

Vale S.A.  
Form 20-F  
April 17, 2012

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As filed with the Securities and Exchange Commission on April 17, 2012

**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, 2011**  
**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)*

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*(Address of principal executive offices)*

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

<b>Title of Each Class</b>	<b>Name of Each Exchange on Which Registered</b>
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
6.75% Guaranteed Notes due 2012, Series VALE, issued by Vale Capital II	New York Stock Exchange
6.75% Guaranteed Notes due 2012, Series VALE.P, issued by Vale Capital II	New York Stock Exchange
9.0% Guaranteed Notes due 2013, issued by Vale Overseas	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 <sup>3</sup> / <sub>8</sub> % 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

\*

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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, 2011 was:**

3,256,724,482 common shares, no par value per share  
2,108,579,618 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  No

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  No

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  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, 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  No

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

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

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  Item 18

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  No

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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;

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) the countries in which we operate, mainly Brazil and Canada, (b) the global economy, (c) capital markets, (d) the mining and metals businesses and their dependence upon global industrial production, which is cyclical by nature, and (e) 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.

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*Vale S.A. is a stock corporation, or sociedade por ações, organized on January 11, 1943 and existing under the laws of the Federative Republic of Brazil for an unlimited period of time. Its head offices are located at Avenida Graça Aranha, No. 26, 20030-900 Rio de Janeiro, RJ,*



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*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*

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*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.*

**RISK FACTORS**

**Risks relating to our business**

*The mining industry is highly exposed to the cyclicity of global economic activity and requires significant investments of capital.*

The mining industry is primarily 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 production capacity, build infrastructure and preserve the environment. The sensitivity to industrial production, together with the need for significant long-term capital investments, are important sources of risk for the financial performance and growth prospects of Vale and the mining industry generally.

*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 2011, Chinese demand represented 63% of global demand for seaborne iron ore, 43% of global demand for nickel and 39% of global demand for copper. The percentage of our gross operating revenues attributable to sales to consumers in China was 32.4% in 2011. Although China largely withstood the global recession of 2008/2009, a 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, could also negatively impact our results.

*Our business can be adversely affected by declines in demand for the products our customers produce, including steel (for our iron ore and coal business), stainless steel (for our nickel business) 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 71.5% of our 2011 operating revenues, are used to produce carbon steel. Nickel, which accounted for 9.5% of our 2011 gross 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 sectoral 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 industry and the use of scrap could reduce the global seaborne trade of iron ore.

The demand for fertilizers is affected by global prices of agricultural commodities. 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 and copper, 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.

*Increased availability of alternative nickel sources or substitution of nickel from end-use applications could adversely affect our nickel business.*

Scrap nickel competes directly with primary nickel as a source of nickel for use in the production of stainless steel, and the choice between them is largely driven by their relative prices and availability. In 2011, the stainless steel scrap ratio remained relatively unchanged from 2010, at 43%. Nickel pig iron, a product developed by Chinese steel and alloy makers that utilizes lateritic nickel ores, competes with other nickel sources in the production of stainless steel. In 2011, estimated Chinese nickel pig iron and ferro-nickel production increased 67%, representing 16% of global nickel output. Demand for primary nickel may be negatively affected by the direct substitution of primary nickel with other materials in current applications. In response to high nickel prices or other factors, producers and consumers of stainless steel may partially shift from stainless steel with high nickel content (series 300) to stainless steels with either lower nickel content (series 200) or no nickel content (series 400), which would adversely affect demand for nickel.

*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 render us unable to satisfy 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.

*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, particularly Argentina, Australia, Brazil, Canada, Chile, China, Colombia, France, Guinea, Indonesia, Japan, Liberia, Malawi, Mozambique, New Caledonia, Norway, Oman, Peru, the United Kingdom and Zambia.

Our operations depend on authorizations and concessions from governmental regulatory agencies in the countries in which we operate. For details about the authorizations and concessions upon which our operations depend, see *Information on the Company Regulatory matters*. 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.

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Actual or potential political 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 in which we operate may arise from time to time. Although we contribute to local communities with taxes, job and business opportunities and social programs, community expectations are complex and involve multiple stakeholders with different interests. Some of our operations and reserves are located on or near lands owned or used by indigenous or aboriginal tribes or other groups. These indigenous peoples may have rights to review or participate in natural resource management, and we negotiate with them to mitigate impacts of our operations or to obtain access to their lands.

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 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, including the imposition of new taxes or royalties on mining activities.*

Mining is subject to government regulation in the form of taxes and royalties, which can have an important 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, 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 shorten the duration of those commitments.

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

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 operation of our mines, 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 there is no assurance that new conditions will not be imposed in connection therewith. Fees for mining concessions might increase substantially due to the passage of time from the original issuance of each individual exploration license. If so, our business objectives might be impeded by the costs of holding or renewing our mining concessions. 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 mining concessions are justified by the results of operations to date, and 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 obtaining a mining concession. This retrocession 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 *Regulatory matters*.

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*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, logistics capabilities and to expand the scope of the minerals we produce. Our projects are 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 according to schedule may be hampered by a lack of infrastructure, including a reliable power supply.

Suppliers and contractors may fail to meet their obligations to us.

We may face unexpected weather conditions or other force majeure events.

We may fail to obtain, or experience delays or higher than expected costs in obtaining, the required permits and licenses to build a project.

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.

*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. Ineffective project management could mean that we are not able to perform the continuous operation of our activities. 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:

We may face unexpected weather conditions or other force majeure events.

Adverse mining conditions may delay and hamper our ability to produce the expected quantity of minerals and to meet specifications required by customers.

There may be accidents or incidents during business operations involving our mines, plants, railroads, ports and ships.

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We may experience delays or interruptions in the transportation of our products, including with railroads, ports and ships.

Some of our development projects are located in regions where tropical diseases, AIDS and other contagious diseases are a major public health issue and pose health and safety risks to our employees. If we are unable to ensure the health and safety of our employees, our operations may be adversely affected.

Labor disputes may disrupt our operations from time to time.

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*Rules governing ocean transport of iron ore fines could affect our operations.*

A portion of our production is in the form of non-concentrate iron ore. This type of ore has been occasionally compared to fines, which are small particles of ore. Current studies are analyzing whether these ores, when transported with a high moisture content, may begin to act like a fluid, although we have no record of such an event occurring. This might cause cargo to become less stable, presenting potential dangers to navigation. The operational risks depend on many factors, including the characteristics of the ore, the circumstances under which they are transported and the type of vessel used. To manage these risks, the shipping industry and maritime insurers generally follow rules adopted under the International Maritime Solid Bulk Cargoes (IMSBC) Code, but those rules do not currently specifically address the transportation of non-concentrate iron ore such as we produce in the Carajás mineral province in our Northern System. Potential changes to the rules are currently under consideration under the auspices of the International Maritime Organization (IMO). We believe that the safety of our shipping practices is evidenced by our long track record of safe operations, but regulatory changes could require us to modify our practices for handling or shipping our Carajás production, and these measures could increase our costs, require new investment, and even limit the volume of our exports of Carajás iron ore.

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

Customers, suppliers, contractors 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.

We currently operate important parts of our pelletizing, bauxite, nickel, coal, copper and steel businesses through joint ventures with other companies. Important parts of our electricity investments and our oil and gas 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. For more information about our joint ventures, see *Information on the Company Lines of business*.

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

Our operations involve the use, handling, discharge and disposal of hazardous materials into the environment and the use of natural resources, and the mining industry is generally subject to significant risks and hazards, including the potential for fire or explosion, gas leaks, escape of polluting substances or other hazardous materials, rockfall incidents in underground mining operations and incidents involving mobile equipment or machinery. This could occur by accident or by a breach of operating standards, and could result in a significant incident, including 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. Vale has health, safety and environmental standards in place to mitigate the risk of such incidents or accidents. Notwithstanding our standards, policies and controls, our operations remain subject to incidents or accidents, which could adversely affect our business or reputation.

*Environmental, health and safety regulation, including regulation pertaining to climate change, may adversely affect our business.*

Nearly all aspects of our activities, products, services and projects around the world are subject to environmental, health and safety regulation, which may expose us to increased liability or increased costs. Such regulations require us to obtain environmental licenses, permits and authorizations for our operations, and to conduct environmental impact assessments in order to get approval for our projects and permission for initiating construction. Additionally, all significant changes to existing operations must also undergo the same

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procedures. Difficulties in obtaining permits may lead to construction delays or cost increases, and in some cases may lead us to postpone or even abandon a project. Environmental regulation also imposes 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, community activist groups and other stakeholders may increase demands for socially responsible and environmentally sustainable practices, 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.

Environmental 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.

Concern over climate change and efforts to comply with international undertakings could lead governments to impose limits on carbon emissions or carbon taxes and emissions trading schemes applicable to our operations, which could adversely affect our operating costs or our capital expenditure requirements. For example, the Brazilian government has adopted a decree under the carbon emissions law (*Política Nacional de Mudanças Climáticas*) that contemplates specific limits on carbon emissions to be established in 2012 and phased in through 2020, and the Australian government has introduced a carbon pricing mechanism that commences in July 2012.

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

Natural disasters, such as wind storms, 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. Moreover, although the physical impact of climate change on our business remains highly uncertain, 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 January 11, 2012, we determined that force majeure had occurred under a number of our iron ore sales contracts due to high rainfall in the Brazilian states of Minas Gerais, Rio de Janeiro and Espírito Santo, which created serious challenges to the operations of our Southeastern and Southern Systems. The force majeure was lifted on January 23, 2012.

*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, mineral 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. As a result, accidents or other negative developments involving our mining, production or transportation facilities could have a material adverse effect on our operations.

*Our reserve estimates may materially differ from mineral quantities that we may be able to actually 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 ore reserves are estimated quantities of ore and minerals that we have determined can be economically mined and processed under present and assumed future conditions to extract their mineral content. 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



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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. Estimates may vary, and results of our mining and production subsequent to the date of an estimate may lead to revisions of estimates. 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 or other factors may render proven and probable reserves uneconomic to exploit and may ultimately result in a restatement of reserves. Such 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 speculative 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.

*Drilling and production risks could adversely affect the mining process.*

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.

*We face rising extraction costs over time as reserves deplete.*

Reserves are gradually depleted in the ordinary course of a given mining operation. As mining progresses, distances to the primary crusher and to waste deposits become longer, pits become steeper 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. 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. Negotiation may become more difficult in times of higher prices and consequently higher profits in the mining and metals industries, as labor unions may seek wage increases and other forms of additional compensation.

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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 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 13.4% of our total cost of goods sold in 2011. To fulfill our energy needs, we depend on the following sources: oil by-products, which represented 37% of total energy needs in 2011, electricity (21%), coal (19%), natural gas (15%) and other energy sources (8%), using figures converted into tons of oil equivalent ("TOE").

Fuel costs represented 9.3% of our cost of goods sold in 2011. Increases in oil and gas prices adversely affect margins in our logistics services, mining, iron ore pellets and nickel businesses.

Electricity costs represented 4.1% of our total cost of goods sold in 2011. 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 due to excess demand or weather conditions, such as floods or droughts.

Electricity shortages have occurred throughout the world, and there can be no assurance that growth in power generation capacity in the countries in which we operate will be sufficient to meet future consumption increases. Future shortages, and government efforts to respond to or prevent shortages, may adversely impact the cost or supply of electricity for our operations. Through our subsidiary PT Vale Indonesia Tbk ("PTVI") (formerly known as PT International Nickel Indonesia Tbk), we process lateritic nickel ores using a pyrometallurgical process, which is energy-intensive. Although PTVI currently generates a majority of the electricity for its operations from its own hydroelectric power plants, low rainfall or other hydrological factors could adversely affect electricity production at PTVI's plants in the future, which could significantly increase the risk of higher costs or lower production volume.

*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 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 our currency derivatives used to stabilize our cash flow in U.S. dollars. In 2011, we had currency losses of US\$1.382 billion, while in 2010 and 2009 we had currency gains of US\$102 million and US\$665 million, 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* (59% in 2011) and the Canadian dollar (15% in 2011), while our revenues are

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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 and may 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 those acquisition targets that are a key part of the Company's strategies 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. In addition, if the focus on post-acquisition integration impacts the performance of our existing businesses, our results and operations may be adversely affected. 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, 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.

*We are involved in several 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 several 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. In addition, under Brazilian law, a taxpayer intending to challenge a tax assessment in the judicial system must ordinarily provide the court with a bond or security in the amount of the assessment in order to suspend collection efforts. In some of our tax litigation cases, we may be required to post bond or some form of security with the court, and, depending on the nature, amount and scope of such a bond or pledge, this may have a significant financial impact on our business. For additional information, see *Additional information Legal proceedings*.

**Risks relating to our corporate structure**

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

As of March 31, 2012, Valepar S.A. ("Valepar") owned 52.7% of our outstanding common stock and 32.4% of our total outstanding capital. As a result of its share ownership, Valepar can 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*.

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*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 law, accounting or governance standards. We may be subject to breaches of our Code of Ethical Conduct, business conduct protocols and instances of fraudulent behavior 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 the 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, foreign court orders 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*), which confirmation will only be granted if such 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 Company or after sufficient evidence of the Company's absence has been given, 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.

**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 U.S. dollars 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 Resolution No. 2,689 of the National Monetary Council ("CMN"), 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.

We cannot assure ADR holders or HDR holders that the custodian's registration or any registration obtained will not be affected by future legislative changes, or that additional restrictions applicable to ADR holders or HDR holders, the disposition of the underlying shares or the repatriation of the proceeds from disposition will not be imposed in the future.

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

ADR holders and HDR holders may not be able to exercise preemptive rights or other types of rights with respect to the underlying shares. 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 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. We are also not obligated to extend the offer of preemptive rights to HDR holders through the depository. For a more complete description of preemptive rights with respect to the underlying shares, see *Additional information Memorandum and articles of association Preemptive rights*.

*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 depository. In the event that we fail to provide the depository with voting materials on a timely basis, or the depository does not provide sufficient time for ADR holders and HDR holders to submit voting instructions, ADR holders and HDR holders will not be able to vote. With respect to ADSs for which instructions are not received, the depository may, subject to certain limitations, grant a proxy to a person designated by us.

*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 respects, 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.

## **PRESENTATION OF FINANCIAL INFORMATION**

We have prepared our financial statements in this annual report in accordance with generally accepted accounting principles in the United States ("U.S. GAAP"). We also publish financial statements in accordance with International Financial Reporting Standards ("IFRS"), which differ in certain respects from U.S. GAAP, and use IFRS in reports to Brazilian shareholders, in CVM filings, and in determining the legal minimum dividend under Brazilian law.

Our financial statements and the other financial information in this annual report have been translated from Brazilian *reais* into U.S. dollars on the basis explained in Note 3 to our financial statements, unless we indicate otherwise.

Table of Contents**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.

**Statement of income data**

	For the year ended December 31,				
	2007	2008	2009	2010	2011
	(US\$ million)				
Net operating revenues	32,242	37,426	23,311	45,293	58,990
Cost of products and services	(16,463)	(17,641)	(13,621)	(18,814)	(23,573)
Selling, general and administrative expenses	(1,245)	(1,748)	(1,130)	(1,701)	(2,334)
Research and development	(733)	(1,085)	(981)	(878)	(1,674)
Impairment of goodwill		(950)			
Gain on sale of assets					1,513
Other expenses	(607)	(1,254)	(1,522)	(2,205)	(2,810)
 Operating income	 13,194	 14,748	 6,057	 21,695	 30,112
 Non-operating income (expenses):					
Financial income (expenses), net	(1,291)	(1,975)	351	(1,725)	(1,672)
Exchange and monetary gains, net	2,553	364	675	344	(1,641)
Gain on sale of investments	777	80	40		
 Subtotal	 2,039	 (1,531)	 1,066	 (1,381)	 (3,313)
 Income before income taxes and equity results	 15,233	 13,217	 7,123	 20,314	 26,799
Income taxes charge	(3,201)	(535)	(2,100)	(3,705)	(5,282)
Equity in results of affiliates and joint ventures and change in provision for gains on equity investments	595	794	433	987	1,135
 Net income from continuing operations	 12,627	 13,476	 5,456	 17,596	 22,652
Discontinued operations, net of tax				(143)	
<b>Net income</b>	<b>12,627</b>	<b>13,476</b>	<b>5,456</b>	<b>17,453</b>	<b>22,652</b>
 Net income (loss) attributable to non-controlling interests	 802	 258	 107	 189	 (233)
 Net income attributable to Company's shareholders	 11,825	 13,218	 5,349	 17,264	 22,885
 Total cash paid to shareholders(1)	 1,875	 2,850	 2,724	 3,000	 9,000

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

Table of Contents**Earnings per share**

	For the year ended December 31,(1)				
	2007	2008	2009	2010	2011
	(US\$, except as noted)				
<b>Earnings per share:</b>					
Per common share	2.41	2.58	0.97	3.23	4.33
Per preferred share	2.41	2.58	0.97	3.23	4.33
Weighted average number of shares outstanding (in thousands)(2)(3):					
Common shares	2,943,216	3,028,817	3,181,706	3,210,023	3,197,063
Preferred shares	1,889,171	1,946,454	2,030,700	2,035,783	1,984,030
Treasury common shares underlying convertible notes	34,510	56,582	74,998	18,416	18,416
Treasury preferred shares underlying convertible notes	18,478	30,295	77,580	47,285	47,285
<b>Total</b>	<b>4,885,375</b>	<b>5,062,148</b>	<b>5,364,984</b>	<b>5,311,507</b>	<b>5,246,794</b>
<b>Distributions to shareholders per share(4):</b>					
In US\$	0.39	0.56	0.53	0.57	1.74
In R\$	0.74	1.09	1.01	0.98	2.89

- (1) Share and per-share amounts for all periods give retroactive effect to all stock splits. We carried out a two-for-one stock split in September 2007.
- (2) Each common ADS represents one common share and each preferred ADS represents one preferred share.
- (3) Changes in the number of shares outstanding reflect a global equity offering in July 2008 and share repurchase programs conducted from October 2008 to May 2009, from September 2010 to October 2010 and from May 2011 to November 2011. For more information see *Share ownership and trading Purchases of equity securities by the issuer and affiliated purchasers*.
- (4) 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*.

**Balance sheet data**

	At December 31,				
	2007	2008	2009	2010	2011
	(US\$ million)				
<b>Current assets</b>					
Property, plant and equipment, net and intangible assets	54,625	49,329	68,810	84,370	90,030
Investments in affiliated companies and joint ventures and other investments	2,922	2,408	4,585	4,497	8,093
Other assets	7,790	5,017	7,590	8,481	8,869
<b>Total assets</b>	<b>76,717</b>	<b>79,992</b>	<b>102,279</b>	<b>129,139</b>	<b>128,728</b>
<b>Current liabilities</b>					
Long-term liabilities(1)	13,195	10,173	12,703	17,195	16,033
Long-term debt(2)	17,608	17,535	19,898	21,591	21,538
<b>Total liabilities</b>	<b>40,886</b>	<b>34,945</b>	<b>41,782</b>	<b>56,698</b>	<b>48,614</b>
Redeemable non-controlling interests	375	599	731	712	505
<b>Shareholders' equity:</b>					
Capital stock	12,306	23,848	23,839	23,726	36,903
Additional paid-in capital	498	393	411	2,188	(61)
Mandatorily convertible notes common ADSs	1,288	1,288	1,578	290	290
Mandatorily convertible notes preferred ADSs	581	581	1,225	644	644
Reserves and retained earnings	18,603	16,446	29,882	42,051	39,939
<b>Total Company shareholders' equity</b>	<b>33,276</b>	<b>42,556</b>	<b>56,935</b>	<b>68,899</b>	<b>77,715</b>

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Non-controlling interests	2,180	1,892	2,831	2,830	1,894
Total shareholders' equity	35,456	44,448	59,766	71,729	79,609
Total liabilities and shareholders' equity	76,717	79,992	102,279	129,139	128,728

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



Table of Contents**I. INFORMATION ON THE COMPANY****BUSINESS OVERVIEW****Summary**

We are the second-largest metals and mining company 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 second-largest producer of nickel. We are one of the world's largest producers of manganese ore and ferroalloys. We also produce copper, thermal and metallurgical coal, phosphates, potash, cobalt and platinum group metals ("PGMs"). To support our growth strategy, we are actively engaged in mineral exploration efforts in 27 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 maritime freight portfolio to transport iron ore. Directly and through affiliates and joint ventures, we also have investments in energy and steel businesses.

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

	Year ended December 31,					
	2009		2010		2011	
	(US\$ million)	(% of total)	(US\$ million)	(% of total)	(US\$ million)	(% of total)
<b>Bulk materials:</b>						
Iron ore	US\$12,831	53.6%	US\$26,384	56.8%	US\$35,008	58.0%
Iron ore pellets	1,352	5.6	6,402	13.7	8,150	13.5
Manganese	145	0.6	258	0.6	171	0.3
Ferroalloys	372	1.6	664	1.4	561	0.9
Coal	505	2.1	770	1.6	1,058	1.7
<b>Subtotal bulk materials</b>	<b>US\$15,205</b>	<b>63.5%</b>	<b>US\$34,478</b>	<b>74.2%</b>	<b>US\$44,948</b>	<b>74.4%</b>
<b>Base metals:</b>						
Nickel	US\$ 3,260	13.6%	US\$ 3,835	8.2%	US\$ 5,720	9.5%
Copper	1,130	4.7	1,608	3.4	2,692	4.4
PGMs	132	0.6	101	0.2	492	0.8
Other precious metals	65	0.3	72	0.2	246	0.4
Cobalt	42	0.2	30	0.1	94	0.2
Aluminum	2,050	8.6	2,554	5.5	383	0.6
<b>Subtotal base metals</b>	<b>US\$ 6,679</b>	<b>28.0%</b>	<b>US\$ 8,200</b>	<b>17.6%</b>	<b>US\$ 9,627</b>	<b>15.9%</b>
Fertilizer nutrients	413	1.7	1,846	4.0	3,547	5.9
Logistics	1,104	4.6	1,465	3.2	1,726	2.9
Other products and services(1)	538	2.2	492	1.1	541	0.9
<b>Total gross operating revenues</b>	<b>US\$23,939</b>	<b>100.0%</b>	<b>US\$46,481</b>	<b>100.0%</b>	<b>US\$60,389</b>	<b>100.0%</b>

(1) Includes kaolin, pig iron and energy.

**Bulk materials:**

o

*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, a maritime terminal and a port. The Southern System consists of three mining sites and two maritime terminals. We operate 10 pellet plants in Brazil and two in Oman, both of which have been ramping up since November 2011. We also have a 50% stake in a joint venture that owns three integrated pellet plants in Brazil and 25% stakes in two pellet companies in China.



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o *Manganese and ferroalloys.* We conduct our manganese mining operations through subsidiaries in Brazil, and we produce several types of manganese ferroalloys through subsidiaries in Brazil, France and Norway.

o *Coal.* We produce coal through Vale Moçambique, S.A. ("Vale Moçambique"), which operates assets in Mozambique, and Vale Australia Holdings Pty Ltd ("Vale Australia"), which operates coal assets in Australia through wholly owned subsidiaries and unincorporated joint ventures. Through our subsidiary Vale Coal Colombia Ltd. Sucursal Colombia ("Vale Colombia") we produce thermal coal in the Cesar department of Colombia. In Mozambique, we are ramping up the Moatize coal operation, which includes both metallurgical and thermal coal. We also have minority interests in Chinese coal and coke producers.

**Base metals:**

o *Nickel.* Our principal nickel mines and processing operations are conducted by our wholly owned subsidiary Vale Canada Limited ("Vale Canada"), which has mining operations in Canada and Indonesia. We are ramping up nickel operations at Onça Puma in Brazil and nickel operations in New Caledonia. We own and operate, or have interests in, nickel refining facilities in the United Kingdom, Japan, Taiwan, South Korea and China.

o *Copper.* In Brazil, we produce copper concentrates at Sossego in Carajás, in the state of Pará. 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 Chile, we produce copper cathodes at the Tres Valles operation, located in the Coquimbo region.

o *Aluminum.* We hold a 22.0% interest in Norsk Hydro ASA ("Hydro"), a major aluminum producer. In the past, we engaged in bauxite mining, alumina refining and aluminum smelting through subsidiaries in Brazil, our interests in which we transferred to Hydro in February 2011. We still own minority interests in two bauxite mining businesses, Mineração Rio do Norte S.A. ("MRN") and Mineração Paragominas S.A. ("Paragominas"). We will transfer our remaining interest in Paragominas to Hydro in two equal tranches in 2014 and 2016. Both MRN and Paragominas are located in Brazil.

o *Cobalt.* 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, currently in the ramp up phase.

o *PGMs.* We produce platinum-group metals 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.

o *Other precious metals.* We produce gold and silver as by-products of our nickel and copper 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.

**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 the majority of our fertilizer assets in Brazil and is the largest Brazilian producer of phosphate rock, phosphate and nitrogen fertilizers. In addition, we are ramping up operations at Bayóvar, a phosphate rock mine in Peru.



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**Logistics:** We are a leading operator of logistics services in Brazil and other regions of the world, with railroads, maritime terminals and ports. Two of our four iron ore systems incorporate an integrated railroad network linked to automated port and terminal facilities, which provide rail transportation for our mining products, general cargo and passengers, bulk terminal storage, and ship loading services for our mining operations and for customers. We also own a majority stake in Sociedade de Desenvolvimento do Corredor de Nacala S.A. ("SDCN"), with railroad concessions in Malawi and Mozambique, and have plans to construct a world-class logistics infrastructure to support our operations in Central and Eastern Africa. In addition, since 2010 we have an agreement for partial assignment, subject to government approvals, of a 756-kilometer railroad concession to provide support to our Rio Colorado potash project in Argentina. We conduct seaborne dry bulk shipping and provide tug boat services. We own and charter vessels to transport iron ore that we sell on a cost and freight ("CFR") basis to customers. Our tug boat services provide an efficient and safe towing service at our terminals in Brazil. We also own a 31.3% interest in Log-In Logística Intermodal S.A. ("Log-In"), which provides intermodal logistics services in Brazil, Argentina and Uruguay, and a 45.8% interest in MRS Logística S.A. ("MRS"), which transports our iron ore products from the Southern System mines to our Guaíba Island and Itaguaí maritime terminals, in the state of Rio de Janeiro.

**Business strategy**

Our mission is to transform natural resources into prosperity and sustainable development. Our vision is to become the number one global natural resources company, creating long-term value through excellence and passion for people and the planet. We aim to increase our demand driver, mineral and geographical diversification and logistics capabilities. Iron ore and nickel will continue to be our main businesses while we boost the production capacity of our copper, coking coal and fertilizer nutrients businesses. To enhance our competitiveness, we will continue to invest in our railroads, maritime terminals, maritime freight portfolio and power generation capacity. We continue to seek opportunities to make strategic acquisitions and partnerships, while focusing on disciplined capital management in order to maximize return on invested capital and total return to shareholders. We also dispose of assets from time to time that we have determined to be non-strategic or in order to optimize the structure of our business portfolio, but no such divestitures occurred in 2011. Below are the highlights of our major business strategies.

*Maintaining our leadership position in the global iron ore market*

We continue to consolidate our leadership in the global iron ore market. In 2011 and 2010, we had an estimated market share of 24.3% and 24.7%, respectively, of the total volume traded in the seaborne market. We are committed to maintaining our leadership position in the global iron ore market, by focusing our product line to capture industry trends, increasing our production capacity in line with demand growth, 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 strong and long-standing relationships with major customers will help us achieve this goal. We have also encouraged steelmakers to develop steel projects in Brazil through joint ventures in which we may hold minority stakes, in order to create additional demand for our iron ore.

*Achieving leadership in the nickel business*

We are the world's second-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, advanced technology and a robust growth profile. We have refineries in North 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 66% of our nickel sales in 2011. Our long-term goal is to strengthen our leadership in the nickel business.

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*Expanding our copper businesses*

We operate the Sossego copper mine in Carajás, in the Brazilian state of Pará, and the Tres Valles copper mine in Chile. We also recover copper in conjunction with our nickel operations, principally at Sudbury and Voisey's Bay, in Canada. We believe that our copper projects, most of which are situated in Carajás, could be among the most competitive in the world in terms of investment cost per metric ton of ore. We are in the final phase of construction of the Salobo project to produce copper concentrate. We expect these copper mines to benefit from our infrastructure facilities serving the Northern System. We are developing the Konkola North copper mine in Zambia, Africa through a joint venture with African Rainbow Minerals Limited ("ARM"), which has an 80% stake in the project, with the remaining 20% stake held by Zambia Consolidated Copper Mines Ltd. We are also engaged in mineral exploration in several countries in order to increase our reserve base.

*Investing in coal*

We are pursuing various opportunities to become a large global player in the coal business. We have coal operating assets and a portfolio of exploration projects in Mozambique, Australia and Colombia, and minority interests in two joint ventures in China. We intend to continue pursuing organic growth in the coal business through the expansion of the Moatize project in Mozambique, the development of more advanced coal exploration projects in Australia and Colombia, and mineral exploration initiatives in several countries.

*Investing in fertilizer nutrients*

We are actively investing to become one of the world's largest producers of potash and phosphate rock in order to benefit from rising global consumption of agricultural products, which is expected to grow significantly in coming years, especially in emerging market countries. We expect per capita income growth and the growing use of biofuels to drive demand for fertilizers. In this context, Brazil is expected to play a key role in the global agricultural market, given its position as a global agricultural powerhouse and its growth potential, mainly due to its access to water and arable land.

We operate a potash mine in Brazil (Taquari-Vassouras) and the Bayóvar phosphate rock operation in Peru, and, in 2010, we expanded our fertilizer nutrients operations through the acquisition of Brazilian phosphate and nitrogen operations, now consolidated under our wholly owned subsidiary Vale Fertilizantes. Our portfolio also includes potash projects in Argentina, Brazil and Canada, as well as several phosphate rock and potash mineral exploration projects around the world as part of our growth strategy. For more information, see *Significant changes in our business* below.

*Diversification and expansion of our resource base*

We are actively engaged in a mineral exploration program, with efforts in 27 countries around the globe. We are mainly seeking new deposits of coal, copper, iron ore, manganese ore, nickel, phosphates and potash. Mineral exploration is an important part of our organic growth strategy.

*Enhancing our logistics capacity to support our bulk materials business*

We believe that the quality of our railway assets and extensive experience as a railroad and port operator, together with the lack of efficient transportation for general cargo in Brazil, position us as a leader in the logistics business in Brazil. We have been expanding the capacity of our railroads, primarily to meet the needs of our iron ore business.

To support our commercial strategy for our iron ore business, we continue to invest in a dedicated maritime freight shuttle service from Brazil to Asia and in the development of distribution centers in Asia and the Middle East, in order to minimize freight costs and maximize flexibility, so as to enhance the competitiveness of our iron ore business in these regions.

In order to position ourselves for future expansion of our coal production in Mozambique and leverage our presence in Africa, we acquired an additional 16% of SDCN, bringing our total stake in SDCN

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to 67% at year-end, and we plan to expand its capacity, by rehabilitating the existing railroad. New railroads will be constructed to develop the logistics corridor from our mine to a new port to be built at Nacala-à-Velha.

*Optimizing our energy matrix*

Energy management and efficient supply have become a priority for us. As a large consumer of electricity, we believe that investing in power generation projects to support our operations will help protect us against volatility in the price of energy, regulatory uncertainties and the risk of energy shortages. Accordingly, we have developed hydroelectric power generation plants in Brazil, Canada and Indonesia, and we currently generate 48% of our worldwide electricity needs from our own plants, after accounting for the transfer of our aluminum production portfolio.

We are seeking to develop a cleaner energy matrix by investing to develop clean energy sources such as biofuels and windpower, and focusing on reducing our carbon footprint.

**Significant changes in our business**

We summarize below major acquisitions, divestitures and other significant developments since the beginning of 2011.

*Index-based pricing for iron ore*

Starting in the first half of 2010, we reached agreements with all our iron ore customers to move contracts from annual benchmark pricing to index-based pricing to better reflect market fundamentals. The previous annual benchmark pricing system for iron ore, based on annual bilateral negotiations, was initially replaced by a system under which iron ore prices were established quarterly, based on a three-month average of price indices for the period ending one month before the beginning of the new quarter. Since the last quarter of 2011, we have also reached agreements with some customers to price our products on a quarterly basis using the current quarter's three-month average of price indices and, with other customers, using the monthly average of the price indices or spot prices. The move towards increased price flexibility brings more efficiency and transparency to iron ore pricing and allows for the recognition of quality differences, which helps encourage long-term investment. In addition, many customers value the ability to know beforehand the price to be paid in each quarter.

*Consolidation of phosphate operations in Brazil*

On December 12, 2011, our wholly owned subsidiary Mineração Naque S.A. concluded a tender offer to acquire up to 100% of the publicly held shares of our subsidiary Vale Fertilizantes. As a result of the public offer, we acquired 211,014 common shares and 82,919,456 preferred shares of Vale Fertilizantes, representing 83.8% of the publicly held common shares and 94.0% of the publicly held preferred shares of Vale Fertilizantes, which correspond to 0.1% of the total common shares and 29.8% of the total preferred shares of Vale Fertilizantes. Both the common and preferred shares were acquired for R\$25.00 per share, amounting to a total of R\$2.1 billion (US\$1.1 billion). Shortly thereafter, Vale Fertilizantes' registration as a publicly listed company in Brazil was cancelled. In January 2012, the shareholders of Vale Fertilizantes approved the redemption of the remaining free floating common and preferred shares. As a result, Vale holds 100% of the common shares and 100% of the preferred shares of Vale Fertilizantes.

*Acquisition of Biopalma in Brazil*

In February 2011, we invested US\$173.5 million to acquire control of Biopalma, in the Brazilian state of Pará. Biopalma will produce palm oil, a raw material used to make biodiesel, and most of the production will be used for a B20 mix (a blend of 20% biodiesel and 80% regular diesel) to power our fleet of locomotives, heavy-duty machinery and equipment. Our investment in producing biodiesel is part of our strategic emphasis on global sustainability and greenhouse gas emissions reduction.

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*Acquisition of stake in Belo Monte energy project*

In June 2011, we acquired 9% of Norte Energia S.A. ("NESA"). NESA was established to develop and operate the Belo Monte hydroelectric plant in the Brazilian state of Pará. Vale reimbursed the seller for capital invested in NESA and will assume future capital investment commitments related to the acquired stake, which are estimated at US\$1.6 billion. The acquisition is consistent with our strategy of reducing operational costs and minimizing energy price and supply risks.

*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 and projects*. The most significant projects that have come on stream since the beginning of 2011 are summarized below:

*Onça Puma* In March of 2011, we started the ramp-up of Onça Puma, a ferro-nickel operation (mine and processing plant) in the Brazilian state of Pará, built mostly on lateritic nickel deposits of saprolitic ore. Its nominal production capacity is 53,000 metric tons per year of nickel contained in ferro-nickel, its final product.

*Oman* We started up production of direct reduction pellets in the industrial site of Sohar, Oman, with estimated aggregate capacity of 9.0 Mtpy. Each plant has capacity to produce 4.5 Mtpy. The first plant is producing at full capacity rates and the second plant has been ramping up since November 2011. The bulk terminal and a distribution center with the capacity to handle 40 Mt annually are fully operational.

*Estreito* In 2011, four of the eight turbines of the Estreito hydroelectric power plant became operational. Estreito is our first hydroelectric power plant in the Northern region and is located in the Tocantins River, on the border of the Brazilian states of Maranhão and Tocantins. The plant will have an installed capacity of 1,087 megawatts. We have a 30% stake in the consortium that operates the plant.

*Moatize* The first phase of the Moatize coal project began operations in August 2011. Total capacity is 11 Mtpy, 8.5 Mt of coking coal, chiefly premium hard coking coal, and 2.5 Mt of thermal coal. In November 2011, the Board of Directors approved Moatize II, which will increase coal production capacity in Mozambique to 22 Mtpy, as well as the implementation of the Nacala Corridor project, a world-class logistics railway and port infrastructure to support the expansion of production capacity at Moatize.

*Karebbe* The Karebbe hydroelectric power plant in Sulawesi, Indonesia came on stream in September 2011 and is projected to add 90 megawatts of average generating capacity. The plant supplies power to our Indonesian operations, which reduces our production costs and enables the potential expansion of nickel matte production.

*Aluminum portfolio management*

In February 2011, we transferred a substantial part of our aluminum businesses to Hydro, an integrated aluminum company with operations in Norway and other countries that is listed on the Oslo Stock Exchange and the London Stock Exchange (ticker symbol: NHY). We transferred our interests in Alumínio Brasileiro S.A. ("Albras"), Alumina do Norte do Brasil S.A. ("Alunorte") and Companhia de Alumina do Pará ("CAP"), with net debt of US\$655 million, along with off-take rights and outstanding commercial contracts, for US\$503 million in cash and shares in Hydro representing a 22% interest in its equity. As part of the transaction, we transferred the Paragominas bauxite mine and all of our other Brazilian bauxite mineral rights (apart from rights owned through our stake in MRN) to the newly incorporated company Paragominas, 60% of which we transferred to Hydro in exchange for US\$578 million in cash. We will transfer our interest in Paragominas in two equal tranches in 2014 and 2016, each in exchange for US\$200 million in cash, subject to certain contingent adjustments. In addition, under the agreement, we have appointed one director to Hydro's board.



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**LINES OF BUSINESS**

Our principal lines of business consist of mining and logistics services. We also invest in energy 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 Iron ore
  - 1.1.1 Operations
  - 1.1.2 Production
- 1.2 Iron ore pellets
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- 1.3 Iron ore and iron ore pellets
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- 1.4 Manganese ore
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- 1.7 Coal
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**2. Base metals**

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**3. Fertilizer nutrients**

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**4. Infrastructure**

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**5. Other investments**

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Table of Contents**1. Bulk materials**

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

**1.1 Iron ore****1.1.1 Operations**

We conduct our iron ore business in Brazil primarily at the parent-company level and through our wholly owned subsidiary Mineração Corumbaense Reunidas S.A. ("MCR"). Our mines, all of which are open-pit, and their related operations are mainly concentrated in three systems: the Southeastern System, the Southern System and the Northern System, each with its own transportation capabilities. We also conduct mining operations in the Midwestern System and through our joint venture Samarco Mineração S.A. ("Samarco").

Company	System	Our share of capital		Partners
		Voting	Total	
		(%)		
Vale	Northern, Southeastern, Southern and Midwestern			
MCR	Midwestern	100.0	100.0	
Samarco		50.0	50.0	BHP Billiton plc

*Southeastern System*

The Southeastern System mines are located in the Iron Quadrangle region of the state of Minas Gerais, where they are divided into three mining sites: Itabira (comprised of two mines, with two major beneficiation plants), Minas Centrais (comprised of three mines, with three major beneficiation plants and one secondary plant) and Mariana (comprised of three mines, with four major beneficiation plants).

The ore reserves in these mining sites have high ratios of itabirite ore relative to hematite ore. Itabirite ore has iron grade of 35-60% and requires concentration to achieve shipping grade.

We conduct open-pit mining operations in the Southeastern System. At the three mining sites, 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. In 2011, we produced 64% of the electric energy consumed in the Southeastern System at our hydroelectric power plants.

We own and operate integrated railroad and terminal networks in the three mining sites, which are accessible by road or by spur tracks of our EFVM railroad. The EFVM railroad connects these mines to the Tubarão port in Vitória, in the state of Espírito Santo. For a more detailed description of the networks, see *Logistics*.

*Southern System*

The Southern System mines are located in the Iron Quadrangle region of the state of Minas Gerais in Brazil. The mines of our subsidiary Minerações Brasileiras Reunidas S.A. ("MBR") are operated at the parent-company level pursuant to an asset lease agreement. The Southern System has three major mining sites: Minas Itabirito (comprised of four mines, with two major beneficiation plants and three secondary beneficiation plants); Vargem Grande (comprised of three mines and one major beneficiation plant); and Paraopeba (comprised of four mines and four beneficiation plants).

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We beneficiate run-of-mine obtained from open pit mining operations into sinter feed, lump ore and pellet feed. In 2011, we produced 94% of the electric energy consumed in the Southern System at our hydroelectric power plants.

The ore reserves in the mining sites have high ratios of itabirite ore relative to hematite ore. Itabirite ore has iron grade of 35-60% and requires concentration to achieve shipping grade. 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.

We enter into freight contracts with MRS, an affiliate railway company in which we own a 45.8% stake, to transport our iron ore products at market prices from the mines to our Guaíba Island and Itaguaí maritime terminals in the state of Rio de Janeiro.

*Northern System*

The Northern System mines, located in the Carajás mineral province of the Brazilian state of Pará, contain some of the largest iron ore deposits in the world. The reserves are divided into Serra Norte, Serra Sul and Serra Leste (northern, southern and eastern ranges) situated 35 kilometers apart. Since 1985, we have been conducting mining activities in the northern range, which is divided into three main mining bodies (N4W, N4E and N5). The Northern System has open-pit mines and an ore-processing plant. The mines are located on public lands for which we hold mining concessions.

The ore reserves in the Northern System are comprised of hematite. Because of the high grade (66.7% on average) of the Northern System deposits, we do not need to operate a concentration plant at Carajás. The beneficiation process consists simply of sizing operations, including screening, hydrocycloning, crushing and filtration. Output from the beneficiation process consists of sinter feed and pellet feed. We obtain all of the electrical power for the Northern System at market prices from regional utilities.

We operate an integrated railroad and maritime terminal network in the Northern System. After completion of the beneficiation process, our EFC railroad transports the iron ore to the Ponta da Madeira maritime terminal in the state of Maranhão. To support our Carajás operations, we have housing and other facilities in a nearby township. These operations are accessible by road, air and rail.

*Midwestern System*

The Midwestern System is comprised of the mines of Urucum and Corumbá, located in the state of Mato Grosso do Sul.

We conduct open-pit mining operations in the Midwestern System. The Urucum ore reserves contain a high ratio of hematite ore. In September 2009, we concluded the acquisition of the Corumbá mine, where we produce lump ores. At the Urucum and Corumbá mines, we generally process the run-of-mine by means of standard crushing and classification steps, producing lumps and fines.

Iron ore products from the Urucum and Corumbá mines are delivered to customers by barges traveling along the Paraguay and Paraná rivers.

*Samarco*

We own 50.0% of Samarco, which operates an integrated system comprised of a mine site, pipeline, three pellet plants and a port. Samarco's Alegria mine site, located in Mariana, Minas Gerais, is in the same region as our Mariana site in the Southeastern System.

The ore reserves of Samarco are typically of itabirite type. Two 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.

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Iron ore from Alegria and Fazendão, in our Southeastern System, supplies the Samarco pellet plants using a 396-kilometer pipeline, the longest pipeline in the world for the conveyance of iron ore. Samarco has its own port facilities to transport its production.

**1.1.2 Production**

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

Mine/Plant	Type	Production for the year ended December 31,			Recovery rate (%)
		2009	2010	2011	
<b>Southeastern System</b>					
<i>Itabira</i>					
Cauê(1)	Open pit	13.8	19.3	18.6	63.7
Conceição(1)	Open pit	17.3	19.4	21.4	74.2
<i>Minas Centrais</i>					
Água Limpa(2)	Open pit	1.4	5.0	5.0	52.2
Gongo Soco	Open pit	2.7	6.8	5.3	100
Brucutu	Open pit	23.6	29.7	30.9	73.1
Andrade(3)	Open pit	0.7			
<i>Mariana</i>					
Alegria	Open pit	12.1	13.6	14.7	80.9
Fábrica Nova(4)					