluate our asset retirement obligations. The future costs of retirement of our mines and sites are reviewed annually, in each case considering the actual stage of exhaustion and the projected exhaustion date of each mine and site. The future estimated retirement costs are discounted to present value using a credit-adjusted risk-free interest rate. At December 31, 2014, we estimated the fair value of our aggregate total asset retirement obligations to be US$3.369 billion.

Impairment of long-lived assets and goodwill

We annually assess whether there is any objective evidence of impairment of our financial assets and long-lived, non-financial assets. For financial assets measured through amortized cost, we compare the carrying amount with the expected cash flows of the asset, adjusted to reflect the present value. For long-lived, non-financial assets (such as intangible assets or property plant and equipment), when there are indications of possible impairment, we conduct the test by comparing the recoverable value of these assets (which are grouped at the lowest levels for which there are separately identifiable cash flows of the corresponding cash-generating unit) to their carrying amount. If we identify the need for adjustment for a particular asset, we apply that adjustment consistently for the corresponding cash-generating unit. The recoverable amount for an asset is the higher of (i) its value in use and (ii) its fair value less the cost of selling it.

We determine our discounted cash flows based on approved budgets, considering mineral reserves and mineral resources calculated by internal experts, costs and investments. These determinations also take into account our past performance, sales prices consistent with projections used in industry reports and information about market prices when available and appropriate. Cash flows used in our impairment testing are based on the life of each cash-generating unit, or on the consumption of reserve units in the case of minerals, and considering discount rates that reflect specific risks relating to the relevant assets in each cash-generating unit, depending on their composition and location.

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For investments in affiliated companies with publicly-traded stock, we assess recoverability of assets when there is a prolonged or significant decline in market value. The balance of these investments is compared to the market value of the shares, when available. If the market value is less than the carrying value of these investments, and the decrease is considered prolonged and significant, we make the adjustment to the realizable value based on the price quoted in the market.

Goodwill balances arising from business combinations, intangible assets with indefinite useful lives and lands are tested for impairment at least once a year, regardless of any indication of impairment of their carrying value.

Non-current assets (excluding goodwill) which we recognized an impairment are reviewed whenever events or changes in circumstances indicate that the impairment may no longer be applicable. In such cases, an impairment reversal will be recognized.

Fair values of derivatives

We are required to recognize all derivative financial instruments, whether designated in hedging relationships or not, on our balance sheet and to measure such instruments at fair value. The gain or loss in fair value is included in current earnings, unless the derivative to which the gain or loss is attributable qualifies for hedge accounting. We have entered into some cash flow hedges that qualify for hedge accounting. Unrealized fair value adjustments to cash flow hedges are recognized in other comprehensive income. We use well-known market participants' valuation methodologies to compute the fair value of instruments. To evaluate the financial instruments, we use estimates and judgments related to present values, taking into account market curves, projected interest rates, exchange rates, counterparty (credit) risk adjustments, forward market prices and their respective volatilities, when applicable. We evaluate the impact of credit risk on financial instruments and derivative transactions, and we enter into transactions with financial institutions that we consider to have a high credit quality. The exposure limits to financial institutions are proposed annually by the Executive Risk Committee and approved by the Board of Executive Officers. The financial institution's credit risk tracking is performed making use of a credit risk valuation methodology that considers, among other information, published ratings provided by international rating agencies and other management judgments. During 2014, we implemented hedge accounting for foreign exchange hedge and bunker costs hedge. At December 31, 2014, we had US$122 million of realized losses related to derivative instruments designated as cash flow hedges. In 2014, we recorded to the income statement net losses of US$1.334 billion in relation to derivative instruments.

Deferred income taxes

We recognize deferred tax effects of tax loss carryforwards and temporary differences in our consolidated financial statements. We record a valuation allowance when we believe that it is more likely than not that tax assets will not be fully recoverable in the future.

When we prepare our consolidated financial statements, we estimate our income taxes based on regulations in the various jurisdictions where we conduct business. This requires us to estimate our actual current tax exposure and to assess temporary differences that result from deferring treatment of certain items for tax and accounting purposes. These differences result in deferred tax assets and liabilities, which we show on our consolidated balance sheet. We must then assess the likelihood that our deferred tax assets will be recovered from future taxable income. To the extent we believe that recovery is not likely, we record a provision against a tax expense in our statement of income. When we reduce the provision, we record a tax benefit in our statement of income.

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Determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance to be recorded against our net deferred tax assets requires significant management judgment, estimates and assumptions about matters that are highly uncertain. For each income tax asset, we evaluate the likelihood of whether some portion or the entire asset will not be realized. The valuation allowance made in relation to accumulated tax loss carryforwards depends on our assessment of the probability of generation of future taxable profits within the legal entity in which the related deferred tax asset is recorded, based on our production and sales plans, selling prices, operating costs, environmental costs, group restructuring plans for subsidiaries and site reclamation costs and planned capital costs.

Litigation

We disclose material contingent liabilities unless the possibility of any loss arising is considered remote, and we disclose material contingent assets where the inflow of economic benefits is probable. We discuss our material contingencies in Note 18 to our consolidated financial statements.

We record an estimated loss from a loss contingency when information available prior to the issuance of our financial statements indicates that it is probable that a future event will confirm that an asset has been impaired or a liability has been incurred at the date of the financial statements, and the amount of the loss can be reasonably estimated. In particular, given the nature of Brazilian tax legislation, the assessment of potential tax liabilities requires significant management judgment. By their nature, contingencies will only be resolved when one or more future events occurs or fails to occur, and typically those events will occur a number of years in the future. Assessing such liabilities, particularly in the Brazilian legal environment, inherently involves the exercise of significant management judgment and estimates of the outcome of future events.

The provision for litigation at December 31, 2014, totaling US$1.282 billion, consists of provisions of US$706 million for labor, US$118 million for civil, US$366 million for tax and US$92 million for other claims. Claims where in our opinion, and based on the advice of our legal counsel, the likelihood of loss is reasonably possible but not probable, and for which we have not made provisions, amounted to a total of US$10.577 billion at December 31, 2014, including claims of US$1.955 billion for labor, US$1.406 billion for civil, US$6.094 billion for tax and US$1.122 billion for other claims.

Employee post-retirement benefits

We sponsor defined benefit pension and other post-retirement benefit plans covering some of our employees. The determination of the amount of our obligations for these benefits depends on certain actuarial assumptions. These assumptions are described in Note 21 to our consolidated financial statements and include, among others, the expected long-term rate of return on plan assets and increases in salaries.

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RISK MANAGEMENT

The aim of our risk management strategy is to promote enterprise-wide risk management that supports our growth strategy, strategic plan, corporate governance practices and financial flexibility to support maintenance of investment grade status. We developed an integrated framework for managing risk, which considers the impact on our business of not only market risk factors (market risk), but also risks arising from third party obligations (credit risk), risks associated with inadequate or failed internal processes, people, systems or external events (operational risk) and risks associated with political and regulatory conditions in countries in which we operate (political risk).

In order to achieve this objective and to further improve our corporate governance practices, our Board of Directors has established a company-wide risk management policy and an Executive Risk Management Committee. The risk management policy requires that we regularly evaluate and monitor the corporate risk on a consolidated basis in order to guarantee that our overall risk level remains in accordance with the acceptable corporate risk guidelines.

See Note 24 to our consolidated financial statements for quantitative information about risks relating to financial instruments, including financial instruments entered into pursuant to our risk management policies.

Market risk

We are exposed to various market risk factors that can impact our financial stability and cash flow. An assessment of the potential impact of the consolidated market risk exposure is performed periodically to support our decision making processes and growth strategy, ensure financial flexibility and monitor future cash flow volatility.

When necessary, market risk mitigation strategies are evaluated and implemented. Some of these strategies may incorporate financial instruments, including derivatives. The financial instrument portfolios are monitored on a monthly basis, enabling us to properly evaluate financial results and their impact on cash flow, and ensure correlation between the strategies implemented and the proposed objectives.

Considering the nature of our business and operations, the main market risk factors that we are exposed to are:

- *Foreign exchange rates and interest rates:* our cash flows are exposed to the volatility of several currencies against the U.S. dollar. While most of our product prices are indexed to U.S. dollars, most of our costs, disbursements and investments are indexed to currencies other than the U.S. dollar, principally the Brazilian *reais* and the Canadian dollar. We frequently use derivative instruments, primarily forward transactions and swaps, in order to reduce our potential cash flow volatility arising from this currency mismatch. We also use swaps to convert into U.S. dollars a portion of our debt service costs denominated in Brazilian *reais*.

We are also exposed to interest rate risk on loans and financings. Our floating rate debt consists mainly of loans including export pre-payments, commercial bank loans and multilateral organization loans. In general, the U.S. dollar floating rate debt is subject to changes in LIBOR (London Interbank Offer Rate) in U.S. dollars. To mitigate the impact of interest rate volatility on our cash flows, we take advantage of natural hedges resulting from the correlation between commodity prices and U.S. dollar floating interest rates. If such natural hedges are not present, we may opt to obtain the same effect by using financial instruments.

- *Product prices and input costs:* we are also exposed to market risks associated with commodities price volatilities. In line with our risk management policy, we may also employ risk mitigation strategies to manage this risk that can include forward transactions, futures contracts and zero-cost collars. In 2014, we entered in to transactions to partially hedge our exposure to nickel and bunker oil prices.

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Credit risk

We are exposed to credit risk arising from trade receivables, derivative transactions, guarantees, down payment for suppliers and cash investments. Our credit risk management process provides a framework for assessing and managing counterparties' credit risk and for maintaining our risk at an acceptable level.

Commercial credit risk management

We assign an internal credit rating and a credit limit to each counterparty using our own quantitative methodology for credit risk analysis, which is based on market prices, external credit ratings and financial information of the counterparty, as well as qualitative information regarding the counterparty's strategic position and history of commercial relations.

Based on the counterparty's credit risk, or based on our consolidated credit risk profile, risk mitigation strategies may be used to manage credit risk. The main credit risk mitigation strategies include non-recourse discount of receivables, insurance instruments, letters of credit, corporate and bank guarantees, mortgages, among others.

From a geographic standpoint, we have a diversified accounts receivable portfolio, with China, Europe, Brazil and Japan the regions with the most significant exposure. According to each region, different guarantees can be used to enhance the credit quality of the receivables. We monitor the counterparty exposure in the portfolio periodically and we block additional sales to customers in delinquency.

Treasury credit risk management

To manage the credit exposure arising from cash investments and derivative instruments, our Board of Executive Officers approves, on an annual basis, credit limits by counterparty. Furthermore, the risk management department controls the portfolio diversification, the overall credit risk of the treasury portfolio and the risk of each counterparty by monitoring market information such as Credit Default Swaps (CDS) and Moody's Expected Default Frequency (EDF).

Operational risk

Operational risk management is the structured approach we take to manage uncertainty related to inadequate or failed internal processes, people and systems and to external events.

We mitigate operational risk with new controls and improvement of existing ones, new mitigation plans and transfer of risk through insurance. As a result, the Company seeks to have a clear view of its major risks, the cost-benefit on mitigation plans and the controls in place to monitor the impact of operational risk closely and to efficiently allocate capital to reduce it.

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III. SHARE OWNERSHIP AND TRADING

MAJOR SHAREHOLDERS

Valepar is Vale's controlling shareholder. Valepar is a special-purpose company organized under the laws of Brazil that was incorporated for the sole purpose of holding an interest in Vale. Valepar does not have any other business activity. Valepar acquired its controlling stake in Vale from the Brazilian government in 1997 as part of the first stage of Vale's privatization.

The following table sets forth information regarding ownership of Vale shares as of December 31, 2014 by the shareholders we know beneficially own more than 5% of any class of our outstanding capital stock, and by our directors and executive officers as a group.

	Common shares		Preferred shares	
	owned	% of class	owned	% of class
Valepar(1)	1,716,435,045	53.9%	20,340,000	1.0%
BNDESPAR(2)	206,378,882	6.5%	66,185,272	3.4%
Aberdeen Asset Management PLC(3)	n/a	n/a	182,585,243	9.01%
Directors and executive officers as a group	11,816	Less than 1.0%	857,797	Less than 1.0%

(1) See the tables below for information about Valepar's shareholders.

(2) BNDESPAR is a wholly-owned subsidiary of BNDES. The figures do not include common shares beneficially (as opposed to directly) owned by BNDESPAR.

(3) Based on share ownership report on Schedule 13G filed by Aberdeen Asset Management PLC on January 6, 2015.

The Brazilian government also owns 12 golden shares of Vale, which give it veto powers over certain actions, such as changes to our name, the location of our headquarters and our corporate purpose as it relates to mining activities.

The table below sets forth information regarding ownership of Valepar common shares as of December 31, 2014.

	Common shares owned	% of class
Valepar shareholders		
Litel Participações S.A.(1)	637,443,857	49.00%
Eletron S.A.(2)	380,708	0.03%
Bradespar S.A.(3)	275,965,821	21.21%
Mitsui(4)	237,328,059	18.24%
BNDESPAR(5)	149,787,385	11.51%
Total	1,300,905,830	100.00%

(1) Litel owns 200,864,272 preferred class A shares of Valepar, which represents 71.41% of the preferred class A shares. LitelA, an affiliate of Litel, owns 80,416,931 preferred class A shares of Valepar, which represents 28.59% of the preferred class A shares. LitelB, also an affiliate of Litel, owns 5,641,188 preferred class C shares of Valepar, which represents 29.25% of the preferred class C shares.

(2) Eletron owns 7,139 preferred class C shares of Valepar, which represents 0.04% of the preferred class C shares.

(3) Bradespar is controlled by a control group consisting of Cidade de Deus Cia. Comercial Participações, Fundação Bradesco, NCF Participações S.A. and Nova Cidade de Deus Participações S.A. Brumado Holdings Ltda., a subsidiary of Bradespar, owns 5,174,863 preferred class C shares of Valepar, which represents 26.83% of the preferred class C shares.

(4) Mitsui owns 4,450,333 preferred class C shares of Valepar, which represents 23.08% of the preferred class C shares.

(5)

BNDESPAR owns 4,012,241 preferred class C shares of Valepar, which represents 20.80% of the preferred class C shares.

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The table below sets forth information regarding ownership of Litel Participações S.A., one of Valepar's shareholders, as of December 31, 2014.

	Common shares owned	% of class
Litel Participações S.A. shareholders(1)		
BB Carteira Ativa	193,740,121	78.40%
Carteira Ativa II	31,688,443	12.82%
Carteira Ativa III	19,115,620	7.74%
Singular	2,583,919	1.05%
Caixa de Previdência dos Funcionários do Banco do Brasil	22	
Others	220	
Total	247,128,345	100.00%

(1) Each of BB Carteira Ativa and Carteira Ativa II is a Brazilian investment fund. BB Carteira Ativa is 100.00% owned by Caixa de Previdência dos Funcionários do Banco do Brasil ("Previ"). Carteira Ativa II is 100% owned by Funcef. Carteira Ativa III is 100% owned by Petros. Singular is 100% owned by Fundo de Investimentos em Cotas de Fundo de Investimento em Ações VRD ("FIC de FI em Ações VRD"). FIC de FI em Ações VRD is 100% owned by Fundação Cesp. Each of Previ, Petros, Funcef and Fundação Cesp is a Brazilian pension fund.

The shareholders of Valepar are parties to a shareholders' agreement, which expires in 2017. The Valepar shareholders' agreement also:

- grants rights of first refusal on any transfer of Valepar shares and preemptive rights on any new issue of Valepar shares;
- prohibits the direct acquisition of Vale shares by Valepar's shareholders unless authorized by the other shareholders party to the agreement;
- prohibits encumbrances on Valepar shares (other than in connection with financing an acquisition of Vale shares);
- requires each party generally to retain control of its special purpose company holding its interest in shares of Valepar, unless the rights of first refusal previously mentioned are observed;
- allocates seats on Valepar's and Vale's boards among representatives of the parties;
- commits the Valepar shareholders to support a Vale dividend policy of distributing 50% of Vale's net profit for each fiscal year, unless the Valepar shareholders commit to support a different dividend policy for a given year;
- provides for the maintenance by Vale of a capital structure that does not exceed specified debt to equity thresholds;
- requires the Valepar shareholders to vote their indirectly held Vale shares and to cause their representatives on Vale's Board of Directors to vote only in accordance with decisions made at Valepar meetings held prior to meetings of Vale's Board of Directors or shareholders; and
- establishes supermajority voting requirements for certain significant actions relating to Valepar and to Vale.

Pursuant to the Valepar shareholders' agreement, Valepar cannot support any of the following actions with respect to Vale without the consent of at least 75% of the holders of Valepar's common shares:

- any amendment of Vale's bylaws;

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- any increase of Vale's capital stock by share subscription, creation of a new class of shares, change in the characteristics of the existing shares or any reduction of Vale's capital stock;
- any issuance of debentures of Vale, whether or not convertible into shares of Vale, participation certificates upon compensation (*partes beneficiárias*), call options (*bônus de subscrição*) or any other security of Vale;
- any determination of issuance price for any new shares of capital stock or other security of Vale;
- any amalgamation, spin-off or merger to which Vale is a party, as well as any change to Vale's corporate form;
- any dissolution, receivership, bankruptcy or any other voluntary act for financial reorganization or any suspension thereof;
- the election and replacement of Vale's Board of Directors, including the Chairman of the Board, and any executive officer of Vale;
- the disposal or acquisition by Vale of an equity interest in any company, as well as the acquisition of any shares of capital stock of Vale or Valepar;
- the participation by Vale in a group of companies or in a consortium of any kind;
- the execution by Vale of agreements relating to distribution, investment, sales exportation, technology transfer, trademark license, patent exploration, license to use and leases;
- the approval and amendment of Vale's business plan;
- the determination of the compensation of the executive officers and directors of Vale, as well as the duties of the Board of Directors and the Board of Executive Officers;
- any profit sharing among the members of the Board of Directors or Board of Executive Officers of Vale;
- any change in the corporate purpose of Vale;
- the distribution or non-distribution of any dividends (including distributions classified as interest on shareholders' equity) on any shares of capital stock of Vale other than as provided in Vale's bylaws;
- the appointment and replacement of Vale's independent auditor;
- the creation of any "in rem" guarantee, granting of guarantees including rendering of sureties by Vale with respect to obligations of any unrelated party, including any affiliates or subsidiaries;

- the passing of any resolution on any matter which, pursuant to applicable law, entitles a shareholder to withdrawal rights;
- the appointment and replacement by the Board of Directors of any representative of Vale in subsidiaries, companies related to Vale or other companies in which Vale is entitled to appoint directors and officers; and
- any change in the debt to equity threshold, as defined in the shareholders' agreement.

In addition, the shareholders' agreement provides that any issuance of participation certificates by Vale and any disposition by Valepar of Vale shares requires the unanimous consent of all of Valepar's shareholders.

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RELATED PARTY TRANSACTIONS

We have engaged, and expect to continue to engage, in arm's-length transactions with certain entities controlled by, or affiliated with, our controlling shareholders, including the following:

- *Bradesco* Bradespar, a controlling shareholder of Valepar, is controlled by a group of entities that also control Banco Bradesco S.A. ("Bradesco"). Bradesco and its affiliates are full service financial institutions that have performed, and may perform in the future, certain investment banking, advisory or general financing and banking services for us and our affiliates, from time to time, in ordinary course of business.

- *Banco do Brasil* Previ, a pension fund of the employees of Banco do Brasil, owns 100% of the investment fund BB Carteira Ativa, which holds the majority of the common equity of Litel Participações S.A., which holds 49% of the common equity of Valepar. Banco do Brasil appoints three out of the six members of Previ's senior management. An affiliate of Banco do Brasil is the manager of BB Carteira Ativa. Banco do Brasil is also a full service financial institution, and Banco do Brasil and its affiliates have performed, and may perform in the future, certain investment banking, advisory or general financing and banking services for us and our affiliates, from time to time, in ordinary course of business.

- *Mitsui* We have commercial relationships in the ordinary course of our business with Mitsui, a large Japanese conglomerate and a shareholder of Valepar.

- *BNDES*, the Brazilian state-owned development bank, is the parent company of one of our major shareholders, BNDESPAR.

We and BNDES are parties to a contract relating to authorizations for mining exploration. This contract, which we refer to as the Mineral Risk Contract, provides for the joint development of certain unexplored mineral deposits that form part of our Northern System, except for our iron ore and manganese ore deposits which were specifically excluded from the contract, as well as proportional participation in any profits earned from the development of such resources. In 2007, the Mineral Risk Contract was extended indefinitely, with specific rules for all exploration projects and exploration targets and mineral rights covered under the contract.

BNDES has provided us with credit lines of R$7.3 billion to finance our investment program, facilities totaling R$985 million to finance the acquisition of equipment in Brazil, a R$3.9 billion financing for our CLN 150 Mtpy project and a R$6.2 billion financing for our S11D project and its infrastructure (CLN S11D).

BNDES holds a total of R$871 million, or US$328 million, in debentures of our subsidiary Salobo Metais S.A. with a right to subscribe for Salobo's preferred shares in exchange for part of the outstanding debentures, which right expires two years after Salobo reaches an accumulated revenue equivalent to 200,000 tons of copper.

For more information on our transactions with BNDES, see *Operating and financial review and prospects Liquidity and capital resources*. BNDESPAR is in the control group of several Brazilian companies with which we have commercial relationships in the ordinary course of our business.

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Mitsui and BNDESPAR have direct investments in some of our subsidiaries, joint ventures and associated companies. BNDESPAR has a direct stake in our subsidiary Vale Soluções em Energia S.A. Mitsui has a minority stake in our subsidiary MVM Resources International B.V., which controls the Bayóvar (Peru) phosphate operations, and is part of a joint venture that holds an equity stake in our subsidiary VNC. Mitsui is also our joint venture partner at VLI, and BNDES holds debentures issued by Vale exchangeable into common shares of VLI. In December 2014, we entered into an investment agreement with Mitsui in connection with our coal business in Mozambique (see *Information on the Company Business Overview Significant changes in our business*).

We have a policy on Related Party Transactions, which sets forth rules and principles to ensure transparency and arm's-length conditions in our transactions with related parties and other situations of potential conflicts of interest. Pursuant to that policy and our bylaws, our Governance and Sustainability Committee is responsible for issuing reports about potential conflicts of interest between us and our shareholders or management and for reviewing the procedure and terms of related party transactions that are submitted to our Board of Directors for approval. Under the policy, if we identify a conflict of interest with a shareholder, then that shareholder or its representative may not participate in any discussions related to the transaction at any shareholders' meeting and will only have access to publicly available information about the matter. The policy also prohibits the extension of any loans to related parties other than our subsidiaries and affiliated companies.

For information regarding investments in affiliated companies and joint ventures and for information regarding transactions with major related parties, see Notes 12 and 31 to our consolidated financial statements.

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DISTRIBUTIONS

Under our dividend policy, our Board of Executive Officers announces, by no later than January 31 of each year, a proposal to be approved by our Board of Directors of a minimum amount, expressed in U.S. dollars, that will be distributed in that year to our shareholders. Distributions may be classified either as dividends or interest on shareholders' equity, and references to "dividends" should be understood to include all distributions regardless of their classification, unless stated otherwise. We determine the minimum dividend payment in U.S. dollars, considering our expected free cash flow generation in the year of distribution. The proposal establishes two installments, to be paid in April and October of each year. Each installment is submitted to the Board of Directors for approval at meetings in April and October. Once approved, dividends are converted into and paid in *reais* at the Brazilian *real*/U.S. dollar exchange rates announced by the Central Bank of Brazil on the last business day before the Board meetings in April and October of each year. The Board of Executive Officers can also propose to the Board of Directors, depending on the evolution of our cash flow performance, an additional payment to shareholders of an amount over and above the minimum dividend initially established.

For 2015, our Board of Executive Officers has proposed a minimum dividend of US$2.0 billion, subject to approval by our Board of Directors. We pay the same amount per share on both common and preferred shares in accordance with our bylaws.

Under Brazilian law and our bylaws, we are required to distribute to our shareholders an annual amount equal to not less than 25% of the distributable amount, referred to as the mandatory dividend, unless the Board of Directors advises our shareholders at our shareholders' meeting that payment of the mandatory dividend for the preceding year is inadvisable in light of our financial condition. For a discussion of dividend distribution provisions under Brazilian corporate law and our bylaws, see *Additional information*.

The tax regime applicable to distributions to ADR and HDR holders and to non-resident shareholders will depend on whether those distributions are classified as dividends or as interest on shareholders' equity. See *Additional information Taxation Brazilian tax considerations.*

By law, we are required to hold an annual shareholders' meeting by April 30 of each year at which an annual dividend may be declared. Additionally, our Board of Directors may declare interim dividends. Under Brazilian corporate law, dividends are generally required to be paid to the holder of record on a dividend declaration date within 60 days following the date the dividend was declared, unless a shareholders' resolution sets forth another date of payment, which, in either case, must occur prior to the end of the fiscal year in which the dividend was declared. A shareholder has a three-year period from the dividend payment date to claim dividends (or payments of interest on shareholders' equity) in respect of its shares, after which we will have no liability for such payments. From 1997 to 2003, all distributions took the form of interest on shareholders' equity. In many years, part of the distribution has been made in the form of interest on shareholders' equity and part as dividends. See *Additional information Memorandum and articles of association Common shares and preferred shares*.

We make cash distributions on the common shares and preferred shares underlying the ADSs in *reais* to the custodian on behalf of the depositary. The custodian then converts such proceeds into U.S. dollars and transfers such U.S. dollars to be delivered to the depositary for distribution to holders of ADRs and HDRs, net of the depositary's fees. For information on taxation of dividend distributions, see *Additional information Taxation Brazilian tax considerations*.

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The following table sets forth the cash distributions we paid to holders of common shares and preferred shares for the periods indicated. Amounts have been restated to give effect to stock splits that we carried out in subsequent periods. We have calculated U.S. dollar conversions using the commercial selling rate in effect on the date of payment. Amounts are stated before any applicable withholding tax.

		Reais per share				
Year	**Payment date**	**Dividends**	**Interest on equity**	**Total**	**U.S. dollars per share at payment date**	**U.S. dollars total at payment date (US$ million)**
2009	April 30	0.52		0.52	0.24	1,255
	October 30		0.49	0.49	0.29	1,469
2010	April 30		0.42	0.42	0.24	1,250
	October 31		0.56	0.56	0.34	1,750
2011	January 31		0.32	0.32	0.19	1,000
	April 29		0.61	0.61	0.38	2,000
	August 26	0.93		0.93	0.58	3,000
	October 31	0.39	0.63	1.02	0.58	3,000
2012	April 30		1.08	1.08	0.59	3,000
	October 31	0.66	0.53	1.19	0.58	3,000
2013	April 30	0.15	0.71	0.86	0.44	2,250
	October 31	0.12	0.82	0.94	0.44	2,250
2014	April 30		0.90	0.90	0.41	2,100
	October 31	0.34	0.65	0.99	0.41	2,100

TRADING MARKETS

Our publicly traded share capital consists of common shares and preferred shares, each without par value. Our common shares and our preferred shares are publicly traded in Brazil on the BM&FBOVESPA, under the ticker symbols VALE3 and VALE5, respectively. Our common shares and preferred shares also trade on the LATIBEX, under the ticker symbols XVALO and XVALP, respectively. The LATIBEX is a non-regulated electronic market created in 1999 by the Madrid stock exchange in order to enable trading of Latin American equity securities.

Our common ADSs, each representing one common share, and our preferred ADSs, each representing one preferred share, are traded on the New York Stock Exchange ("NYSE"), under the ticker symbols VALE and VALE.P, respectively. Our common ADSs and preferred ADSs are traded on Euronext Paris, under the ticker symbols VALE3 and VALE5, respectively. JPMorgan Chase Bank serves as the depositary for both the common and the preferred ADSs. On February 27, 2015, there were 1,396,634,819 ADSs outstanding, 767,932,992 common ADSs and 628,701,827 preferred ADSs, representing 55% of our common shares and 45% of our preferred shares, or 27% of our total share capital.

Our common HDSs, each representing one common share, and our preferred HDSs, each representing one class A preferred share, are traded on the HKEx, under the stock codes 6210 and 6230, respectively. JPMorgan Chase Bank serves as the depositary for both the common and the preferred HDSs. On February 27, 2015, there were 665,850 HDSs outstanding, consisting of 619,300 common HDSs and 46,550 preferred HDSs.

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SHARE PRICE HISTORY

The following table sets forth trading information for our ADSs, as reported by the New York Stock Exchange and our shares, as reported by the BM&FBOVESPA, for the periods indicated. Share prices in the table have been adjusted to reflect stock splits.

	BM&F BOVESPA (Reais per share)				NYSE (US$ per share)			
	Common share		Preferred share		Common ADS		Preferred ADS	
	High	Low	High	Low	High	Low	High	Low
2010	59.85	42.85	51.34	37.50	34.65	23.98	30.50	20.20
2011	60.92	38.59	53.41	36.54	37.02	20.51	32.50	19.58
2012	45.87	32.45	53.41	32.12	37.08	15.88	32.50	15.67
2013	44.10	28.39	42.60	26.00	21.49	12.63	20.88	11.47
1Q	44.1	33.58	42.60	32.39	21.49	16.98	20.88	16.23
2Q	36.19	28.45	34.08	26.70	18.25	12.94	17.14	11.97
3Q	37.85	28.39	33.68	26.00	16.81	12.63	14.98	11.47
4Q	38.47	33.2	34.44	30.47	17.08	14.43	15.33	13.28
2014								
1Q	35.71	29.26	32.73	25.90	15.25	12.42	14.01	10.93
2Q	33.34	28.40	30.12	25.47	15.07	12.62	13.61	11.19
3Q	32.92	26.54	29.36	23.30	14.83	10.87	13.23	9.49
4Q	28.31	18.69	24.80	16.00	11.80	6.86	10.31	5.89
Q4 2014 and Q1 2015								
October 2014	28.31	23.70	24.80	20.50	11.80	9.92	10.31	8.57
November 2014	25.00	22.03	21.55	18.83	10.09	8.53	8.76	7.27
December 2014	22.22	18.69	19.50	16.00	8.73	6.86	7.53	5.89
January 2015	22.84	18.05	20.10	16.19	8.69	6.91	7.63	6.23
February 2015	22.71	18.61	19.55	16.55	8.05	7.03	6.89	6.26

DEPOSITARY SHARES

JPMorgan Chase Bank serves as the depositary for our ADSs and HDSs. ADR holders and HDR holders are required to pay various fees to the depositary, and the depositary may refuse to provide any service for which a fee is assessed until the applicable fee has been paid.

ADR holders and HDR holders are required to pay the depositary amounts in respect of expenses incurred by the depositary or its agents on behalf of ADR holders and HDR holders, including expenses arising from compliance with applicable law, taxes or other governmental charges, facsimile transmission or conversion of foreign currency into U.S. or Hong Kong dollars. In this case, the depositary may decide in its sole discretion to seek payment by either billing holders or by deducting the fee from one or more cash dividends or other cash distributions. The depositary may recover any unpaid taxes or other governmental charges owed by an ADR holder or HDR holder by billing such holder, by deducting the fee from one or more cash dividends or other cash distributions, or by selling underlying shares after reasonable attempts to notify the holder, with the holder liable for any remaining deficiency.

ADR holders are also required to pay additional fees for certain services provided by the depositary, as set forth in the table below.

Depositary service	Fee payable by ADR holders
Issuance, cancellation and delivery of ADRs, including in connection with share distributions, stock splits	US$5.00 or less per 100 ADSs (or portion thereof)
Distribution of dividends	US$0.02 or less per ADS
Withdrawal of shares underlying ADSs	US$5.00 or less per 100 ADSs (or portion thereof)
Transfers, combining or grouping of ADRs	US$1.50 or less per ADS

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HDR holders are also required to pay additional fees for certain services provided by the depositary, as set forth in the table below.

Depositary service	Fee payable by HDR holders
Issuance, cancellation and delivery of HDRs, including in connection with share distributions, stock splits	HK$0.40 or less per HDS (or portion thereof)
Distribution of dividends and other cash distributions	HK$0.40 or less per HDS
Transfer of certificated or direct registration HDRs	HK$2.50 or less per HDS
Administration fee assessed annually	HK$0.40 or less per HDS (or portion thereof)

The depositary reimburses us for certain expenses we incur in connection with the ADR and HDR programs, subject to a ceiling agreed between us and the depositary from time to time. These reimbursable expenses currently include legal and accounting fees, listing fees, investor relations expenses and fees payable to service providers for the distribution of material to ADR holders and HDR holders. For the year ended December 31, 2014, the depositary reimbursed us US$11 million in connection with the ADR and HDR programs.

PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Vale did not engage in any share repurchase program during 2014.

IV. MANAGEMENT AND EMPLOYEES

MANAGEMENT

Board of Directors

Our Board of Directors sets general guidelines and policies for our business and monitors the implementation of those guidelines and policies by our executive officers. Our bylaws provide for the Board of Directors to consist of 11 members and 11 alternates, each of whom serves on behalf of a particular director. All members (and their respective alternates) are elected for the same two-year term at a general shareholders' meeting, can be re-elected, and are subject to removal at any time. Our bylaws provide that the chief executive officer cannot serve as chairman of the Board of Directors.

The Board of Directors holds regularly scheduled meetings on a monthly basis and holds additional meetings when called by the chairman, vice-chairman or any two directors. Decisions of the Board of Directors require a quorum of a majority of the directors and are taken by majority vote. Alternate directors may attend and vote at meetings in the absence of the director for whom the alternate director is acting.

Our bylaws establish the following technical and advisory committees to the Board of Directors:

- The Executive Development Committee is responsible for reporting on general human resources policies, analyzing and reporting on the adequacy of compensation levels for our executive officers, proposing and updating guidelines for evaluating the performance of our executive officers and reporting on policies relating to health and safety.

- The Strategy Committee is responsible for reviewing and making recommendations to the Board of Directors concerning the strategic guidelines and plan submitted annually to the Board by our executive officers, our annual and multi-annual investment budgets, investment or divestiture opportunities submitted by executive officers and mergers and acquisitions.

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- The Finance Committee is responsible for reviewing and making recommendations to the Board of Directors concerning our corporate risks and financial policies and the internal financial control systems, compatibility between the level of distributions to shareholders and the parameters established in the annual budget and the consistency between our general dividend policy and capital structure.

- The Accounting Committee is responsible for recommending to the Board of the Directors the name of an employee to be responsible for our internal auditing, reporting on auditing policies and the execution of our annual auditing plan, tracking the results of our internal auditing, and identifying, prioritizing, and submitting recommendations to the executive officers.

- The Governance and Sustainability Committee is responsible for evaluating and recommending improvements to the effectiveness of our corporate governance practices and the functioning of our Board of Directors, recommending improvements to the code of Ethics and Conduct and our management system in order to avoid conflicts of interests between Vale and its shareholders or management, issuing reports on potential conflicts of interest between Vale and its shareholders or management and reporting on policies relating to corporate responsibility, such as environmental and social responsibility.

Ten of our 11 current directors (and nine of our 10 alternate directors) were appointed by Valepar. This includes an additional director appointed by Valepar, because no individual or group of common and preferred shareholders met the thresholds described under our bylaws and Brazilian corporate law. One director and his respective alternate are appointed by our employees, pursuant to our bylaws. Non-controlling shareholders holding common shares representing at least 15% of our voting capital, and preferred shares representing at least 10% of our total share capital, have the right to appoint one member and an alternate to our Board of Directors. Our employees and our non-controlling shareholders each have the right, as a class, to appoint one director and an alternate. The terms of all of our directors and alternate directors will expire at the Ordinary General Shareholder's meeting of 2015.

The following table lists the current members of the Board of Directors and each director's alternate.

Director(1)	Year first elected	Alternate director(1)	Year first elected
Dan Antonio Marinho Conrado (chairman)	2012	Marco Geovanne Tobias da Silva	2011
Mário da Silveira Teixeira Júnior (vice-chairman)	2003	Luiz Maurício Leuzinger	2012
Marcel Juviniano Barros	2012	Francisco Ferreira Alexandre	2013
Robson Rocha	2011	Sandro Kohler Marcondes	2011
Gueitiro Matsuo Genso(7)	2015	Hayton Jurema da Rocha	2013
Sérgio Alexandre Figueiredo Clemente(6)	2014	Luiz Carlos de Freitas	2007
Hiroyuki Kato(4)	2014	Isao Funaki(5)	2014
Oscar Augusto de Camargo Filho	2003	Eduardo de Oliveira Rodrigues Filho	2011
Luciano Galvão Coutinho	2007	Laura Bedeschi Rego de Mattos(3)	2014
José Mauro Mettrau Carneiro da Cunha	2010	Vacant	
João Batista Cavaglieri(2)	2013	Eduardo Fernando Jardim Pinto(2)	2013

(1) Appointed by Valepar and approved at the shareholders' meeting unless otherwise indicated.

(2) Appointed by our employees and approved at the shareholders' meeting.

(3) As a result of the resignation of Mr. Caio Marcelo de Medeiros Melo in February 2014, Ms. Laura Bedeschi was appointed by the Board of Directors as alternate of Mr. Luciano Coutinho, and such appointment confirmed at the Extraordinary and Ordinary General Shareholder's Meeting of April 2014.

(4) As a result of the resignation of Mr. Fuminobu Kawashima in April 2014, Mr. Hiroyuki Kato was appointed by the Board of Directors as effective director, and such appointment confirmed at the Extraordinary Shareholder's Meeting held in December 2014.

(5) As a result of the resignation of Mr. Hidehiro Takahashi in May 2014, Mr. Isao Funaki was appointed by the Board of Directors as alternate of Mr. Hiroyuki Kato, and such appointment confirmed at the Extraordinary Shareholder's Meeting held in December 2014.

(6) As a result of the resignation of Mr. Renato Gomes in May 2014, Mr. Sergio Clemente was appointed by the Board of Directors as effective director, and such appointment confirmed at the Extraordinary Shareholder's Meeting held in December 2014.

(7)

As a result of the resignation of Mr. Paulo Rogério Caffarelli in March 2015, Mr. Gueitiro Matsuo Genso was appointed by the Board of Directors as effective director on March 12, 2015.

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Below is a summary of the business experience, activities and areas of expertise of our current directors.

Dan Antonio Marinho Conrado, 50: Chairman of Vale's Board of Directors since October 2012.

Other current director or officer positions: Chief Executive Officer of Previ, the pension fund of the employees of Banco do Brasil S.A. ("Banco do Brasil"), since June 2012; Chairman of Valepar since November 2012; Chief Executive Officer of Valepar since October 2012.

Professional experience: Alternate Member of the Board of Directors of Mapfre BBSH2 Participações S.A. ("Mapfre"), a publicly-held insurance company, from June 2011 to April 2014; Member of the Board of Directors of FRAS-LE S.A., a publicly-held friction materials manufacturer, from April 2010 to March 2013; Member of the Board of Directors of Aliança do Brasil S.A., a publicly-held insurance company, from June 2010 to June 2011; Member of the Board of Directors of BRASILPREV S.A. ("BRASILPREV"), a publicly-held pension fund, from January 2010 to March 2010; Director for Marketing and Communications for Banco do Brasil S.A., a publicly-held financial institution, in 2009, where he also served as Director of Distribution, from 2010 to 2011, and Vice President for Retail, Distribution and Operations, from December 2011 to May 2012; Member of the Fiscal Council of Centrais Elétricas de Santa Catarina S.A. CELESC, a publicly-held electric utility company, from April 2000 to April 2002; Member of the Fiscal Council of WEG S.A. ("WEG"), a publicly-held engines manufacturer and full industrial electrical systems provider, from April 2002 to April 2005; Member of the Board of Directors of Fras-le S.A., a publicly-held friction material production company, from April 2010 to March 2013.

Academic background: Degree in Law from Universidade Dom Bosco, Mato Grosso do Sul; MBA degree from COPPEAD /Universidade Federal do Rio de Janeiro ("UFRJ") and an MBA degree from Instituto de Ensino e Pesquisa em Administração ("INEPAD") of Universidade Federal de Mato Grosso UFMT.

Mário da Silveira Teixeira Júnior, 68: Director of Vale since April 2003, Vice-Chairman of Vale's Board of Directors since May 2003.

Other current director or officer positions: Vice-Chairman of the Board of Directors of Valepar since May 2007; Member of Vale's Strategy Committee since March 2006; Member of the Board of Directors of Banco Bradesco S.A. ("Banco Bradesco"), a publicly-held financial institution, since March 1999; Member of the Board of Directors of Bradespar S.A. ("Bradespar"), a publicly-held investment holding company, since April 2002; Member of the Board of Directors of Bradesco Leasing S.A. Arrendamento Mercantil, a subsidiary of Banco Bradesco engaged in the provision of financial leasing operations, since July 2004; Member of the Board of Directors of BBD Participações S.A. since August 2006; Member of the Board of Directors and Strategy Committee of BSP Empreendimentos Imobiliários S.A. since October 2011 and April 2013; and Member of the Board of Directors of BSP Park Estacionamentos e Participações S.A since November 2012.

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Professional experience: Chief Executive Officer of Bradespar, from July 2001 to March 2002; Executive Vice President, from March 1998 to march 1999; Executive Managing Officer, from March 1992 to March 1998; and Department Officer at Banco Bradesco from January 1984 to March 1992; Officer of Bradesco S.A. Corretora de Títulos e Valores Mobiliários, a subsidiary of Banco Bradesco that provides securities brokerage and research services, from March 1983 to January 1984; Executive Vice President of the Associação Nacional dos Bancos de Investimento ("ANBID"), an association of investment banks, from August 1994 to August 1996; Member of the Board of Directors of the Associação Brasileira das Companhias Abertas ("ABRASCA"), an association of Brazilian publicly held companies, from May 1996 to July 2000; Vice-Chairman of the Board of Directors of BES Investimento do Brasil S.A. Banco de Investimento, an investment bank and subsidiary of Banco Espírito Santo, from February 2001 to February 2007; Member of the Board of Directors of Companhia Siderúrgica Nacional CSN, a publicly-held steel company, from March 1996 to April 2000; of Latasa S.A. ("Latasa"), now called Rexam Beverage Can South America S.A., an aluminum products manufacturer, from April 1992 to April 2000; of São Paulo Alpargatas S.A., a clothing and sporting goods manufacturer, from March 1996 to April 1999; of Tigre S.A. Tubos e Conexões, a pipe and construction materials manufacturer, from April 1997 to April 1998; of Everest Leasing S.A. Arrendamento Mercantil, a leasing company affiliated with Banco Bradesco, from February 2004 to July 2004; as well as the electric utility companies Companhia Paulista de Força e Luz CPFL, from November 1997 to April 2005; CPFL de Energia S.A., from August 2001 to April 2005; Companhia Piratininga de Força e Luz, from April 2003 to April 2005; and the electric utility holding companies CPFL Energia S.A. ("CPFL Energia"), from March 2000 to April 2006; and VBC Energia S.A. from March 1997 to April 2005.

Academic background: Degree in Civil Engineering and in Business Administration from Universidade Presbiteriana Mackenzie, São Paulo.

Marcel Juviniano Barros, 52: Director of Vale since October 2012.

Other current director or officer positions: Officer of Securities of Previ since 2012; Member of the Board of Directors of Valepar since 2012; Member of the Board of PRC-Principles for Responsible Investment of the UN since 2012.

Professional experience: Between 1987 and 2012 held several positions at Banco do Brasil, a publicly-held financial institution, including the position of Union Auditor; General-Secretary of the National Confederation of Financial Branch Workers, where he coordinated international networks from 2008 to 2011.

Academic background: Degree in History from Fundação Municipal de Ensino Superior de Bragança Paulista.

Robson Rocha, 56: Director of Vale since April 2011.

Other current director or officer positions: Vice President for Human Resources Management and Sustainable Development of Banco do Brasil since April 2009.

Professional experience: Vice-Chairman of CPFL Energia S.A. from April 2010 to April 2011; Member of the Board of Directors of Banco Nossa Caixa S.A. from May to November 2009; Officer of Banco do Brasil from May 2008 to April 2009.

Academic background: Degree in Business Administration from UNICENTRO Newton Paiva, Belo Horizonte; post-graduate degree in Strategic Management and Basic General Training for Senior Executives from Universidade Federal de Minas Gerais ("UFMG"); Master's degree in Marketing from Fundação Ciências Humanas Pedro Leopoldo; and an MBA degree in Finance from Fundação Dom Cabral.

Sérgio Alexandre Figueiredo Clemente, 55: Director of Vale since 2014.

Other current director or officer positions: Executive Vice President of Banco Bradesco since 2012; Vice President of Bradesco Leasing S.A. Arrendamento Mercantil since 2012.

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Professional experience: Department Officer of Banco Bradesco from 2000 to 2006; Executive Managing Officer of Banco Bradesco from 2006 to 2012.

Academic background: Degree in Mechanical Engineering from Pontifícia Universidade Católica de Minas Gerais; Executive MBA in Finance from IBMEC; Advanced Management program from Fundação Dom Cabral and INSEAD.

Hiroyuki Kato, 58: Director of Vale since April 2014.

Other current director or officer positions: Representative Director and Senior Executive Managing Officer at Mitsui.

Professional experience: Executive Managing Officer and Chief Operating Officer of Energy Business Unit I at Mitsui, from April 2012 to March 2014; Managing Officer and Chief Operating Officer of Energy Business Unit I at Mitsui, from April 2010 to March 2012; General Manager, Exploration & Production Division, Energy Business Unit I, Tokyo head office of Mitsui, from May 2008 to March 2010; General Manager, Coal Division, Energy Business Unit I, Tokyo head office of Mitsui, from April 2007 to April 2008; Member of the Board of Directors of Mitsui Oil Exploration Co., Ltd., an Oil & Gas exploration company, from June 2008 to March 2014; Member of the Board of Directors of Mitsui Oil Exploration Co., Ltd., an Oil & Gas exploration company, from June 2008 to March 2014; Member of the Board of Directors of Canada Oil Sands Co., Ltd., an Oil & Gas company, from June 2010 to October 2013; Member of the Board of Directors of Mitsui Oil Co., Ltd., a domestic and overseas sales of petroleum products company, from June 2010 to June 2012.

Academic background: Degree in Commercial Science from Keio University; Master's degree in Business Administration from MIT Sloan School of Management.

Gueitiro Matsuo Genso, 43: Director of Vale since 2015.

Other current director or officer positions: President of Previ since 2015; Member of the Board of Directors of the Brazilian Interbank Payment Chamber since August 2014; Member of the Fiscal Council of Grupo Segurador BB Mapfre since June 2011.

Professional experience: Executive Officer (Private Customers) of Banco do Brasil from 2014 to 2015; Executive Officer (Home Loans) of Banco do Brasil from 2011 to 2014; Executive Officer (Loans) of Banco do Brasil from 2010 to 2011; Executive Officer (Products) of Banco Nossa Caixa S.A. from 2009 to 2010.

Academic background: Degree in Business Administration from Faculdade SPEI Curitiba; MBA degree from Fundação Getúlio Vargas in Cascavel; MBA degree in Agribusiness from Escola Superior de Agricultura Luiz de Queiroz ESALQ in Piracicaba.

Oscar Augusto de Camargo Filho, 77: Director of Vale since September 2003.

Other current director or officer positions: Director of Valepar since 2003; Member of Vale's Strategy and Executive Development Committee since 2003; managing partner of CWH Consultoria Empresarial, a business consulting firm, since 2003.

Professional experience: Chairman of the Board of Directors of MRS from 1996 to 2003 and Chief Executive Officer and Commercial Director of CAEMI Mineração e Metalurgia S.A. ("CAEMI"), a mining holding company that was acquired by Vale in 2006, where Mr. Camargo Filho also held various positions from 1973 to 2003.

Academic background: Degree in Law degree from Universidade de São Paulo ("USP") and post graduate degree in International Marketing from Cambridge University.

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Luciano Galvão Coutinho, 68: Director of Vale since August 2007.

Other current director or officer positions: President of BNDES since 2007; Member of the Board of Directors of Petrobras since April 2013; and Member of Vale's Strategic Committee since May 2009.

Professional experience: Partner of LCA Consultores, a business consulting firm, from 1995 until 2007 and partner of Macrotempo Consultoria, also a business consulting firm, from 1990 to 2007; Member of the Board of Directors of Ripasa S.A. Celulose e Papel, a paper manufacturer, from 2002 to 2005, and Neoenergia, from 2003 to 2004, and Executive Secretary of the Ministry of Science and Technology from 1985 to 1988. Mr. Coutinho is an invited professor at the Universidade Estadual de Campinas ("UNICAMP") and has been a visiting professor at USP, the University of Paris XIII, the University of Texas and the Ortega y Gasset Institute.

Academic background: Degree in Economics from USP; Master's degree in Economics from the Economic Research Institute of USP and a Ph.D. in Economics from Cornell University.

José Mauro Mettrau Carneiro da Cunha, 65: Director of Vale since June 2010.

Other current director or officer positions: Member of the Board of Directors of a number of publicly-held Brazilian telecommunication companies, including Calais Participações S.A. since 2007, Telemar Participações S.A. since 2008 and Oi S.A. since 2009 (as Chairman); Member of the Board of Directors of Santo Antonio Energia S.A., a Brazilian energy company, since 2008; Chairman of the Board of Directors since 2007 of Dommo Empreendimentos Imobiliários, a holding company.

Professional experience: Chief Executive Officer of Oi S.A. in 2013; Chairman of the Board of Directors of Tele Norte Celular Participações S.A., from 2008 to 2012, Tele Norte Leste Participações S.A. from 2007 to 2012, Telemar Norte Leste S.A. from 2007 to 2012, Coari Participações S.A. from 2007 to 2012, TNL PCS S.A. from 2007 to 2012; Member of the Board of Directors of Lupatech S.A., a publicly-held oil and gas production support company, from 2006 to 2012, Log-In from 2007 to 2011, Braskem S.A., a Brazilian petrochemical company, from 2007 to April 2010, where he previously served as Vice President of Strategic Planning from 2003 to 2005 and as Director, from 2007 to 2010, Politeno Indústria e Comércio S.A., a manufacturer of polyethylene and thermoplastic resins, from 2003 to 2004, Banco do Estado do Espírito Santo ("BANESTES"), a financial institution, from 2008 to 2009, LIGHT Serviços de Eletricidade S.A., an energy distributor, from 1997 to 2000, Aracruz Celulose S.A., a paper manufacturer, from 1997 to 2002, and TNL from 1999 to 2003, where he also served as an Alternate Member of the Board of Directors in 2006.

Academic background: Degree in Mechanical Engineering from Universidade Católica de Petrópolis in Rio de Janeiro; executive education program in management from the Anderson School of Management at the University of California.

João Batista Cavaglieri, 59: Director of Vale since April 2013.

Professional experience: Vale employee since 1973, when he was licensed to hold the position of treasurer of SINDFER ES/MG (Sindicato dos Trabalhadores em Empresas Ferroviárias dos Estados do Espírito Santo e Minas Gerais); Interim president of SINDFER ES/MG from 2002 to 2005, and since then current president of SINDFER ES/MG; Member of the Board of Directors of Vale from 2007 to 2009.

Academic background: Degree in Mechanical Maintenance from SENAI.

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Executive officers

The executive officers are responsible for day-to-day operations and the implementation of the general policies and guidelines set forth by the Board of Directors. Our bylaws provide for a minimum of six and a maximum of 11 executive officers. The executive officers hold weekly meetings and hold additional meetings when called by any executive officer. Under Brazilian corporate law, executive officers must be Brazilian residents.

The Board of Directors appoints executive officers for two-year terms and may remove them at any time. The following table lists our current executive officers.

	Year of appointment	Position	Age
Murilo Pinto de Oliveira Ferreira	2011	Chief Executive Officer	61
Luciano Siani Pires	2012	Chief Financial Officer and Executive Officer for Investor Relations	45
Gerd Peter Poppinga(1)	2014	Executive Officer (Ferrous Minerals)	55
Vacant(2)		Executive Officer (Base Metals Operations)	44
Galib Abrahão Chaim	2011	Executive Officer (Implementation of Capital Projects)	64
Humberto Ramos de Freitas	2011	Executive Officer (Logistics and Mineral Research)	61
Vânia Lucia Chaves Somavilla	2011	Executive Officer (Human Resources, Health and Safety, Sustainability and Energy)	55
Roger Allan Downey	2012	Executive Officer (Fertilizer and Coal)	47

(1) Gerd Peter Poppinga was Executive Officer for Base Metals Operations and Information Technology of Vale from November 2011 to November 2014.

(2) In November 2014, our Board of Directors appointed Ms. Jennifer Maki as Executive Officer for Base Metals Operations, subject to her obtaining a visa and relocating to Brazil, as required under Brazilian law.

Below is a summary of the business experience, activities and areas of expertise of our current executive officers.

Murilo Pinto de Oliveira Ferreira, 61: Chief Executive Officer of Vale and Member of Vale's Strategy and Disclosure Committees since May 2011.

Professional experience: Executive Officer of Vale with responsibility over several different departments from 2005 to 2008, including Business Development, M&A, Steel, Energy, Nickel and Base Metals; Chief Executive Officer of Vale Canada from 2007 to 2008 and member of the Board of Directors from 2006 to 2007; Chairman of the Board of Directors of Alunorte from 2005 to 2008, MRN from 2006 to 2008 and Valesul Alumíno S.A., a subsidiary of Vale involved in the production of aluminum, from 2006 to 2008; Member of the Board of Commissioners of PTVI, from 2007 to 2008. Mr. Ferreira has been a Member of the Board of Directors of several companies, including Usiminas, a Brazilian steel company, from 2006 to 2008, and was a partner at Studio Investimentos, an asset management firm with a focus on the Brazilian stock market, from October 2009 to March 2011.

Academic background: Degree in Business Administration from Fundação Getúlio Vargas in São Paulo; post-graduate degree in Business Administration and Finance from Fundação Getúlio Vargas in Rio de Janeiro and a senior executive education program at the IMD Business School in Lausanne, Switzerland.

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Luciano Siani Pires, 45: Chief Financial Officer and Executive Officer for Investor Relations of Vale since August 2012 and Member of Vale's Executive Risk Management, Finance and Disclosure Committees since August 2012.

Professional experience: Alternate Member of the Board of Directors of Vale, from 2005 to 2007; Global Officer of Strategic Planning, from 2008 to 2009 and in 2011, and Global Officer of Human Resources, from 2009 to 2011 of Vale; Member of the Board of Directors of Valepar, from 2007 to 2008; Several executive positions at BNDES, including Executive Secretary and Chief of Staff of the Presidency, Head of Capital Markets and Head of Export Finance, from 1992 to 2008; Consultant at McKinsey & Company from 2003 to 2005; Member of the Board of Directors of Telemar Participações S.A., from 2005 to 2008; Member of the Board of Directors of Suzano Papel e Celulose S.A., from 2005 to 2008.

Academic background: Degree in Mechanical Engineering from Pontifícia Universidade Católica do Rio de Janeiro and an MBA degree in Finance from the Stern School of Business, New York University.

Gerd Peter Poppinga, 55: Executive Officer for Ferrous Minerals of Vale since November 2014.

Other current director or officer positions: Member of the Board of Commissioners of PTVI since April 2009.

Professional experience: Executive Officer for Base Metals Operations and Information Technology of Vale from November 2011 to November 2014; Executive Vice President for Asia Pacific of Vale Canada from November 2009 to November 2011; Director for Strategy, Business Development, Human Resources and Sustainability of Vale Canada from May 2008 to October 2009; Director for Strategy and Information Technology of Vale Canada from November 2007 to April 2008. In connection with his roles at Vale, Mr. Poppinga was also member of the board of directors and the executive board of several companies from 2005 to 2010. From 1985 until 1999, Mr. Poppinga also held several positions at Mineração da Trinidade S.A. SAMITRI, a publicly held mining company that was acquired by Vale in 2001.

Academic Background: Degrees in Geology from UFRJ and Universität Erlangen, Germany; Post-graduate degree in Applied Geology from Universität Clausthal Zellerfeld, Germany; Specialization in Geostatistics from Universidade Federal de Ouro Preto (UFOP); currently waiting for thesis approval for the Executive MBA from Fundação Dom Cabral; Negotiation Dynamics Supply Chain Management at INSEAD; Senior Leadership Program at M.I.T.; Leadership Program at IMD Business School, Lausanne, Switzerland; and Strategic Megatrends with Asia Focus program at Kellogg Singapore.

Galib Abrahão Chaim, 64: Executive Officer for Implementation of Capital Projects of Vale since November 2011.

Professional experience: Director of Vale's Department of Coal Projects in Australia, Mozambique, Zambia and Indonesia and Country Manager for Mozambique from 2005 to 2011; Industrial Officer for Alunorte from 1994 to 2005; Industrial Superintendent for Albras from 1984 to 1994; and Technical Superintendent of MRN from 1979 to 1984.

Academic Background: Degree in Engineering from Universidade Federal de Minas Gerais; MBA in Business Management from Fundação Getúlio Vargas.

Humberto Ramos de Freitas, 61: Executive Officer for Logistics and Mineral Research of Vale since November 2011.

Other current director or officer positions: Chairman of the Board of ABTP Associação Brasileira de Terminais Portuários, a non-profit organization that deals with issues related to Brazilian ports, since May 2009.

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Professional experience: Member of the Board of Directors of MRS from December 2010 to October 2012; Logistics Operations Officer of Vale from September 2009 to June 2010; Director for Ports and Navigation of Vale from March 2007 to August 2009; President and Chief Executive Officer, from August 2003 to February 2007, of Valesul Alumínio S.A., a subsidiary of Vale involved in the production of aluminum; General Superintendent of Ports for CSN from December 1997 to November 1999.

Academic background: Degree in Metallurgical Engineering from the Escola de Minas de Ouro Preto (Ouro Preto School of Mines); Executive Development Program at the Kellogg School of Management at Northwestern University; Advanced Management and Business Development Partnership programs from Fundação Dom Cabral/INSEAD; senior executive education program at M.I.T; Strategic Business Planning from McKinsey Consulting; Management Training Course from the Association of Overseas Technical Scholarship in Tokyo, Japan.

Vânia Lucia Chaves Somavilla, 55: Executive Officer for Human Resources, Health and Safety, Sustainability and Energy of Vale since May 2011.

Other current director or officer positions: President of the Board of Trustees (*Conselho de Curadores*) of Fundação Vale, since January 2013; President of the Board of Directors of Vale Energia S.A., since August 2014; Officer of Vale Energia S.A., since May 2012.

Professional experience: Chief Executive Officer of Vale Energia S.A. from April 2009 to April 2010; Director of the Department of the Environment and Sustainability at Vale from April 2010 until May 2011; Director Vale's Energy Department from March 2004 until March 2010; Chief Executive Officer and Member of the Board of Directors of Vale Óleo e Gás from May 2009 to August 2010; Member of the Board of Directors of Albras from 2009 to 2013; Chief Executive Officer of Vale Florestar S.A., from November 2010 to August 2011. In connection with her roles at Vale, Ms. Somavilla was also member of the board of directors and the executive board of several companies and consortia in the energy sector from 2004 until 2010. She was also head of New Business Development for Energy Generation and of Project Development and Implementation for large and small hydroelectric plant projects at Companhia Energética de Minas Gerais CEMIG, a publicly held company involved in the generation, transmission, distribution and sale of electricity, from 1995 until 2001.

Academic Background: Degree in Civil Engineering from UFMG; post-graduate degree in Dam Engineering from Universidade de Ouro Preto; specialization in Management of Hydro Power Utilities from SIDA, Stockholm, Sweden; MBA in Corporate Finance from IBMEC, Belo Horizonte; Transformational Leadership program from M.I.T. and Mastering Leadership program from IMD, Lausanne, Switzerland.

Roger Allan Downey, 47: Executive Officer for Fertilizer and Coal of Vale since May 2012.

Professional experience: Managing partner of CWH Consultoria Empresarial SC Ltda., a privately-held consulting company, from January 2012 to April 2012; Alternate Member of the Board of Directors of Valepar from February 2012 to April 2012; Chief Executive Officer of MMX Mineração e Metálicos S.A., a publicly-held mining company, from August 2009 to November 2011; Director of Equity Research for Banco de Investimentos Credit Suisse (Brasil) S.A., a privately-held brokerage and investment bank, from August 2005 to August 2009; Strategic Marketing Manager for Iron Ore at Vale from 2002 to 2005; Commercial and New Business Manager for Rio Tinto, a publicly-held mining company, from October 1996 to September 2002; Market Coordinator for CAEMI, from December 1991 to October 1996.

Academic background: Graduate Certificate of Management and an MBA from the University of Western Australia, Graduate Diploma in Business Administration from the Australian National Business School.

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Conflicts of interest

Under Brazilian corporate law, if a director or an executive officer has a conflict of interest with the Company in connection with any proposed transaction, the director or executive officer may not vote in any decision of the Board of Directors or of the Board of Executive Officers regarding such transaction and must disclose the nature and extent of the conflicting interest for transcription in the minutes of the meeting, and under our Policy on Related Party Transactions, the director or executive officer should not receive any relevant documentation or information and should not participate in any related discussions. In any case, a director or an executive officer may not transact any business with the Company, except on reasonable or fair terms and conditions that are identical to the terms and conditions prevailing in the market or offered by unrelated parties. For more details about our Policy on Related Party Transactions see *Share ownership and trading Related party transactions*.

Fiscal Council

We have a fiscal council established in accordance with Brazilian law. The primary responsibilities of the fiscal council under Brazilian corporate law are to monitor management's activities, review the Company's financial statements, and report its findings to the shareholders. Pursuant to a written policy, our Fiscal Council requires management to obtain the Fiscal Council's pre-approval before engaging the independent auditors to provide any audit or permitted non-audit services to Vale or its consolidated subsidiaries. Under the policy, the Fiscal Council has pre-approved a detailed list of services based on detailed proposals from our auditors up to specified monetary limits. The list of pre-approved services is updated as applicable. Services that are not listed, that exceed the specified limits, or that relate to internal controls must be separately pre-approved by the Fiscal Council. The policy also sets forth a list of prohibited services. The Fiscal Council is provided with reports on the services provided under the policy on a periodic basis, review and monitor the Company's external auditor's independence and objectivity. The Fiscal Council has the power to review and evaluate the performance of the Company's external auditors on an annual basis and make a recommendation to the Board of Directors on whether the Company should remove and replace its existing external auditors. The Fiscal Council may also recommend withholding the payment of compensation to the independent auditors and has the power to mediate disagreements between management and the auditors regarding financial reporting.

Under our bylaws and internal regulations, our Fiscal Council is also responsible for evaluating the effectiveness of the procedures for the receipt, retention and treatment of any complaints related to accounting, controls and audit issues, as well as procedures for the confidential, anonymous submission of concerns regarding such matters.

Brazilian law requires the members of a fiscal council to meet certain eligibility requirements. A member of our Fiscal Council cannot (i) hold office as a member of the board of directors, fiscal council or advisory committee of any company that competes with Vale or otherwise has a conflicting interest with Vale, unless compliance with this requirement is expressly waived by shareholder vote, (ii) be an employee or member of senior management or the Board of Directors of Vale or its subsidiaries or affiliates, or (iii) be a spouse or relative within the third degree by affinity or consanguinity of an officer or director of Vale.

We are subject to Exchange Act Rule 10A-3, which requires, absent an exemption, that a listed company maintains a standing audit committee composed of members of the Board of Directors that meet specified requirements. In lieu of establishing an independent audit committee, we have given our Fiscal Council the necessary powers to qualify for the exemption set forth in Exchange Act Rule 10A-3(c)(3). We believe our Fiscal Council satisfies the independence and other requirements of Exchange Act Rule 10A-3 that would apply in the absence of our reliance on the exemption. Pursuant to our undertakings to the HKEx, the Fiscal Council must be comprised of at least three members who satisfy specified independence requirements set out in the HKEx Listing Rules. We have received a written confirmation of independence pursuant to Rule 3.13 of the HKEx Listing Rules from each of the members of our Fiscal Council appointed by Valepar and consider them able to satisfy these independence requirements.

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Our Board of Directors has determined that one of the members of our Fiscal Council, Mr. Aníbal Moreira dos Santos, is an audit committee financial expert. In addition, Mr. Moreira dos Santos meets the applicable independence requirements for Fiscal Council membership under Brazilian law and the NYSE independence requirements that would apply to audit committee members in the absence of our reliance on the exemption set forth in Exchange Act Rule 10A-3(c)(3).

Members of the Fiscal Council are elected by our shareholders for one-year terms. The current members of the Fiscal Council and their respective alternates were elected on April 17, 2014. The terms of the members of the Fiscal Council expire at the next annual shareholders' meeting following election.

Two members of our Fiscal Council (and the respective alternates) may be elected by non-controlling shareholders: one member may be appointed by our preferred shareholders and one member may be appointed by minority holders of common shares pursuant to applicable CVM rules.

The following table lists the current and alternate members of the Fiscal Council.

Current member	First year of appointment	Alternate	First year of appointment
Dyogo Henrique de Oliveira(1)	2014	Paulo Fontoura Valle(1)	2012
Arnaldo José Vollet(2)	2011	Valeriano Durval Guimarães Gomes(2)	2013
Marcelo Amaral Moraes(2)	2004	Vacant(3)	
Aníbal Moreira dos Santos(2)	2005	Oswald Mário Pêgo de Amorim Azevedo(2)	2004

(1) Appointed by preferred shareholders.

(2) Appointed by Valepar.

(3) Vacant since the General Ordinary Shareholders' meeting of 2014.

Below is a summary of the business experience, activities and areas of expertise of the members of our Fiscal Council.

Dyogo Henrique de Oliveira, 39: Member of Vale's Fiscal Council since 2014.

Other director or officer positions: Executive Secretary of the Brazilian Ministry of Planning, Budget and Management since 2015; Chairman of the Board of Directors of Banco do Nordeste do Brasil S.A., a state-owned financial institution, since 2011.

Professional experience: Deputy Executive Secretary of the Brazilian Ministry of Finance from 2014 to 2015 and from 2008 to 2013; Interim Executive Secretary of the Ministry of Finance from 2013 to 2014.

Academic background: Degree in Economics from UNB, a post-graduate degree in Public Policy from ENAP National School of Public Administration, an MBA degree from Fundação Getúlio Vargas and a PhD in Economics from UNB.

Arnaldo José Vollet, 66: Member of Vale's Fiscal Council since April 2011.

Other director or officer positions: Member of Caixa Econômica Federal's Audit Committee since October 2013.

Professional experience: Executive Officer of BB DTVM, a subsidiary of Banco do Brasil, from 2002 to 2009; Financial and Investor Relations Officer of Companhia de Energia Elétrica da Bahia COELBA, a publicly held electricity company, from 2000 to 2002; Member of the Fiscal Council of Telesp Celular Participações, a publicly held telecommunications company, from 1999 to 2000; Member of the Fiscal Council of CELPE, from 2004 to 2009; Director of Guaraniana, now Neoenergia S.A., from 2002 to 2003; Alternate Member of the Board of Directors of CEMIG, a publicly held electricity company, from 2003 to 2005; Member of the Board of Directors of Pronor and Nitrocarbono, both chemical companies, from 1997 to 1998.

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Academic background: Degree in Mathematics from USP and MBA degree in Finance from IBMEC/RJ.

Marcelo Amaral Moraes, 47: Member of Vale's Fiscal Council since April 2004.

Other director or officer positions: Managing Executive Officer at Capital Dynamics Investimentos Ltda. since January 2012.

Professional experience: Member of the Deliberative Council of ABVCAP from 2010 to 2012; Managing Executive Officer and partner responsible for specialized funds at Stratus Investimentos Ltda., a private equity and venture capital firm, from 2006 to 2010; Investment Manager at Bradespar from 2000 to 2006; worked in the mergers and acquisitions and capital markets departments of Banco Bozano, Simonsen from 1995 to 2000; Alternate Member of the Board of Directors of Net Serviços de Telecomunicação S.A. from 2004 to 2005; Alternate Member of the Board of Directors of Vale in 2003.

Academic background: Degree in Economics from UFRJ, an MBA degree with emphasis in Finance from UFRJ/COPPEAD, and a post-graduate degree in Business law and Arbitration from Fundação Getúlio Vargas in São Paulo.

Aníbal Moreira dos Santos, 76: Member of Vale's Fiscal Council since April 2005.

Other director or officer positions: Member of Fiscal Council of Log-In since 2009.

Professional experience: From 1998 until his retirement in 2003, Mr. Moreira dos Santos served as Executive Officer of several CAEMI subsidiaries, including Caemi Canada Inc., Caemi Canada Investments Inc., CMM Overseas, Ltd., Caemi International Holdings BV and Caemi International Investments NV, and as Chief Accounting Officer of CAEMI from 1983 to 2003. He also served as Member of the Fiscal Council of CADAM from 1999 to 2003 and as an Alternate Member of the Board of Directors of MBR and Empreedimentos Brasileiros de Mineração, an iron ore asset holding company, from 1998 to 2003.

Academic background: Degree in Accounting from Fundação Getúlio Vargas in Rio de Janeiro.

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MANAGEMENT COMPENSATION

Under our bylaws, our shareholders are responsible for establishing the aggregate compensation we pay to the members of our Board of Directors and our Board of Executive Officers, and the Board of Directors allocates the compensation among its members and the Board of Executive Officers.

Our shareholders determine this annual aggregate compensation at the general shareholders' meeting each year. In order to establish aggregate director and officer compensation, our shareholders usually take into account various factors, which range from attributes, experience and skills of our directors and executive officers to the recent performance of our operations. Once aggregate compensation is established, our Board of Directors is then responsible for distributing such aggregate compensation in compliance with our bylaws among the directors and executive officers. The Executive Development Committee makes recommendations to the Board concerning the annual aggregate compensation of the executive officers. In addition to fixed compensation, our executive officers are also eligible for bonuses and incentive payments.

Executive officers

For the year ended December 31, 2014, the amount paid to the executive officers, including compensation accrued for the year and payable at a later date, is set forth in the table below.

	For the year ended December 31, 2014
	(US$ million)
Fixed compensation and in kind benefits	12.3
Variable compensation	12.9
Pension, retirement or similar benefits	1.2
Severance	0.0
Social security contributions	4.5
Total paid to the executive officers	30.9

Fixed compensation and in kind benefits include a base salary in cash, paid on a monthly basis, reimbursement for certain investments in private pension plans, health care, relocation expenses, life insurance, driver and car expenses.

Variable compensation consists of (i) an annual cash bonus, based on specific targets for each executive officer, approved by our Board of Directors, and (ii) payments tied to the performance of our shares under two programs, the Matching Program and the Performance Shares Units (PSU). Under our Matching Program, our executive officers receive a cash payment, vested after a three-year cycle, equivalent to the market value of the preferred shares or ADRs owned by them that are subject to the plan. Since 2014, the participation and vesting for a three-year cycle in our Matching Program has been mandatory for our executive officers. At the end of the three-year cycle, each executive officer receives a cash payment matching the market value of the vested shares. Under our PSU program, our executive officers receive payments in cash tied to Vale's position in a selected group of peer companies, based on the total return (dividend payments and share appreciation) on common shares of those companies in a four-year cycle.

Pension, retirement or similar benefits consist of our contribution to Valia, the manager of pension plans sponsored by Vale. Social security contributions are mandatory contributions we are required to make to the Brazilian government for our executive officers.

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Board of Directors

In 2014, we paid US$1.9 million in aggregate to the members of our Board of Directors for services in all capacities, all of which was fixed compensation. There are no pension, retirement or similar benefits for the members of our Board of Directors. On February 27, 2015, the total number of common shares owned by our directors and executive officers was 11,816, and the total number of preferred shares owned by our directors and executive officers was 857,797. None of our directors or executive officers beneficially owns 1% or more of any class of our shares.

Fiscal Council

We paid an aggregate of US$0.55 million to members of the Fiscal Council in 2014. In addition, the members of the Fiscal Council are reimbursed for travel expenses related to the performance of their functions.

Advisory committees

We paid an aggregate of US$0.13 million to members of our advisory committees in 2014. Under Article 15 of our bylaws, those members who are directors or officers of Vale are not entitled to additional compensation for participating on a committee. Members of our advisory committees are reimbursed for travel expenses related to the performance of their duties.

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EMPLOYEES

The following tables set forth the number of our employees by business and by location as of the dates indicated.

	At December 31,(1)		
By business:	**2012**	**2013**	**2014**
Ferrous minerals	52,900	52,542	46,832
Coal	2,174	2,356	1,897
Base metals	16,116	15,772	15,564
Fertilizer nutrients	7,476	6,772	6,773
Corporate activities	6,639	5,844	5,465
Total	85,305	83,286	76,531

(1) The figures reported for 2012 and 2013 include VLI's employees, which amounted to 5,155 in 2012 and 5,442 in 2013. For 2014, we did not include VLI's employees.

	At December 31,		
By location:	**2012**	**2013**	**2014**
South America	69,625	67,392	60,903
North America	6,766	6,681	6,673
Europe	395	397	395
Asia	4,232	4,235	4,476
Oceania	2,265	2,279	1,706
Africa	2,022	2,302	2,378
Total	85,305	83,286	76,531

We negotiate wages and benefits with a large number of unions worldwide that represent our employees. We have collective agreements with unionized employees at our operations in Australia, Brazil, Canada, Indonesia, Malawi, Mozambique, New Caledonia, Peru and the United Kingdom.

Wages and benefits

Wages and benefits for Vale and its subsidiaries are generally established on a company-by-company basis. We establish our wage and benefits programs for Vale S.A. and its subsidiaries, other than Vale Canada, in periodic negotiations with unions. In November 2013, we reached a two-year agreement with the Brazilian unions, providing for a salary increase of 6% beginning in November 2013, and another salary increase of 5.4% beginning in November 2014 for our employees in Brazil. The provisions of our collective bargaining agreements with unions also apply to our non-unionized employees. Vale Canada also establishes wages and benefits for its unionized employees through collective bargaining agreements. For non-unionized employees, Vale Canada undertakes an annual review of salaries. We also provide our employees and their dependents with other benefits, including supplementary medical assistance.

Pension plans

Brazilian employees of Vale and of most of its Brazilian subsidiaries are eligible to participate in pension plans managed by Valia.

Most of the participants in plans held by Valia are participants in a plan named "Vale Mais", which Valia implemented in May 2000. This plan is primarily a defined contribution plan with a defined benefit feature relating to service prior to May 2000 and another defined benefit

feature to cover temporary or permanent disability, pension and financial protection to dependents in case of death. Valia also operates a defined benefit plan, closed to new participants since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees that declined to transfer from the old plan to the "Vale Mais" plan when it was established in May 2000.

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Employees within our Base Metals operations, principally in Canada, the United States and the United Kingdom, participate in defined benefit pension plans and defined contribution pension plans. All new employees within our Base Metals operations participate in defined contribution pension plans. We have also private pension plans with defined contribution in Switzerland, Malawi and Zambia. Since December 1, 2012, PTVI is no longer managing the defined benefit pension plans. As a result, all participants of the pension plans have transferred entirely to the defined contribution pension plans. The termination, effective December 31, 2012 on a fully funded basis, of the defined benefit pension plan for employees in the United States, was completed in 2013. Employees in the United States participate in a defined contribution 401(k) plan.

Performance-based compensation

All Vale parent-company employees may receive incentive compensation each year in an amount based on the performance of Vale, which can range from 0 to 200% of the annual fixed compensation of the individual employee. Similar incentive compensation arrangements are in place at our subsidiaries.

Qualifying management personnel are eligible to participate in the PSU and Matching programs. See description of these programs under *Management compensation Executive officers*.

V. ADDITIONAL INFORMATION

LEGAL PROCEEDINGS

We and our subsidiaries are defendants in numerous legal actions in the ordinary course of business, including civil, administrative, tax, social security and labor proceedings. The most significant proceedings are discussed below. Except as otherwise noted below, the amounts claimed, and the amounts of our provisions for possible losses, are stated as of December 31, 2014. See Note 18 to our consolidated financial statements for further information.

Itabira suits

We are a defendant in two separate actions brought by the municipality of Itabira, in the Brazilian state of Minas Gerais. In the first action, filed in August 1996, the municipality of Itabira alleges that our Itabira iron ore mining operations have caused environmental and social harm, and claims damages with respect to the alleged environmental degradation of the site of one of our mines, as well as the immediate restoration of the affected ecological complex and the performance of compensatory environmental programs in the region. The damages sought, as adjusted from the date of the claim, amount to approximately R$3.545 billion (US$1.337 billion). There have been hearings in this action and a report favorable to Vale was issued. Additional expert evidence will be presented, as requested by the municipality.

In the second action, filed in September 1996, the municipality of Itabira claims the right to be reimbursed for expenses it has incurred in connection with public services rendered as a consequence of our mining activities. The damages sought, as adjusted from the date of the claim, amount to approximately R$4.105 billion (US$1.549 billion). This proceeding is currently suspended, at the request of both parties, for a settlement negotiation.

CFEM-related proceedings

We are engaged in numerous administrative and judicial proceedings related to the mining royalty known as the CFEM. For more information about CFEM, see *Information on the Company Regulatory matters Royalties and other taxes on mining activities*. These proceedings arise out of a large number of assessments by the DNPM, an agency of the Ministry of Mines and Energy of the Brazilian government. The proceedings concern different interpretations of DNPM's method of estimating sales, the statute of limitations, due process of law, payment of royalties on pellet sales and CFEM charges on the revenues generated by our subsidiaries abroad.

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We are contesting DNPM's claims using the available avenues under Brazilian law, beginning with challenges in administrative tribunals and proceeding with challenges in the judicial courts. We have received some favorable and unfavorable decisions, and we cannot predict the amount of time required before final judicial resolutions.

We determined that we have a probable loss in connection with the dispute related to the deductibility of transportation expenditures in arriving at the amount upon which the CFEM is calculated. On December 31, 2014, we had a provision of approximately R$302 million (US$113.7 million) for this probable loss. The aggregate amount claimed in the pending assessments is approximately R$4.837 billion (US$1.822 billion), including interest and penalties through December 31, 2014.

ICMS tax assessments

The tax authorities of the Brazilian states of Pará and Minas Gerais have issued tax assessments (*autos de infração*) against us for additional payments of the value-added tax on services and circulation of goods (ICMS) on the iron ore we transport from our mining sites in the state of Pará and Minas Gerais to our facilities in the state of Maranhão and Espírito Santo, respectively.

The tax authorities of Pará assert that the calculation of ICMS should be based on the market value of the iron ore transported, as opposed to the cost of production of the ore, which we have used to calculate the ICMS owed in years past. We are engaged in legal proceedings challenging three tax assessments, covering the years 2007, 2008 and 2009, in an aggregate amount of R$760 million (US$286 million), as of December 2014. The case was decided against us in the administrative level, and we are pursuing our challenge in the courts. We have provided a bank guarantee in the full amount in dispute to suspend the collection proceeding while our judicial challenge is pending, as required by Brazilian law. In November 2014, the tax authorities rejected our administrative defense against the assessments for years 2010, 2011 and 2012, in the approximate amount of R$670 million (US$252 million), as of December 2014. We will challenge these tax assessments in court. We will have to provide a bank guarantee or security in the full amount in dispute to suspend the collection proceeding while our judicial challenge is pending.

The tax authorities of Minas Gerais assert that we should also pay ICMS on the transportation cost of the iron ore, but we understand that such taxation is not applicable because the ore was transported directly by Vale. With respect to the tax assessments covering the years 2009 and 2010, in an aggregate amount of R$460 million (US$173 million), the case was decided against us in the administrative level, and we are challenging them in the courts. With respect to the tax assessments covering the years 2011 and 2013, in the aggregate amount of R$680 million (US$256 million), we are still contesting the assessment in the administrative level. We will have to provide a bank guarantee or security in the full amount in dispute to suspend the collection proceeding while our judicial challenge is pending.

Litigation on Brazilian taxation of foreign subsidiaries

We are engaged in legal proceedings concerning the contention of the Brazilian federal tax authority (*Receita Federal*) that we should pay Brazilian corporate income tax and social security contributions on the net income of our non-Brazilian subsidiaries and affiliates. The position of the tax authority is based on Article 74 of Brazilian Provisional Measure 2,158-34/2001 ("Article 74"), a tax regulation issued in 2001.

In 2013, we significantly reduced the amount in dispute by participating in the REFIS, a federal tax settlement program for payment of amounts relating to Brazilian corporate income tax and social contribution. We settled the claims related to the net income of our non-Brazilian subsidiaries and affiliates from 2003 to 2012, and we continue to dispute the assessments with respect to 1996 to 2002. Under the REFIS, we paid US$2.6 billion in 2013, and we agreed to pay the remaining US$7.0 billion in monthly installments, bearing interest at the SELIC rate. As of December 31, 2014, the remaining balance was US$6.320 billion, to be paid in 166 further installments.

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We had initiated a direct legal proceeding (*mandado de segurança*) in 2003 challenging the tax authority's position. In December 2013, as required by the REFIS statute, we waived the legal arguments with respect to the period between 2003 and 2012.

We are continuing our direct legal proceeding with respect to the years not included in the REFIS. The total amount in dispute for the period between 1996 and 2002 is R$1.931 billion (US$727 million). In 2014, the Superior Court of Justice (STJ) ruled in our favor on certain of our arguments against those assessments. In particular, the STJ ruled that: (a) Article 74 violates certain provisions under the international treaties against double taxation between Brazil and the countries where some of our subsidiaries are based, so profits realized by Vale's subsidiaries in those jurisdictions are not taxable in Brazil under Article 74; and (b) it is illegal to charge income tax and social contribution tax on our interest in the profits of affiliates that we account for under the equity method. The STJ also ruled that the profits realized by Vale's subsidiaries in the Bermuda are subject to taxation in Brazil under Article 74. The tax authorities filed an appeal before the Federal Supreme Court and a decision is pending.

PIS/COFINS fines

In November 2013, we received two assessments from the Brazilian federal tax authority imposing penalties related to PIS and COFINS. PIS and COFINS are taxes imposed by the Brazilian government on our gross revenues, which may be partially offset by credits resulting from PIS and COFINS payments made by our suppliers. The tax authority contends that we incorrectly claimed PIS and COFINS tax credits for 2008, 2009 and 2010 (an assessment of R$600 million, or US$226 million) and that we failed to comply with certain information requirements in claiming those tax credits (an assessment of R$1.2 billion, or US$452 million). The amounts of the assessments are related entirely to penalties, which we consider excessive.

Our administrative defenses against these two assessments were successful. The first assessment (in the amount of R$600 million) was fully cancelled and the tax authorities did not appeal the decision. The penalty applied in the second assessment (in the amount of R$1.2 billion) was reduced to R$253 million (US$95 million), and the tax authorities appealed against this decision.

Railway litigation

In 1994, prior to our privatization, we entered into a contract with Rede Ferroviária Federal S.A. ("RFFSA"), the Brazilian federal rail network, to build two railway networks in Belo Horizonte, Brazil, which were to be incorporated into an existing railway segment, in a project called "*Transposição de Belo Horizonte*." We subsequently entered into a related agreement with the Brazilian government to begin the construction of an alternative railway segment, because the initially agreed segments could not be built. In August 2006, RFFSA (now succeeded as defendant by the Brazilian government) filed a breach of contract claim against us stemming from the 1994 contract regarding the construction of two railway networks. As of December 31, 2014, the amount claimed, including adjustments for inflation and interest, was approximately R$4.3 billion (US$1.6 billion) in damages.

Before the RFFSA lawsuit was filed, we filed a claim against RFFSA challenging the inflation adjustment provisions in the contract with RFFSA. We contend that the method of calculation employed by the Brazilian government is not lawful under Brazilian law. Pursuant to a partial settlement of the original RFFSA lawsuit, if the claim is decided in the Brazilian government's favor, then the construction costs of the new railway segment assumed by Vale will offset the damages due from Vale under such claim, representing a significant reduction in the amount we would be required to pay.

In June 2012, the federal judge rejected both RFFSA's claims and our contractual claim for review of the inflation adjustment provisions. Both parties have appealed from these decisions.

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Praia Mole suit

We are among the defendants in a public civil action filed by the Federal Public Prosecutor's Office (*Ministério Público Federal*) in November 1997 seeking to annul the concession agreements under which the defendants operate the Praia Mole maritime terminal in the Brazilian state of Espírito Santo. In July 2012, the Federal Court of Appeals (*Tribunal Regional Federal*) affirmed the November 2007 decision that rejected the prosecutor's claim and recognized the validity of those concession agreements. The prosecutor has appealed that ruling, and final disposition of the appeal is still pending.

Legal proceedings related to Simandou project in Guinea

We owned a 51% interest in VBG, which held iron ore concession rights and exploration permits in Simandou in Guinea. Following a contract review process, in April 2014 the Government of Guinea cancelled VBG's mining rights. See *Information on the Company Regulatory matters*.

On April 30, 2014, Rio Tinto plc ("Rio Tinto") filed a lawsuit against Vale, BSGR, and other defendants in the United States District Court for the Southern District of New York, alleging violations of the U.S. Racketeer Influenced and Corrupt Organizations Act (RICO) in relation to Rio Tinto's loss of certain Simandou mining rights, the Government of Guinea's assignment of those rights to BSGR, and Vale's subsequent investment in VBG. Discovery has begun and under the current schedule will be completed in March 2016. Vale vigorously defends the action, which it believes to be without merit.

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MEMORANDUM AND ARTICLES OF ASSOCIATION

Company objectives and purposes

Our corporate purpose is defined by our bylaws to include:

- the exploration of mineral deposits in Brazil and abroad by means of research, extraction, processing, industrialization, transportation, shipment and commerce of mineral goods;
- the building and operation of railways and the provision of our own or unrelated-party rail traffic;
- the building and operation of our own or unrelated-party maritime terminals, and the provision of shipping activities and port services;
- the provision of logistics services integrated with cargo transport, including inflow management, storage, transshipment, distribution and delivery, all within a multimodal transport system;
- the production, processing, transport, industrialization and commercialization of any and all sources and forms of energy, including the production, generation, transmission, distribution and commercialization of our own products, derivatives and sub products;
- the engagement, in Brazil or abroad, of other activities that may be of direct or indirect consequence for the achievement of our corporate purposes, including research, industrialization, purchases and sales, importation and exportation, the development, industrialization and commercialization of forest resources and the provision of services of any kind whatsoever; and
- the establishment or participation, in any fashion, in other companies, consortia or associations directly or indirectly related to our business purpose.

Common shares and preferred shares

Set forth below is certain information concerning our authorized and issued share capital and a brief summary of certain significant provisions of our bylaws and Brazilian corporate law. This description does not purport to be complete and is qualified by reference to our bylaws (an English translation of which we have filed with the SEC) and to Brazilian corporate law.

Our bylaws authorize the issuance of up to 3.6 billion common shares and up to 7.2 billion preferred shares, in each case based solely on the approval of the Board of Directors without any additional shareholder approval.

Each common share entitles the holder thereof to one vote at meetings of our shareholders. Holders of common shares are not entitled to any preference relating to our dividends or other distributions.

Holders of preferred shares and the golden shares are generally entitled to the same voting rights as holders of common shares, except with respect to the election of members of the Board of Directors, and are entitled to a preferential dividend as described below. Non-controlling shareholders holding common shares representing at least 15% of our voting capital, and preferred shares representing at least 10% of our total share capital, have the right to appoint each one member and an alternate to our Board of Directors. If no group of common or preferred shareholders meets the thresholds described above, shareholders holding preferred or common shares representing at least 10% of our total share capital are entitled to combine their holdings to appoint one member and an alternate to our Board of Directors. Holders of preferred shares, including the golden shares, may elect one member of the permanent Fiscal Council and the respective alternate. Non-controlling holders of common shares may also elect one member of the Fiscal Council and an alternate, pursuant to applicable CVM rules.

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The Brazilian government holds 12 golden shares of Vale. The golden shares are preferred shares that entitle the holder to the same rights (including with respect to voting and dividend preference) as holders of preferred shares. In addition, the holder of the golden shares is entitled to veto any proposed action relating to the following matters:

- a change in our name;
- a change in the location of our head office;
- a change in our corporate purpose as regards mining activities;
- any liquidation of the Company;
- any disposal or winding up of activities in any of the following parts of our iron ore mining integrated systems:

  (a) mineral deposits, ore deposits, mines;

  (b) railways; or

  (c) ports and maritime terminals;
- any change in the bylaws relating to the rights afforded to the classes of capital stock issued by us; and
- any change in the bylaws relating to the rights afforded the golden shares.

Calculation of distributable amount

At each annual shareholders' meeting, the Board of Directors is required to recommend, based on the executive officers' proposal, how to allocate our earnings for the preceding fiscal year. For purposes of Brazilian corporate law, a company's net income after income taxes and social contribution taxes for such fiscal year, net of any accumulated losses from prior fiscal years and amounts allocated to employees' and management's participation in earnings represents its "net profits" for such fiscal year. In accordance with Brazilian corporate law, an amount equal to our net profits, as further reduced by amounts allocated to the legal reserve, to the fiscal incentive investment reserve, to the contingency reserve or to the unrealized income reserve established by us in compliance with applicable law (discussed below) and increased by reversals of reserves constituted in prior years, is available for distribution to shareholders in any given year. Such amount, the adjusted net profits, is referred to herein as the distributable amount. We may also establish discretionary reserves, such as reserves for investment projects.

The Brazilian corporate law provides that all discretionary allocations of net profits, including discretionary reserves, the contingency reserve, the unrealized income reserve and the reserve for investment projects, are subject to approval by the shareholders voting at the annual meeting and can be transferred to capital or used for the payment of dividends in subsequent years. The fiscal incentive investment reserve and legal reserve are also subject to approval by the shareholders voting at the annual meeting and may be transferred to capital but are not available for the payment of dividends in subsequent years.

The sum of certain discretionary reserves may not exceed the amount of our paid-in capital. When such limit is reached, our shareholders may vote to use the excess to pay in capital, increase capital or distribute dividends.

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Our calculation of net profits and allocations to reserves for any fiscal year are determined on the basis of the unconsolidated financial statements of our parent company, Vale S.A., in *reais*, prepared in accordance with Brazilian corporate law. Our consolidated financial statements have been prepared in accordance with IFRS using U.S. dollars as the reporting currency and, although our allocations to reserves and dividends will be reflected in these financial statements, investors will not be able to calculate such allocations or required dividend amounts from our consolidated financial statements in U.S. dollars.

Mandatory dividend

The Brazilian corporate law and our bylaws prescribe that we must distribute to our shareholders in the form of dividends or interest on shareholders' equity an annual amount equal to not less than 25% of the distributable amount, referred to as the mandatory dividend, unless the Board of Directors advises our shareholders at our general shareholders' meeting that payment of the mandatory dividend for the preceding year is inadvisable in light of our financial condition. To date, our Board of Directors has never determined that payment of the mandatory dividend was inadvisable. The Fiscal Council must review any such determination and report it to the shareholders. In addition to the mandatory dividend, our Board of Directors may recommend to the shareholders payment of dividends from other funds legally available therefore. Any payment of interim dividends will be netted against the amount of the mandatory dividend for that fiscal year. The shareholders must also approve the recommendation of the Board of Directors with respect to any required distribution. The amount of the mandatory dividend is subject to the size of the legal reserve, the contingency reserve, and the unrealized income reserve. The amount of the mandatory dividend is not subject to the size of the discretionary tax incentive reserve. See *Calculation of distributable amount*.

Dividend preference of preferred shares

Pursuant to our bylaws, holders of preferred shares and the golden shares are entitled to a minimum annual non-cumulative preferential dividend equal to (i) at least 3% of the book value per share, calculated in accordance with the financial statements which serve as reference for the payment of dividends, or (ii) 6% of their pro rata share of our paid-in capital, whichever is higher. To the extent that we declare dividends in any particular year in amounts which exceed the preferential dividends on preferred shares, and after holders of common shares have received distributions equivalent, on a per share basis, to the preferential dividends on preferred shares, holders of common shares and preferred shares shall receive the same additional dividend amount per share. We regularly have had sufficient distributable amounts to be able to distribute equal amounts to both common and preferred shareholders.

Other matters relating to our preferred shares

Our bylaws do not provide for the conversion of preferred shares into common shares. In addition, the preferred shares do not have any preference upon our liquidation and there are no redemption provisions associated with the preferred shares.

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Distributions classified as shareholders' equity

Brazilian companies are permitted to pay limited amounts to shareholders and treat such payments as an expense for Brazilian income tax purposes. Our bylaws provide for the distribution of interest on shareholders' equity as an alternative form of payment to shareholders. The interest rate applied is limited to the Brazilian long-term interest rate, or TJLP, for the applicable period. The deduction of the amount of interest paid cannot exceed the greater of (1) 50% of net income (after the deduction of the provision of social contribution on net profits and before the deduction of the provision of the corporate income tax) before taking into account any such distribution for the period in respect of which the payment is made or (2) 50% of the sum of retained earnings and profit reserves. Any payment of interest on shareholders' equity is subject to Brazilian withholding income tax. See *Taxation*. Under our bylaws, the amount paid to shareholders as interest on shareholders' equity (net of any withholding tax) may be included as part of any mandatory and minimum dividend. Under Brazilian corporate law, we are obligated to distribute to shareholders an amount sufficient to ensure that the net amount received, after payment by us of applicable Brazilian withholding taxes in respect of the distribution of interest on shareholders' equity, is at least equal to the mandatory dividend.

Voting rights

Each common share entitles the holder thereof to one vote at meetings of our shareholders. Holders of preferred shares are entitled to the same voting rights as holders of common shares except for the election of members of the Board of Directors, which will no longer apply in the event of any dividend arrearage, as described below. One of the members of the permanent Fiscal Council and his or her alternate are elected by majority vote of the holders of preferred shares. Holders of preferred shares and common shares may, in certain circumstances, combine their respective holdings to elect members of our Board of Directors, as described under *Common shares and preferred shares*.

The golden shares entitle the holder thereof to the same voting rights as holders of preferred shares. The golden shares also confer certain other significant veto rights in respect of particular actions, as described under *Common shares and preferred shares*.

The Brazilian corporate law provides that non-voting or restricted-voting shares, such as the preferred shares, acquire unrestricted voting rights beginning when a company has failed for three consecutive fiscal years (or for any shorter period set forth in a company's constituent documents) to pay any fixed or minimum dividend to which such shares are entitled and continuing until payment thereof is made. Our bylaws do not set forth any such shorter period.

Any change in the preferences or advantages of our preferred shares, or the creation of a class of shares having priority over the preferred shares, would require the approval of the holder of the golden shares, who can veto such matters, as well as the approval of the holders of a majority of the outstanding preferred shares, voting as a class at a special meeting.

Shareholders' meetings

Our Ordinary General Shareholders' Meeting is convened by April of each year for shareholders to resolve upon our financial statements, distribution of profits, election of Directors and Fiscal Council Members, if necessary, and compensation of senior management. Extraordinary General Shareholders' Meetings are convened by the Board of Directors as necessary in order to decide all other matters relating to our corporate purposes and to pass such other resolutions as may be necessary.

Pursuant to Brazilian corporate law, shareholders voting at a general shareholders' meeting have the power, among other powers, to:

- amend the bylaws;

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- elect or dismiss members of the Board of Directors and members of the Fiscal Council at any time;
- establish the remuneration of senior management and members of the Fiscal Council;
- receive annual reports by management and accept or reject management's financial statements and recommendations including the allocation of net profits and the distributable amount for payment of the mandatory dividend and allocation to the various reserve accounts;
- authorize the issuance of convertible and secured debentures;
- suspend the rights of a shareholder in default of obligations established by law or by the bylaws;
- accept or reject the valuation of assets contributed by a shareholder in consideration for issuance of capital stock;
- pass resolutions to reorganize our legal form, to merge, consolidate or split us, to dissolve and liquidate us, to elect and dismiss our liquidators and to examine their accounts; and
- authorize management to file for bankruptcy or to request a judicial restructuring.

Pursuant to CVM recommendations and as stipulated in our undertakings to the HKEx, all general shareholders' meetings, including the annual shareholders' meeting, require no fewer than 30 days' notice to shareholders prior to the scheduled meeting date. Where any general shareholders' meeting is adjourned, 15 days' prior notice to shareholders of the reconvened meeting is required. Pursuant to Brazilian corporate law, this notice to shareholders is required to be published no fewer than three times, in the *Diário Oficial do Estado do Rio de Janeiro* and in a newspaper with general circulation in the city where we have our registered office, in Rio de Janeiro. Our shareholders have previously designated *Jornal do Commercio* for this purpose. Also, because our shares are traded on the BM&FBOVESPA, we must publish a notice in a São Paulo based newspaper. Such notice must contain the agenda for the meeting and, in the case of an amendment to our bylaws, an indication of the meeting's subject matter. In addition, under our bylaws, the holder of the golden shares is entitled to a minimum of 15 days' prior formal notice to its legal representative of any general shareholders' meeting to consider any proposed action subject to the veto rights accorded to the golden shares. See *Common shares and preferred shares*.

A shareholders' meeting may be held if shareholders representing at least one-quarter of the voting capital are present, except as otherwise provided, including for meetings convened to amend our bylaws, which require a quorum of at least two-thirds of the voting capital. If no such quorum is present, notice must again be given in the same manner as described above, and a meeting may then be convened without any specific quorum requirement, subject to the minimum quorum and voting requirements for certain matters, as discussed below. A shareholder without a right to vote may attend a general shareholders' meeting and take part in the discussion of matters submitted for consideration.

Except as otherwise provided by law, resolutions of a shareholders' meeting are passed by a simple majority vote, abstentions not being taken into account. Under Brazilian corporate law, the approval of shareholders representing at least one-half of the issued and outstanding voting shares is required for the types of action described below, as well as, in the case of the first two items below, a majority of issued and outstanding shares of the affected class:

- creating a new class of preferred shares or disproportionately increasing an existing class of preferred shares relative to the other classes of preferred shares, other than to the extent permitted by the bylaws;

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- changing a priority, preference, right, privilege or condition of redemption or amortization of any class of preferred shares or creating a new class of shares with greater privileges than the existing classes of preferred shares;
- reducing the mandatory dividend;
- changing the corporate purposes;
- merging us with another company or consolidating or splitting us;
- participating in a centralized group of companies as defined under Brazilian corporate law;
- dissolving or liquidating us; and
- canceling any ongoing liquidation of us.

Whenever the shares of any class of capital stock are entitled to vote, each share is entitled to one vote. Annual shareholders' meetings must be held by April 30 of each year. Shareholders' meetings are called, convened and presided over by the chairman or, in case of his absence, by the vice-chairman of our Board of Directors. In the case of temporary impediment or absence of the chairman or vice-chairman of the Board of Directors, the shareholders' meetings may be chaired by their respective alternates, or in the absence or impediment of such alternates, by a director especially appointed by the chairman of the Board of Directors. A shareholder may be represented at a general shareholders' meeting by a proxy appointed in accordance with applicable Brazilian law not more than one year before the meeting, who must be a shareholder, a company officer, a lawyer or a financial institution.

Redemption rights

Our common shares and preferred shares are not redeemable, except that a dissenting shareholder is entitled under Brazilian corporate law to obtain redemption upon a decision made at a shareholders' meeting approving any of the items listed above, as well as:

- any decision to transfer all of our shares to another company in order to make us a wholly-owned subsidiary of such company, a stock merger;
- any decision to approve the acquisition of control of another company at a price which exceeds certain limits set forth in Brazilian corporate law; or
- in the event that the entity resulting from (a) a merger, (b) a stock merger as described in clause (i) above or (c) a spin-off that we conduct fails to become a listed company within 120 days of the general shareholders' meeting at which such decision was taken.

Only holders of shares adversely affected by shareholder decisions altering the rights, privileges or priority of a class of shares or creating a new class of shares may require us to redeem their shares. The right of redemption triggered by shareholder decisions to merge, consolidate or to participate in a centralized group of companies may only be exercised if our shares do not satisfy certain tests of liquidity, among others, at the time of the shareholder resolution. The right of redemption lapses 30 days after publication of the minutes of the relevant general shareholders' meeting, unless, as in the case of resolutions relating to the rights of preferred shares or the creation of a new class of preferred shares, the resolution is subject to confirmation by the preferred shareholders (which must be made at a special meeting to be held within one year), in which case the 30-day term is counted from the publication of the minutes of the special meeting.

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We would be entitled to reconsider any action giving rise to redemption rights within 10 days following the expiration of such rights if the redemption of shares of dissenting shareholders would jeopardize our financial stability. Any redemption pursuant to Brazilian corporate law would be made at no less than the book value per share, determined on the basis of the last balance sheet approved by the shareholders; provided that if the general shareholders' meeting giving rise to redemption rights occurred more than 60 days after the date of the last approved balance sheet, a shareholder would be entitled to demand that his or her shares be valued on the basis of a new balance sheet dated within 60 days of such general shareholders' meeting.

Preemptive rights

Each of our shareholders has a general preemptive right to subscribe for shares in any capital increase, in proportion to his or her shareholding. A minimum period of 30 days following the publication of notice of a capital increase is assured for the exercise of the right, and the right is transferable. Under our bylaws and Brazilian corporate law, and subject to the requirement for shareholder approval of any necessary increase to our authorized share capital, our Board of Directors may decide not to extend preemptive rights to our shareholders, or to reduce the 30-day period for the exercise of preemptive rights, in each case with respect to any issuance of shares, debentures convertible into shares or warrants in the context of a public offering. In the event of a capital increase that would maintain or increase the proportion of capital represented by preferred shares, holders of preferred shares will have preemptive rights to subscribe only to newly issued preferred shares. In the event of a capital increase that would reduce the proportion of capital represented by preferred shares, shareholders will have preemptive rights to subscribe for preferred shares, in proportion to their shareholdings, and for common shares only to the extent necessary to prevent dilution of their overall interest in us. In the event of a capital increase that would maintain or increase the proportion of capital represented by common shares, shareholders will have preemptive rights to subscribe only to newly issued common shares. In the event of a capital increase that would reduce the proportion of capital represented by common shares, holders of common shares will have preemptive rights to subscribe for preferred shares only to the extent necessary to prevent dilution of their overall interest in us.

Tag-along rights

According to Brazilian corporate law, in the event of a sale of control of a company, the acquirer is obliged to offer to holders of voting shares the right to sell their shares for a price equal to at least 80% of the price paid for the voting shares representing control.

Form and transfer of shares

Our preferred shares and common shares are in book-entry form registered in the name of each shareholder. The transfer of such shares is made under Brazilian corporate law, which provides that a transfer of shares is effected by our transfer agent, Banco Bradesco S.A., upon presentation of valid share transfer instructions to us by a transferor or its representative. When preferred shares or common shares are acquired or sold on a Brazilian stock exchange, the transfer is effected on the records of our transfer agent by a representative of a brokerage firm or the stock exchange's clearing system. Transfers of shares by a foreign investor are made in the same way and are executed by the investor's local agent, who is also responsible for updating the information relating to the foreign investment furnished to the Central Bank of Brazil.

The BM&FBOVESPA operates a central clearing system through *Companhia Brasileira de Liquidação e Custódia*, or CBLC. A holder of our shares may participate in this system and all shares elected to be put into the system will be deposited in custody with CBLC (through a Brazilian institution that is duly authorized to operate by the Central Bank of Brazil and maintains a clearing account with CBLC). The fact that such shares are subject to custody with the relevant stock exchange will be reflected in our registry of shareholders. Each participating shareholder will, in turn, be registered in the register of our beneficial shareholders that is maintained by CBLC and will be treated in the same way as registered shareholders.

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SHAREHOLDER DEBENTURES

At the time of the first stage of our privatization in 1997, we issued shareholder revenue interests known in Brazil as "*debentures participativas*" to our then-existing shareholders. The terms of the debentures were established to ensure that our pre-privatization shareholders, including the Brazilian government, would participate alongside us in potential future financial benefits that we derive from exploiting certain mineral resources that were not taken into account in determining the minimum purchase price of our shares in the privatization. In accordance with the debentures deed, holders have the right to receive semi-annual payments equal to an agreed percentage of our net revenues (revenues less value-added tax, transport fee and insurance expenses related to the trading of the products) from certain identified mineral resources that we owned at the time of the privatization, to the extent that we exceed defined thresholds of sales volume relating to certain mineral resources, and from the sale of mineral rights that we owned at that time. Our obligation to make payments to the holders will cease when the relevant mineral resources are exhausted.

We made available for withdrawal by holders of shareholder debentures the amounts of US$10 million in 2012, US$11 million in 2013 and US$118 million in 2014. In October 2013, the accumulated sales volume of iron ore from the Northern System reached the relevant threshold established in the debentures deed, which triggered our obligation to make additional semi-annual payments of the premium on iron ore products, starting in 2014. See Note 30 to our consolidated financial statements for a description of the terms of the debentures.

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EXCHANGE CONTROLS AND OTHER LIMITATIONS AFFECTING SECURITY HOLDERS

Under Brazilian corporate law, there are no restrictions on ownership of our capital stock by individuals or legal entities domiciled outside Brazil. However, the right to convert dividend payments and proceeds from the sale of preferred shares or common shares into foreign currency and to remit such amounts outside Brazil is subject to restrictions under foreign investment legislation, which generally requires, among other things, that the relevant investment be registered with the Central Bank of Brazil. These restrictions on the remittance of foreign capital abroad could hinder or prevent the depositary bank and its agents for the preferred shares or common shares represented by ADSs and HDSs from converting dividends, distributions or the proceeds from any sale of preferred shares, common shares or rights, as the case may be, into U.S. dollars or Hong Kong dollars and remitting such amounts abroad. Delays in, or refusal to grant any required government approval for conversions of Brazilian currency payments and remittances abroad of amounts owed to holders of ADSs and HDSs could adversely affect holders of ADRs and HDRs.

Under Resolution No. 2,689/2000 of the CMN, foreign investors may invest in almost all financial assets and engage in almost all transactions available in the Brazilian financial and capital markets, provided that certain requirements are fulfilled. In accordance with Resolution No. 2,689/2000, the definition of foreign investor includes individuals, legal entities, mutual funds and other collective investment entities, domiciled or headquartered outside Brazil.

Under Resolution No. 2,689/2000, a foreign investor must:

(1) appoint at least one representative in Brazil, with powers to perform actions relating to its investment,

(2) complete the appropriate foreign investor registration form,

(3) register as a foreign investor with the CVM, and register its foreign investment with the Central Bank of Brazil, and

(4) appoint a custodian, duly licensed by the Central Bank of Brazil, if the Brazilian representative in item (1) is not a financial institution.

Resolution No. 2,689/2000 specifies the manner of custody and the permitted means for trading securities held by foreign investors under the resolution.

Moreover, the offshore transfer or assignment of securities or other financial assets held by foreign investors pursuant to Resolution No. 2,689/2000 is prohibited, except for transfers resulting from a corporate reorganization, or occurring upon the death of an investor by operation of law or will.

Resolution No. 1,927/1992 of the CMN provides for the issuance of depositary receipts in foreign markets in respect of shares of Brazilian issuers. It provides that the proceeds from the sale of ADSs by holders of ADRs outside Brazil are not subject to Brazilian foreign investment controls and holders of ADSs who are not residents of a low-tax jurisdiction (*país com tributação favorecida*), as defined by Brazilian law, will be entitled to favorable tax treatment.

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An electronic registration has been issued to the custodian in the name of the depositary with respect to the ADSs and HDSs. Pursuant to this electronic registration, the custodian and the depositary are able to convert dividends and other distributions with respect to the underlying shares into foreign currency and to remit the proceeds outside Brazil. If a holder exchanges ADSs or HDSs for preferred shares or common shares, the holder must, within five business days, seek to obtain its own electronic registration with the Central Bank of Brazil under Law No. 4,131/1962 and Resolution No. 2,689/2000. Thereafter, unless the holder has registered its investment with the Central Bank of Brazil, such holder may not convert into foreign currency and remit outside Brazil the proceeds from the disposition of, or distributions with respect to, such preferred shares or common shares.

Under Brazilian law, whenever there is a serious imbalance in Brazil's balance of payments or reasons to foresee a serious imbalance, the Brazilian government may impose temporary restrictions on the remittance to foreign investors of the proceeds of their investments in Brazil, and on the conversion of Brazilian currency into foreign currencies. Such restrictions may hinder or prevent the custodian or holders who have exchanged ADSs or HDSs for underlying preferred shares or common shares from converting distributions or the proceeds from any sale of such shares, as the case may be, into U.S. dollars or Hong Kong dollars and remitting such U.S. dollars or Hong Kong dollars abroad. In the event the custodian is prevented from converting and remitting amounts owed to foreign investors, the custodian will hold the *reais* it cannot convert for the account of the holders of ADRs or HDRs who have not been paid. The depositary will not invest the *reais* and will not be liable for interest on those amounts. Any *reais* so held will be subject to devaluation risk against the U.S. dollar or Hong Kong dollar.

On March 30, 2015, Resolution No. 4,373/2014 of the Central Bank of Brazil will become effective and replace Resolution No. 2,689/2000 and Resolution No. 1,927/1992. The exchange controls and other limitations described in this Section will be preserved under Resolution No. 4,373/2014.

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TAXATION

The following summary contains a description of the principal Brazilian and U.S. federal income tax consequences of the ownership and disposition of preferred shares, common shares, ADSs or HDSs. You should know that this summary does not purport to be a comprehensive description of all the tax considerations that may be relevant to a holder of preferred shares, common shares, ADSs or HDSs.

Holders of preferred shares, common shares, ADSs or HDSs should consult their own tax advisors to discuss the tax consequences of the purchase, ownership and disposition of preferred shares, common shares, ADSs or HDSs, including, in particular, the effect of any state, local or other national tax laws.

Although there is at present no treaty to avoid double taxation between Brazil and the United States, but only a common understanding between the two countries according to which income taxes paid in one may be offset against taxes to be paid in the other, both countries' tax authorities have been having discussions that may result in the execution of such a treaty. In this regard, the two countries signed a Tax Information Exchange Agreement on March 20, 2007, which the Brazilian government approved in May 2013. We cannot predict whether or when such a treaty will enter into force or how, if entered into, such a treaty will affect the U.S. holders, as defined below, of preferred shares, common shares or ADSs.

Brazilian tax considerations

The following discussion summarizes the principal Brazilian tax consequences of the acquisition, ownership and disposition of preferred shares, common shares, ADSs or HDSs by a holder not deemed to be domiciled in Brazil for purposes of Brazilian taxation ("Non-Brazilian Holder"). It is based on the tax laws of Brazil and regulations thereunder in effect on the date hereof, which are subject to change (possibly with retroactive effect). This discussion does not specifically address all of the Brazilian tax considerations applicable to any particular Non-Brazilian Holder. Therefore, Non-Brazilian Holders should consult their own tax advisors concerning the Brazilian tax consequences of an investment in preferred shares, common shares, ADSs or HDSs.

Shareholder distributions

For Brazilian corporations, such as the Company, distributions to shareholders are classified as either dividend or interest on shareholders' equity.

Dividends

Amounts distributed as dividends will generally not be subject to Brazilian withholding income tax if the distribution is paid only from profits for the corresponding year, as determined under Brazilian tax principles. Dividends paid from profits generated before January 1, 1996 may be subject to Brazilian withholding income tax at varying rates depending on the year the profits were generated. Dividends paid from sources other than profits as determined under Brazilian tax principles may be subject to withholding tax.

Interest on shareholders' equity

Amounts distributed as interest on shareholders' equity are generally subject to withholding income tax at the rate of 15%, except where:

(1) the beneficiary is exempt from tax in Brazil, in which case the distribution will not be subject to withholding income tax;

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(2) the beneficiary is located in a jurisdiction that does not impose income tax or where the maximum income tax rate is lower than 17% (a "Low Tax Jurisdiction") or where internal legislation imposes restrictions on the disclosure of the shareholding structure or the ownership of the investment, in which case the applicable withholding income tax rate is 25%; or

(3) the effective beneficiary is resident in Japan, in which case the applicable withholding income tax rate is 12.5%.

Interest on shareholders' equity is calculated as a percentage of shareholders' equity, as stated in the statutory accounting records. The interest rate applied may not exceed TJLP, the benchmark Brazilian long-term interest rate. In addition, the amount of distributions classified as interest on shareholders' equity may not be more than the greater of (1) 50% of net income (after the deduction of social contribution on net profits but before taking into account such payment of interest and the provision for corporate income tax) for the period in respect of which the payment is made and (2) 50% of the sum of retained earnings and profit reserves.

Payments of interest on shareholders' equity are deductible for the purposes of corporate income tax and social contribution on net profit, to the extent of the limits described above. The tax benefit to the Company in the case of a distribution by way of interest on shareholders' equity is a reduction in the Company's corporate tax charge by an amount equivalent to 34% of such distribution.

Taxation of capital gains

Taxation of Non-Brazilian Holders on capital gains depends on the status of the holder as either:

- (i) not resident or domiciled in a Low Tax Jurisdiction or where internal legislation imposes restrictions on the disclosure of shareholding structure or the ownership of the investment and registered its investment in Brazil in accordance with Resolution No. 2,689 or, after it becomes effective, Resolution No. 4,373/2014 (a 2,689 Holder), or (ii) a holder of ADSs or HDSs; or
- any other Non-Brazilian Holder.

Investors identified in items (i) or (ii) are subject to favorable tax treatment, as described below.

Capital gains realized by a Non-Brazilian Holder from the disposition of "assets located in Brazil" are subject to taxation in Brazil. Preferred shares and common shares qualify as assets located in Brazil, and the disposition of such assets by a Non-Brazilian Holder may be subject to income tax on the gains assessed, in accordance with the rules described below, regardless of whether the transaction is carried out with another non-Brazilian resident or with a Brazilian resident.

There is some uncertainty as to whether ADSs or HDSs qualify as "assets located in Brazil" for this purpose. Arguably, neither ADSs nor HDSs constitute assets located in Brazil and therefore the gains realized by a Non-Brazilian Holder on the disposition of ADSs or HDSs to another non-Brazilian resident should not be subject to income tax in Brazil. However, it is not certain that the Brazilian courts will uphold this interpretation of the definition of "assets located in Brazil" in connection with the taxation of gains realized by a Non-Brazilian Holder on the disposition of ADSs or HDSs. Consequently, gains on a disposition of ADSs or HDSs by a Non-Brazilian Holder (whether in a transaction carried out with another Non-Brazilian Holder or a person domiciled in Brazil) may be subject to income tax in Brazil in accordance with the rules applicable to a disposition of shares.

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Although there are grounds to sustain otherwise, the deposit of preferred shares or common shares in exchange for ADSs or HDSs may be subject to Brazilian income tax if the acquisition cost of the shares being deposited is lower than the average price, determined as either:

- the average price per preferred share or common share on the Brazilian stock exchange in which the greatest number of such shares were sold on the day of deposit; or
- if no preferred shares or common shares were sold on that day, the average price on the Brazilian stock exchange in which the greatest number of preferred shares or common shares were sold in the 15 trading sessions immediately preceding such deposit.

The positive difference between the average price of the preferred shares or common shares calculated as described above and their acquisition cost will be considered to be a capital gain subject to income tax in Brazil. In some circumstances, there are grounds to sustain that such taxation is not applicable with respect to any 2,689 Holder, provided he is not located in a Low Tax Jurisdiction.

The withdrawal of preferred shares or common shares by holders in exchange for ADSs or HDSs is not subject to Brazilian income tax, subject to compliance with applicable regulations regarding the registration of the investment with the Central Bank of Brazil.

For the purpose of Brazilian taxation, the income tax rules on gains related to disposition of preferred shares or common shares vary depending on:

- the domicile of the Non-Brazilian Holder;
- the method by which such Non-Brazilian Holder has registered his investment with the Central Bank of Brazil; and
- how the disposition is carried out, as described below.

The gain realized as a result of a transaction on a Brazilian stock exchange is the difference between: (i) the amount in Brazilian currency realized on the sale or disposition and (ii) the acquisition cost, without any adjustment for inflation, of the securities that are the subject of the transaction.

Any gain realized by a Non-Brazilian Holder on a sale or disposition of preferred shares or common shares carried out on the Brazilian stock exchange is:

- exempt from income tax where the Non-Brazilian Holder (i) is a 2,689 Holder; and (ii) is not located in a Low Tax Jurisdiction;
- subject to income tax at a rate of 15% where the Non-Brazilian Holder either (A) (i) is not a 2,689 Holder and (ii) is not resident or domiciled in a Low Tax Jurisdiction or (B) (i) is a 2,689 Holder and (ii) is resident or domiciled in a Low Tax Jurisdiction; or
- subject to income tax at a rate of 25% where the Non-Brazilian Holder (i) is not a 2,689 Holder and (ii) is resident or domiciled in a Low Tax Jurisdiction.

The sale or disposition of common shares carried out on the Brazilian stock exchange is subject to withholding tax at the rate of 0.005% on the sale value. This withholding tax can be offset against the eventual income tax due on the capital gain. A 2,689 Holder that is not resident or domiciled in a Low Tax Jurisdiction is not subject to this withholding tax.

Any gain realized by a Non-Brazilian Holder on a sale or disposition of preferred shares or common shares that is not carried out on the Brazilian stock exchange is subject to income tax at a 15% rate, except for gain realized by a resident in a Low Tax Jurisdiction, which is subject to income tax at the rate of 25%.

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With respect to transactions arranged by a broker that are conducted on the Brazilian non-organized over-the-counter market, a withholding income tax at a rate of 0.005% on the sale value is also levied on the transaction and can be offset against the eventual income tax due on the capital gain. There can be no assurance that the current favorable treatment of 2,689 Holders will continue in the future.

In the case of a redemption of preferred shares, common shares, ADSs or HDSs or a capital reduction by a Brazilian corporation, the positive difference between the amount received by any Non-Brazilian Holder and the acquisition cost of the preferred shares, common shares, ADSs or HDSs being redeemed is treated as capital gain and is therefore generally subject to income tax at the rate of 15%, while the 25% rate applies to residents in a Low Tax Jurisdiction.

Any exercise of pre-emptive rights relating to our preferred shares or common shares will not be subject to Brazilian taxation. Any gain realized by a Non-Brazilian Holder on the disposition of pre-emptive rights relating to preferred shares or common shares in Brazil will be subject to Brazilian income taxation in accordance with the same rules applicable to the sale or disposition of preferred shares or common shares.

Tax on foreign exchange and financial transactions

Foreign exchange transactions

Brazilian law imposes a tax on foreign exchange transactions, or an IOF/Exchange Tax, due on the conversion of *reais* into foreign currency and on the conversion of foreign currency into *reais*. Currently, for most foreign currency exchange transactions, the rate of IOF/Exchange Tax is 0.38%.

The outflow of resources from Brazil related to investments held by a Non-Brazilian Holder in the Brazilian financial and capital markets is currently subject to IOF/Exchange Tax at a zero percent rate. In any case, the Brazilian government may increase such rates at any time, up to 25%, with no retroactive effect.

Transactions involving securities

Brazilian law imposes a tax on transactions involving securities, or an IOF/Securities Tax, including those carried out on the Brazilian stock exchange. The rate of IOF/Securities Tax applicable to transactions involving publicly traded securities in Brazil is currently zero. The rate of IOF/Securities Tax applicable to a transfer of shares traded on the Brazilian stock exchange to back the issuance of depositary receipts has also been zero since December 24, 2013. However, the Brazilian Government may increase such rates at any time up to 1.5% of the transaction amount per day, but the tax cannot be applied retroactively.

Other Brazilian taxes

There are no Brazilian inheritance, gift or succession taxes applicable to the ownership, transfer or disposition of preferred shares, common shares, ADSs or HDSs by a Non-Brazilian Holder, except for gift and inheritance taxes which are levied by some states of Brazil on gifts made or inheritances bestowed by a Non-Brazilian Holder to individuals or entities resident or domiciled within such states in Brazil. There are no Brazilian stamp, issue, registration, or similar taxes or duties payable by holders of preferred shares or common shares or ADSs or HDSs.

U.S. federal income tax considerations

This summary does not purport to be a comprehensive description of all the U.S. federal income tax consequences of the acquisition, holding or disposition of the preferred shares, common shares or ADSs. This summary applies to U.S. holders, as defined below, who hold their preferred shares, common shares or ADSs as capital assets and does not apply to special classes of holders, such as:

- certain financial institutions,

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- insurance companies,
- dealers in securities or foreign currencies,
- tax-exempt organizations,
- securities traders who elect to account for their investment in preferred shares, common shares or ADSs on a mark-to-market basis,
- persons holding preferred shares, common shares or ADSs as part of hedge, straddle, conversion or other integrated financial transactions for tax purposes,
- holders whose functional currency for U.S. federal income tax purposes is not the U.S. dollar,
- partnerships or other holders treated as "pass-through entities" for U.S. federal income tax purposes,
- persons subject to the alternative minimum tax, or
- persons owning, actually or constructively, 10% or more of our voting shares.

This discussion is based on the Internal Revenue Code of 1986, as amended to the date hereof, administrative pronouncements, judicial decisions and final, temporary and proposed Treasury Regulations, all as in effect on the date hereof. These authorities are subject to differing interpretations and may be changed, perhaps retroactively, so as to result in U.S. federal income tax consequences different from those discussed below. There can be no assurance that the U.S. Internal Revenue Service (the "IRS") will not challenge one or more of the tax consequences discussed herein or that a court will not sustain such a challenge in the event of litigation. This summary does not address any aspect of state, local or non-U.S. tax law.

YOU SHOULD CONSULT YOUR TAX ADVISORS WITH REGARD TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO YOUR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION.

This discussion is also based, in part, on representations of the depositary and the assumption that each obligation in the deposit agreement and any related agreement will be performed in accordance with its terms.

For purposes of this discussion, you are a "U.S. holder" if you are a beneficial owner of preferred shares, common shares or ADSs that is, for U.S. federal income tax purposes:

- a citizen or resident alien individual of the United States,
- a corporation created or organized in or under the laws of the United States or of any political subdivision thereof, or
- otherwise subject to U.S. federal income taxation on a net income basis with respect to the preferred shares, common shares or ADSs.

The term U.S. holder also includes certain former citizens of the United States.

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In general, if you are the beneficial owner of American depositary receipts evidencing ADSs, you will be treated as the beneficial owner of the preferred shares or common shares represented by those ADSs for U.S. federal income tax purposes. Deposits and withdrawals of preferred shares or common shares by you in exchange for ADSs will not result in the realization of gain or loss for U.S. federal income tax purposes. Your tax basis in such preferred shares or common shares will be the same as your tax basis in such ADSs, and the holding period in such preferred shares or common shares will include the holding period in such ADSs.

Taxation of dividends

The gross amount of a distribution paid on ADSs, preferred shares or common shares, including distributions paid in the form of payments of interest on capital for Brazilian tax purposes, out of our current or accumulated earnings and profits (as determined for U.S. federal income tax purposes) will be taxable to you as foreign source dividend income and will not be eligible for the dividends-received deduction allowed to corporate shareholders under U.S. federal income tax law. The amount of any such distribution will include the amount of Brazilian withholding taxes, if any, withheld on the amount distributed. To the extent that a distribution exceeds our current and accumulated earnings and profits, such distribution will be treated as a nontaxable return of capital to the extent of your basis in the ADSs, preferred shares or common shares, as the case may be, with respect to which such distribution is made, and thereafter as a capital gain.

You will be required to include dividends paid in *reais* in income in an amount equal to their U.S. dollar value calculated by reference to an exchange rate in effect on the date such distribution is received by the depositary, in the case of ADSs, or by you, in the case of common shares or preferred shares. If the depositary or you do not convert such *reais* into U.S. dollars on the date they are received, it is possible that you will recognize foreign currency loss or gain, which would be ordinary loss or gain, when the *reais* are converted into U.S. dollars. If you hold ADSs, you will be considered to receive a dividend when the dividend is received by the depositary.

Subject to certain exceptions for short-term and hedged positions, the U.S. dollar amount of dividends received by certain noncorporate taxpayers, including individuals, will be subject to taxation at the preferential rates applicable to long-term capital gains if the dividends are "qualified dividends." Dividends paid on the ADSs will be treated as qualified dividends if (i) the ADSs are readily tradable on an established securities market in the United States and (ii) the Company was not, in the year prior to the year in which the dividend was paid, and is not, in the year in which the dividend is paid, a passive foreign investment company ("PFIC"). The ADSs are listed on the New York Stock Exchange and will qualify as readily tradable on an established securities market in the United States so long as they are so listed. Based on Vale's audited financial statements and relevant market and shareholder data, Vale believes that it was not treated as a PFIC for U.S. federal income tax purposes with respect to its 2014 taxable year. In addition, based on Vale's audited financial statements and its current expectations regarding the value and nature of its assets, the sources and nature of its income, and relevant market and shareholder data, Vale does not anticipate becoming a PFIC for its 2015 taxable year.

Based on existing guidance, it is not entirely clear whether dividends received with respect to the preferred shares and common shares will be treated as qualified dividends (and therefore whether such dividends will qualify for the preferential rates of taxation applicable to long-term capital gains), because the preferred shares and common shares are not themselves listed on a U.S. exchange. In addition, the U.S. Treasury has announced its intention to promulgate rules pursuant to which holders of ADSs, preferred shares or common stock and intermediaries through whom such securities are held will be permitted to rely on certifications from issuers to establish that dividends are treated as qualified dividends. Because such procedures have not yet been issued, it is unclear whether we will be able to comply with them. You should consult your own tax advisors regarding the availability of the reduced dividend tax rate in light of your own particular circumstances.

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Subject to generally applicable limitations and restrictions, you will be entitled to a credit against your U.S. federal income tax liability, or a deduction in computing your U.S. federal taxable income, for Brazilian income taxes withheld by us. You must satisfy minimum holding period requirements to be eligible to claim a foreign tax credit for Brazilian taxes withheld on dividends. The limitation on foreign taxes eligible for credit is calculated separately for specific classes of income. For this purpose dividends paid by us on our shares will generally constitute "passive income." Foreign tax credits may not be allowed for withholding taxes imposed in respect of certain short-term or hedged positions in securities or in respect of arrangements in which a U.S. holder's expected economic profit is insubstantial. You should consult your own tax advisors concerning the implications of these rules in light of your particular circumstances.

Taxation of capital gains

Upon a sale or exchange of preferred shares, common shares or ADSs, you will recognize a capital gain or loss for U.S. federal income tax purposes equal to the difference, if any, between the amount realized on the sale or exchange and your adjusted tax basis in the preferred shares, common shares or ADSs. This gain or loss will be long-term capital gain or loss if your holding period in the preferred shares, common shares or ADSs exceeds one year. The net amount of long-term capital gain recognized by individual U.S. holders generally is subject to taxation at preferential rates. Your ability to use capital losses to offset income is subject to limitations.

Any gain or loss will be U.S. source gain or loss for U.S. foreign tax credit purposes. Consequently, if a Brazilian withholding tax is imposed on the sale or disposition of ADSs, preferred shares or common shares, and you do not receive significant foreign source income from other sources, you may not be able to derive effective U.S. foreign tax credit benefits in respect of such Brazilian withholding tax. You should consult your own tax advisor regarding the application of the foreign tax credit rules to your investment in, and disposition of, ADSs, preferred shares or common shares.

If a Brazilian tax is withheld on the sale or disposition of shares, the amount realized by a U.S. holder will include the gross amount of the proceeds of such sale or disposition before deduction of the Brazilian tax. See *Brazilian tax considerations* above.

Information reporting and backup withholding

Information returns may be filed with the IRS in connection with distributions on the preferred shares, common shares or ADSs and the proceeds from their sale or other disposition. You may be subject to United States backup withholding tax on these payments if you fail to provide your taxpayer identification number or comply with certain certification procedures or otherwise establish an exemption from backup withholding. If you are required to make such a certification or to establish such an exemption, you generally must do so on IRS Form W-9.

The amount of any backup withholding from a payment to you will be allowed as a credit against your U.S. federal income tax liability and may entitle you to a refund, provided that the required information is timely furnished to the IRS.

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EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

Our management, with the participation of our chief executive officer and chief financial officer, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2014. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

Our chief executive officer and chief financial officer have concluded that our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in the reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the applicable rules and forms, and that it is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that controls may become inadequate and that the degree of compliance with the policies or procedures may deteriorate.

Our management has assessed the effectiveness of Vale's internal control over financial reporting as of December 31, 2014 based on the criteria established in "Internal Control Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on such assessment and criteria, our management has concluded that our internal control over financial reporting was effective as of December 31, 2014. The effectiveness of our internal control over financial reporting as of December 31, 2014 has been audited by KPMG Auditores Independentes, an independent registered public accounting firm, as stated in their report which appears herein.

Our management identified no change in our internal control over financial reporting during our fiscal year ended December 31, 2014 that has materially affected or is reasonably likely to materially affect our internal control over financial reporting.

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CORPORATE GOVERNANCE

Under NYSE rules, foreign private issuers are subject to more limited corporate governance requirements than U.S. domestic issuers. As a foreign private issuer, we must comply with four principal NYSE corporate governance rules: (1) we must satisfy the requirements of Exchange Act Rule 10A-3 relating to audit committees; (2) our chief executive officer must promptly notify the NYSE in writing after any executive officer becomes aware of any non-compliance with the applicable NYSE corporate governance rules; (3) we must provide the NYSE with annual and interim written affirmations as required under the NYSE corporate governance rules; and (4) we must provide a brief description of any significant differences between our corporate governance practices and those followed by U.S. companies under NYSE listing standards. The table below briefly describes the significant differences between our practices and the practices of U.S. domestic issuers under NYSE corporate governance rules.

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.01	A listed company must have a majority of independent directors. "Controlled companies" are not required to comply with this requirement.	We are a controlled company because more than a majority of our voting power for the appointment of directors is controlled by Valepar. As a controlled company, we would not be required to comply with the majority of independent director requirements if we were a U.S. domestic issuer. There is no legal provision or policy that requires us to have independent directors.
303A.03	The non-management directors of a listed company must meet at regularly scheduled executive sessions without management.	We do not have any management directors.
303A.04	A listed company must have a nominating/corporate governance committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. "Controlled companies" are not required to comply with this requirement.	We do not have a nominating committee. As a controlled company, we would not be required to comply with the nominating/corporate governance committee requirements if we were a U.S. domestic issuer. However, we do have a Governance and Sustainability Committee, which is an advisory committee to the Board of Directors and may include members who are not directors. According to its charter, this committee is responsible for: • evaluating and recommending improvements to the effectiveness of our corporate governance practices and the functioning of the Board of Directors; • recommending improvements to our code of Ethics and Conduct and management system in order to avoid conflicts of interest between us and our shareholders or management; • issuing reports on potential conflicts of interest between us and our shareholders or management; and • reporting on policies relating to corporate responsibility, such as environmental and social responsibility. The committee's charter requires at least one of its members to be independent. For this purpose, an independent member is a person who: • does not have any current relationship with us other than being part of a committee, or being a shareholder of the Company; • does not participate, directly or indirectly, in the sales efforts or provision of services by Vale; • is not a representative of the controlling shareholders; • has not been an employee of the controlling shareholder or of entities affiliated with a controlling shareholder; and • has not been an executive officer of the controlling shareholder.

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Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.05	A listed company must have a compensation committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. "Controlled companies" are not required to comply with this requirement.	As a controlled company, we would not be required to comply with the compensation committee requirements if we were a U.S. domestic issuer. However, we have an Executive Development Committee, which is an advisory committee to the Board of Directors and may include members who are not directors. This committee is responsible for: • reporting on general human resources policies; • analyzing and reporting on the adequacy of compensation levels for our executive officers; • proposing and updating guidelines for evaluating the performance of our executive officers; and • reporting on policies relating to health and safety.
303A.06 303A.07	A listed company must have an audit committee with a minimum of three independent directors who satisfy the independence requirements of Rule 10A-3 under the Exchange Act, with a written charter that covers certain minimum specified duties.	In lieu of appointing an audit committee composed of independent members of the Board of Directors, we have established a permanent *conselho fiscal*, or fiscal council, in accordance with the applicable provisions of Brazilian corporate law, and provided the fiscal council with additional powers to permit it to meet the requirements of Exchange Act Rule 10A-3(c)(3). Under our bylaws, the Fiscal Council shall have between three and five members. Under Brazilian corporate law, which provides standards for the independence of the Fiscal Council from us and our management, none of the members of the Fiscal Council may be a member of the Board of Directors or an executive officer. Management does not elect any Fiscal Council member. Our Board of Directors has determined that one of the members of our Fiscal Council meets the New York Stock Exchange independence requirements that would apply to audit committee members in the absence of our reliance on Exchange Act Rule 10A-3(c)(3). The responsibilities of the Fiscal Council are set forth in its charter. Under our bylaws, the charter must give the Fiscal Council responsibility for the matters required under Brazilian corporate law, as well as responsibility for: • establishing procedures for the receipt, retention and treatment of complaints related to accounting, controls and audit issues, as well as procedures for the confidential, anonymous submission of concerns regarding such matters; • recommending and assisting the Board of Directors in the appointment, establishment of compensation and dismissal of independent auditors; • pre-approving services to be rendered by the independent auditors; • overseeing the work performed by the independent auditors, with powers to recommend withholding the payment of compensation to the independent auditors; and • mediating disagreements between management and the independent auditors regarding financial reporting.
303A.08	Shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions thereto, with limited exemptions set forth in the NYSE rules.	Under Brazilian corporate law, shareholder pre-approval is required for the adoption of any equity compensation plans.
303A.09	A listed company must adopt and disclose corporate governance guidelines that cover certain minimum specified subjects.	We have not published formal corporate governance guidelines.

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Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.10	A listed company must adopt and disclose a code of business conduct and ethics for directors, officers and employees, and promptly disclose any waivers of the code for directors or executive officers.	We have adopted a formal code of ethical conduct, which applies to our directors, officers and employees. We report each year in our annual report on Form 20-F any waivers of the code of ethical conduct granted for directors or executive officers. Our code of ethical conduct has a scope that is similar, but not identical, to that required for a U.S. domestic company under the NYSE rules.
303A.12	a) Each listed company CEO must certify to the NYSE each year that he or she is not aware of any violation by the company of NYSE corporate governance listing standards. b) Each listed company CEO must promptly notify the NYSE in writing after any executive officer of the listed company becomes aware of any non-compliance with any applicable provisions of this Section 303A. c) Each listed company must submit an executed Written Affirmation annually to the NYSE. In addition, each listed company must submit an interim Written Affirmation as and when required by the interim Written Affirmation form specified by the NYSE.	We are subject to (b) and (c) of these requirements, but not (a).

CODE OF ETHICS AND CONDUCT

In November 2013, we adopted a new code of ethics and conduct that applies to our employees and to the members of our Board of Directors and our Board of Executive Officers, including the chief executive officer, the chief financial officer and the principal accounting officer. We have posted this Code of Ethics and Conduct on our website, at: http://www.vale.com (under English Version/Investors/Corporate Governance/Code of Ethics). Copies of our code of ethics and conduct may be obtained without charge by writing to us at the address set forth on the front cover of this Form 20-F. We have not granted any implicit or explicit waivers from any provision of our code of ethics and conduct since its adoption, and we did not grant any implicit or explicit waivers from any provision of the previous version of our code of ethics.

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PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table summarizes the fees billed to us by our independent auditors KPMG Auditores Independentes for professional services in 2014 and PricewaterhouseCoopers Auditores Independentes ("PricewaterhouseCoopers") for professional services in 2013:

	Year ended December 31,	
	2013	2014
	(US$ thousand)	
Audit fees	10,438	2,569
Audit-related fees	295	36
Other fees(1)	137	3
Total fees	10,870	2,608

(1) Other fees paid in 2014 consist of fees charged by KPMG Auditores Independentes in connection with tax compliance services performed in the fiscal year of 2013.

"Audit fees" are the aggregate fees billed by KPMG Auditores Independentes and PricewaterhouseCoopers for the audit of our annual financial statements, the audit of the statutory financial statements of our subsidiaries, and reviews of interim financial statements and attestation services that are provided in connection with statutory and regulatory filings or engagements. They also include fees for services that only the independent auditor reasonably can provide, including the provision of comfort letters and consents in connection with statutory and regulatory filings and the review of documents filed with the SEC and other capital markets or local financial reporting regulatory bodies. "Audit-related fees" are fees charged by KPMG Auditores Independentes and PricewaterhouseCoopers for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under "Audit fees."

KPMG Auditores Independentes, our principal accountant for the year of 2014, was engaged in the second quarter of 2014. The amounts reported for the year of 2014 do not include amounts paid to PricewaterhouseCoopers in connection with the review of our interim financial statements for the first quarter of 2014.

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INFORMATION FILED WITH SECURITIES REGULATORS

We are subject to various information and disclosure requirements in those countries in which our securities are traded, and we file financial statements and other periodic reports with the CVM, BM&FBOVESPA, the SEC, the French securities regulator Autorité des Marchés Financiers, and the HKEx.

- *Brazil.* Vale's Common Shares and Class A Preferred Shares are listed on BM&FBOVESPA in São Paulo, Brazil. As a result, we are subject to the information and disclosure requirements of Brazilian Corporate Law, as amended. We are also subject to the periodic disclosure requirements of CVM rules applicable to listed companies and to BM&FBOVESPA's "Level 1" Corporate Governance Requirements. Our CVM filings are available from the CVM at http://www.cvm.gov.br or from BM&FBOVESPA at http://www.bmfbovespa.com.br. In addition, as with all of our security filings, they may be accessed at our website, http://www.vale.com.

- *United States.* As a result of our ADSs being listed on the New York Stock Exchange, we are subject to the information requirements of the Securities Exchange Act of 1934, as amended, and accordingly file reports and other information with the SEC. Reports and other information filed by us with the SEC may be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, N.E., Washington, D.C., 20549. You can obtain further information about the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. You may also inspect Vale's reports and other information at the offices of the New York Stock Exchange, 11 Wall Street, New York, New York 10005, on which Vale's ADSs are listed. Our SEC filings are also available to the public from the SEC at http://www.sec.gov. For further information on obtaining copies of Vale's public filings at the New York Stock Exchange, you should call (212) 656-5060.

- *France.* As a result of the admission of the ADSs to listing and trading on NYSE Euronext Paris, we must comply with certain French periodic and ongoing disclosure rules (for example, annual report with audited financial statements and interim financial statements). In general, the Company is deemed to comply with the French periodic and ongoing disclosure rules through its compliance with U.S. disclosure rules.

- *Hong Kong.* As a result of the listing and trading of our HDSs on the HKEx, we must comply with the HKEx Listing Rules, subject to certain waivers granted by the HKEx, including certain periodic and ongoing disclosure rules, such as annual reports with audited financial statements and interim financial statements. In accordance with the HKEx Listing Rules, we upload reports and other information to the website of the HKEx, which are available to the public from the HKEx at http://www.hkexnews.hk.

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EXHIBITS

Exhibit Number	
1	Bylaws of Vale S.A., as amended on May 7, 2013 and May 9, 2014, incorporated by reference to the current report on Form 6-K furnished to the Securities and Exchange Commission on May 9, 2014 (File No.: 001-15030)
8	List of subsidiaries
12.1	Certification of Chief Executive Officer of Vale pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934
12.2	Certification of Chief Financial Officer of Vale pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934
13.1	Certification of Chief Executive Officer and Chief Financial Officer of Vale, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
15.1	Consent of KPMG Auditores Independentes
15.2	Consent of PricewaterhouseCoopers

The amount of long-term debt securities of Vale or its subsidiaries authorized under any individual outstanding agreement does not exceed 10% of Vale's total assets on a consolidated basis. Vale hereby agrees to furnish the SEC, upon its request, a copy of any instruments defining the rights of holders of its long-term debt or of its subsidiaries for which consolidated or unconsolidated financial statements are required to be filed.

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GLOSSARY

Alumina	Aluminum oxide. It is the main component of bauxite, and extracted from bauxite ore in a chemical refining process. It is the principal raw material in the electro-chemical process from which aluminum is produced.
Aluminum	A white metal that is obtained in the electro-chemical process of reducing aluminum oxide.
Anthracite	The hardest coal type, which contains a high percentage of fixed carbon and a low percentage of volatile matter. Anthracite is the highest ranked coal and it contains 90% fixed carbon, more than any other form of coal. Anthracite has a semi-metallic luster and is capable of burning with little smoke. Mainly used for metallurgical purposes.
Austenitic stainless steel	Steel that contains a significant amount of chromium and sufficient nickel to stabilize the austenite microstructure, giving to the steel good formability and ductility and improving its high temperature resistance. They are used in a wide variety of applications, ranging from consumer products to industrial process equipment, as well as for power generation and transportation equipment, kitchen appliances and many other applications where strength, corrosion and high temperature resistance are required.
A$	The Australian dollar.
Bauxite	A rock composed primarily of hydrated aluminum oxides. It is the principal ore of alumina, the raw material from which aluminum is made.
Beneficiation	A variety of processes whereby extracted ore from mining is reduced to particles that can be separated into ore-mineral and waste, the former suitable for further processing or direct use.
CAD	The Canadian dollar.
CFR	Cost and freight. Indicates that all costs related to the transportation of goods up to a named port of destination will be paid by the seller of the goods.
Coal	Coal is a black or brownish-black solid combustible substance formed by the decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal (both are called hard coal), sub-bituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value.
Cobalt	Cobalt is a hard, lustrous, silver-gray metal found in ores, and used in the preparation of magnetic, wear-resistant, and high-strength alloys (particularly for jet engines and turbines). Its compounds are also used in the production of inks, paints, catalysts and battery materials.
Coke	Coal that has been processed in a coke oven, for use as a reduction agent in blast furnaces and in foundries for the purposes of transforming iron ore into pig iron.
Coking Coal	Hard coking coal is the highest value segment of the metallurgical coal market segments (see metallurgical coal) because of its high strength factors to form a strong coke.
Concentration	Physical, chemical or biological process to increase the grade of the metal or mineral of interest.

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Copper	A reddish brown metallic element. Copper is highly conductive, both thermally and electrically. It is highly malleable and ductile and is easily rolled into sheet and drawn into wire.
Copper anode	Copper anode is a metallic product of the converting stage of smelting process that is cast into blocks and generally contains 99% copper grade, which requires further processing to produce refined copper cathodes.
Copper cathode	Copper plate with purity higher than or equal to 99.9% that is produced by an electrolytic process.
Copper concentrate	Material produced by concentration of copper minerals contained in the copper ore. It is the raw material used in smelters to produce copper metal.
CVM	The *Comissão de Valores Mobiliários* (Brazilian Securities and Exchange Commission).
DRI	Direct reduced iron. Iron ore lumps or pellets converted by the direct reduction process, used mainly as a scrap substitute in electric arc furnace steelmaking.
DWT	Deadweight ton. The measurement unit of a vessel's capacity for cargo, fuel oil, stores and crew, measured in metric tons of 1,000 kg. A vessel's total deadweight is the total weight the vessel can carry when loaded to a particular load line.
Electrowon copper cathode	Refined copper cathode is a metallic product produced by an electrochemical process in which copper is recovered from an electrolyte and plated onto an electrode. Electrowon copper cathodes generally contain 99.99% copper grade.
Embedded derivatives	A financial instrument within a contractual arrangement such as leases, purchase agreements and guarantees. Its function is to modify some or all of the cash flow that would otherwise be required by the contract, such as caps, floors or collars.
Emissions trading	Emissions trading is a market-based scheme for environmental improvement that allows parties to buy and sell permits for emissions or credits for reductions in emissions of certain pollutants.
Fe unit	A measure of the iron grade in the iron ore that is equivalent to 1% iron grade in one metric ton of iron ore.
Ferroalloys	Manganese ferroalloys are alloys of iron that contain one or more other chemical elements. These alloys are used to add these other elements into molten metal, usually in steelmaking. The principal ferroalloys are those of manganese, silicon and chromium.
FOB	Free on board. It indicates that the purchaser pays for shipping, insurance and all the other costs associated with transportation of the goods to their destination.
Gold	A precious metal sometimes found free in nature, but usually found in conjunction with silver, quartz, calcite, lead, tellurium, zinc or copper. It is the most malleable and ductile metal, a good conductor of heat and electricity and unaffected by air and most reagents.
Grade	The proportion of metal or mineral present in ore or any other host material.

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Hard metallurgical coal	Coal used in the production of steel, comprising multiple segments, including hard coking coal (see hard coking coal), semi-hard coking coal, semi-soft coking coal, all used to produce coke to feed a blast furnace; and, PCI (pulverized coal injection) coal used for direct injection fuel source into the blast furnace (see PCI).
Hematite Ore	Hematite is an iron oxide mineral, but also denotes the high-grade iron ore type within the iron deposits.
Iridium	A dense, hard, brittle, silvery-white transition metal of the platinum family that occurs in natural alloys with platinum or osmium. Iridium is used in high-strength alloys that can withstand high temperatures, primarily in high-temperature apparatus, electrical contacts, and as a hardening agent for platinum.
Iron ore pellets	Agglomerated ultra-fine iron ore particles of a size and quality suitable for particular iron making processes. Our iron ore pellets range in size from 8 mm to 18 mm.
Itabirite ore	Itabirite is a banded iron formation and denotes the low-grade iron ore type within the iron deposits.
Lump ore	Iron ore or manganese ore with the coarsest particle size in the range of 6.35 mm to 50 mm in diameter, but varying slightly between different mines and ores.
Manganese ore	A hard brittle metallic element found primarily in the minerals pyrolusite, hausmannite and manganite. Manganese ore is essential to the production of virtually all steels and is important in the production of cast iron.
Metallurgical coal	Coal used in the production of steel, comprising multiple segments, including hard coking coal (see hard coking coal), semi-hard coking coal, semi-soft coking coal, all used to produce coke to feed a blast furnace; and, PCI (pulverized coal injection) coal used for direct injection fuel source into the blast furnace (see PCI). A bituminous hard coal with a quality that allows the production of coke. Normally used in coke ovens for metallurgical purposes.
Methanol	An alcohol fuel largely used in the production of chemical and plastic compounds.
Mineral deposit(s)	A mineralized body that has been intersected by a sufficient number of closely spaced drill holes and/or underground/surface samples to support sufficient tonnage and grade of metal(s) or mineral(s) of interest to warrant further exploration-development work.
Mineral resource	A concentration or occurrence of minerals of economic interest in such form and quantity that could justify an eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence through drill holes, trenches and/or outcrops. Mineral resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured Resources.
Mtpy	Million metric tons per year.

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Nickel	A silvery white metal that takes on a high polish. It is hard, malleable, ductile, somewhat ferromagnetic, and a fair conductor of heat and electricity. It belongs to the iron-cobalt group of metals and is chiefly valuable for the alloys it forms, such as stainless steel and other corrosion-resistant alloys.
Nickel laterite	Deposits are formed by intensive weathering of olivine-rich ultramafic rocks such as dunite, peridotite and komatite.
Nickel limonitic laterite	Type of nickel laterite located at the top of the laterite profile. It consists largely of goethite and contains 1-2% nickel. Also contains concentrations on cobalt.
Nickel matte	An intermediate smelter product that must be further refined to obtain pure metal.
Nickel pig iron	A low-grade nickel product, made from lateritic ores, suitable primarily for use in stainless steel production. Nickel pig iron typically has a nickel grade of 1.5-6% produced from blast furnaces. Nickel pig iron can also contain chrome, manganese, and impurities such as phosphorus, sulfur and carbon. Low grade ferro-nickel (FeNi) produced in China through electric furnaces is often also referred to as nickel pig iron.
Nickel saprolitic laterite	Type of nickel laterite located at the bottom of the laterite profile and contains on average 1.5-2.5% nickel.
Nickel sulfide	Formed through magmatic processes where nickel combines with sulfur to form a sulfide phase. Pentlandite is the most common nickel sulfide ore mineral mined and often occurs with chalcopyrite, a common copper sulfide mineral.
Ntk	Net ton (the weight of the goods being transported excluding the weight of the wagon) kilometer.
Open-pit mining	Method of extracting rock or minerals from the earth by their removal from an open pit. Open-pit mines for extraction of ore are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for underground mining.
Oxides	Compounds of oxygen with another element. For example, magnetite is an oxide mineral formed by the chemical union of iron with oxygen.
Ozpy	Troy ounces per year.
Palladium	A silver-white metal that is ductile and malleable, used primarily in automobile-emissions control devices, and electrical applications.
PCI	Pulverized coal injection. Type of coal with specific properties ideal for direct injection via the tuyeres of blast furnaces. This type of coal does not require any processing or coke making, and can be directly injected into the blast furnaces, replacing lump cokes to be charged from the top of the blast furnaces.
Pellet feed fines	Ultra-fine iron ore (less than 0.15 mm) generated by mining and grinding. This material is aggregated into iron ore pellets through an agglomeration process.

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Pelletizing	Iron ore pelletizing is a process of agglomeration of ultra-fines produced in iron ore exploitation and concentration steps. The three basic stages of the process are: (i) ore preparation (to get the correct fineness); (ii) mixing and balling (additive mixing and ball formation); and (iii) firing (to get ceramic bonding and strength).
PGMs	Platinum group metals. Consist of platinum, palladium, rhodium, ruthenium, osmium and iridium.
Phosphate	A phosphorous compound, which occurs in natural ores and is used as a raw material for primary production of fertilizer nutrients, animal feeds and detergents.
Pig iron	Product of smelting iron ore usually with coke and limestone in a blast furnace.
Platinum	A dense, precious, grey-white transition metal that is ductile and malleable and occurs in some nickel and copper ores. Platinum is resistant to corrosion and is used primarily in jewelry, and automobile-emissions control devices.
Potash	A potassium chloride compound, chiefly KCl, used as simple fertilizer and in the production of mixture fertilizer.
Precious metals	Metals valued for their color, malleability, and rarity, with a high economic value driven not only by their practical industrial use, but also by their role as investments. The widely-traded precious metals are gold, silver, platinum and palladium.
Primary nickel	Nickel produced directly from mineral ores.
Probable (indicated) reserves	Reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.
Proven (measured) reserves	Reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, working or drill holes; grade and/or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well-established.
Real, *reais* or R$	The official currency of Brazil is the *real* (singular) (plural**:** *reais*).
Reserves	The part of a mineral deposit that could be economically and legally extracted or produced at the time of the reserve determination.
Rhodium	A hard, silvery-white, durable metal that has a high reflectance and is primarily used in combination with platinum for automobile-emission control devices and as an alloying agent for hardening platinum.
ROM	Run-of-mine. Ore in its natural (unprocessed) state, as mined, without having been crushed.
Ruthenium	A hard, white metal that can harden platinum and palladium used to make severe wear-resistant electrical contacts and in other applications in the electronics industry.

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Secondary or scrap nickel	Stainless steel or other nickel-containing scrap.
Seaborne market	Comprises the total ore trade between countries using ocean bulk vessels.
Silver	A ductile and malleable metal used in photography, coins and medal fabrication, and in industrial applications.
Sinter feed (also known as fines)	Iron ore fines with particles in the range of 0.15 mm to 6.35 mm in diameter. Suitable for sintering.
Sintering	The agglomeration of sinter feed, binder and other materials, into a coherent mass by heating without melting, to be used as metallic charge into a blast furnace.
Slabs	The most common type of semi-finished steel. Traditional slabs measure 10 inches thick and 30-85 inches wide (and average 20 feet long), while the output of the recently developed "thin slab" casters is two inches thick. Subsequent to casting, slabs are sent to the hot-strip mill to be rolled into coiled sheet and plate products.
Stainless steel	Alloy steel containing at least 10% chromium and with superior corrosion resistance. It may also contain other elements such as nickel, manganese, niobium, titanium, molybdenum, copper, in order to improve mechanical, thermal properties and service life. It is primarily classified as austenitic (200 and 300 series), ferritic (400 series), martensitic, duplex or precipitation hardening grades.
Stainless steel scrap ratio	The ratio of secondary nickel units (either in the form of nickel-bearing, stainless steel scrap, or in alloy steel, foundry and nickel-based alloy scrap) relative to all nickel units consumed in the manufacture of new stainless steel.
Thermal coal	A type of coal that is suitable for energy generation in thermal power stations, cement plants and other coal fired ovens/kilns in general industry.
Tpy	Metric tons per year.
Troy ounce	One troy ounce equals 31.103 grams.
Underground mining	Mineral exploitation in which extraction is carried out beneath the earth's surface.
U.S. dollars or US$	The United States dollar.

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SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

VALE S.A.

By: /s/ MURILO PINTO DE OLIVEIRA FERREIRA

Name: Murilo Pinto de Oliveira Ferreira
Title: Chief Executive Officer

By: /s/ LUCIANO SIANI PIRES

Name: Luciano Siani Pires
Title: Chief Financial Officer

Date: March 20, 2015

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Vale S.A.

Index to the Financial Statements

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Report of independent registered public accounting firm

To the Board of Directors and Stockholders of Vale S.A.
Rio de Janeiro RJ

We have audited the accompanying consolidated balance sheet of Vale S.A. and subsidiaries ("Vale" or "the Company") as of December 31, 2014, and the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for the year then ended. We also have audited Vale's internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Vale's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Vale's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provide a reasonable basis for our opinion.

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A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Vale S.A. and subsidiaries as of December 31, 2014, and the results of its operations and its cash flows for the year then ended, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, Vale maintained, in all material respects, effective internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

The accompanying consolidated balance sheet of Vale S.A. as of December 31, 2013 and the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the years ended December 31, 2013 and 2012, were audited by other auditors whose report thereon dated February 26, 2014, expressed an unqualified opinion on those statements.

/s/ KPMG Auditores Independentes

KPMG Auditores Independentes
Rio de Janeiro, Brazil
February 25, 2015

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Report of Independent Registered Public Accounting Firm

To board of directors and shareholders of Vale S.A.:

In our opinion, the consolidated balance sheet as of December 31, 2013 and the related consolidated statements of income and comprehensive income, of shareholders' equity and of cash flows for each of two years in the period ended December 31, 2013 present fairly, in all material respects, the financial position of Vale S.A. and its subsidiaries at December 31, 2013, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2013, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ivan Michael Clark

Ivan Michael Clark
Engagement Partner
PricewaterhouseCoopers
Rio de Janeiro, Brazil
February 26, 2014

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Management's Report on Internal Control Over Financial Reporting

The management of Vale S.A (Vale) is responsible for establishing and maintaining adequate internal control over financial reporting.

The company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The company's internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, and that the degree of compliance with the policies or procedures may deteriorate.

Vale's management has assessed the effectiveness of the company's internal control over financial reporting as of December 31, 2014 based on the criteria established in Internal Control Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on such assessment and criteria, Vale's management has concluded that the company's internal control over financial reporting are effective as of December 31, 2014.

The effectiveness of the company's internal control over financial reporting as of December 31, 2014 has been audited by KPMG Auditores Independentes, an independent registered public accounting firm, as stated in their report which appears herein.

February 25, 2015

/s/ Murilo Ferreira

Chief Executive Officer

/s/ Luciano Siani

Chief Financial Officer and Investors Relations

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Consolidated Balance Sheet
In millions of United States dollars

	Notes	December 31, 2014	December 31, 2013
Assets			
Current assets			
Cash and cash equivalents	8	3,974	5,321
Financial investments		148	3
Derivative financial instruments	24	166	201
Accounts receivable	9	3,275	5,703
Related parties	31	579	261
Inventories	10	4,501	4,125
Prepaid income taxes		1,581	2,375
Recoverable taxes	11	1,700	1,579
Advances to suppliers		96	125
Others		574	918
		16,594	**20,611**
Non-current assets held for sale and discontinued operation	6	3,640	3,766
		20,234	**24,377**
Non-current assets			
Related parties	31	35	108
Loans and financing agreements receivable		229	241
Judicial deposits	18	1,269	1,490
Recoverable income taxes		478	384
Deferred income taxes	20	3,976	4,523
Recoverable taxes	11	401	285
Derivative financial instruments	24	87	140
Deposit on incentive and reinvestment		68	191
Others		637	738
		7,180	**8,100**
Investments	12	4,133	3,584
Intangible assets, net	13	6,820	6,871
Property, plant and equipment, net	14	78,122	81,665
		96,255	**100,220**
Total		**116,489**	**124,597**

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Consolidated Balance Sheet (Continued)
In millions of United States dollars

	Notes	December 31, 2014	December 31, 2013
Liabilities			
Current liabilities			
Suppliers and contractors		4,354	3,772
Payroll and related charges		1,163	1,386
Derivative financial instruments	24	1,416	238
Loans and financing	16	1,419	1,775
Related parties	31	306	205
Income taxes settlement program	19	457	470
Taxes payable and royalties		550	327
Provision for income taxes		353	378
Employee postretirement obligations	21(a)	67	97
Asset retirement obligations	17	136	96
Others		405	420
		10,626	**9,164**
Liabilities directly associated with non-current assets held for sale and discontinued operation	6	111	448
		10,737	**9,612**
Non-current liabilities			
Derivative financial instruments	24	1,610	1,492
Loans and financing	16	27,388	27,670
Related parties	31	109	5
Employee postretirement obligations	21(a)	2,236	2,198
Provisions for litigation	18	1,282	1,276
Income taxes settlement program	19	5,863	6,507
Deferred income taxes	20	3,341	3,228
Asset retirement obligations	17	3,233	2,548
Participative stockholders' debentures	30(c)	1,726	1,775
Redeemable noncontrolling interest		243	276
Gold stream transaction	29	1,323	1,497
Others		1,077	