



# Sustainability Report

For a world with new values.



---

## Mission

To transform natural resources into prosperity and sustainable development

## Vision

To be the number one global natural resources company in creating long term value, through excellence and passion for people and the planet

## Values

- Life matters most
- Value our people
- Prize our planet
- Do what is right
- Improve together
- Make it happen



# How to use this .PDF

This file is an interactive PDF. You can read the text linearly, or use the various browsing features. Below you can find resources that will make your reading experience more pleasant, and facilitate the search for content in the report.



### Browsing

Use the arrows to move forward or back through the document. The home Button takes you back to the beginning of the report. The printer icon opens the print window.



### GRI indicators

You will find marks like this [\[EN16\]](#) in the text to identify the corresponding GRI indicators. By clicking on them you will be directed to the page with the complete GRI table.



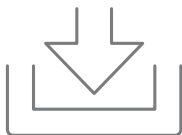
### Additional content

Markings such as [\[1.18\]](#) indicate that the content has a complement available in this Digital file. By clicking on the icon, you will be redirected to the page with the additional information.



### Bookmarks

You can also browse content using the bookmarks. By clicking the button with the icon above, Adobe Acrobat will open a side menu with chapters and subchapters of the report.



### Adobe Acrobat

It is recommended to view this document in the latest version of Adobe Acrobat. To download [click here](#).



# Sustainability Report

This foldout is part of Vale's  
Sustainability Report 2013.  
**This foldout is detachable.**



## Strategic vision

# Sustainability in Vale's management

Five pillars define our business goals and how we act in relation to our key stakeholders

## Acknowledgement

Vale was considered one of the 20 companies with the best environmental practices in Brazil by the Época Green Company Award, and received the Green Seal – Socio-environmental Chico Mendes Award, granted by the International Institute for Research and Socio-environmental Responsibility Chico Mendes.

[Read more in the online content](#) [2.12]



## Sustainable company

For the fourth consecutive year, Vale was listed in the Corporate Sustainability Index (Índice de Sustentabilidade Empresarial, or ISE) of the São Paulo Stock Exchange (Bovespa). It was also one of the 61 most sustainable companies in Brazil, according to 2013 Exame Sustainability Guide.

[Read more in the online content](#) [2.12]



## Strategic pillar

One of the five pillars of Vale's strategy is to embed sustainability into the business. The other pillars of the company are: care for people, manage the portfolio with discipline and efficiency, focus on iron ore, and grow through world-class assets.

[Read more on page 14](#)



## Human rights

500 hours of training were held on this issue with the participation of over 450 employees.

[Read more on page 28](#)



## Performance

Of the 33 goals set by the Action Plan on Sustainability (PAS), 29 were achieved, three were partially achieved, and one was not achieved.

[Read more on pages 24 and 25](#)



## Social and environmental expenditures

The commitment to sustainability is reflected in investments of US\$1.28 billion in social and environmental initiatives. Of the total, over US\$1 billion was allocated to environmental expenditures, and US\$265 million to social initiatives.

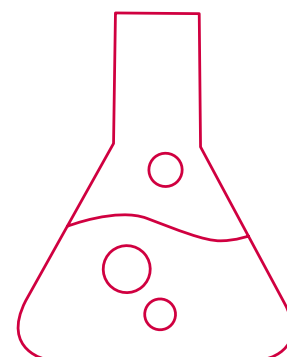
[Read more on pages 22 and 23](#)

# 2,800

patents

focused on areas such as the environment, sustainability, health and safety, are included in our portfolio.

[Read more on pages 28 and 29](#)



# 800

scholarship

students took part in 160 research projects that we support in Brazil and abroad.

[Read more on pages 28 and 29](#)

## Director

The Guide to Vale's Environmental Education Program includes guidelines for projects and operations in line with the Brazilian legislation. The guidelines for those responsible for the company's environmental education initiatives aim at promoting awareness and developing individual and collective values and motivations on the topic.

[Read more on page 19](#)

## Third wave

Vale is investing approximately US\$6 billion in the development and implementation of procedures for the use of ore hitherto not used due to low iron ore content. It is the "third wave of mining", more efficient and technological.

[Read more on page 29](#)



# Improve together

We believe in building a high-quality relationship based on trust with our employees and the communities in the regions where we operate

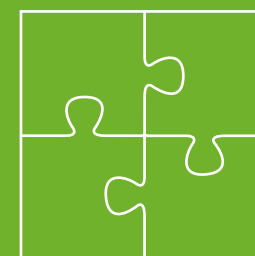


**212.4** thousand  
is the total number of employees own and contractors with an employment contract for an indefinite time by the end of 2013.

[Read more on page 36](#)

**63%** is our overall index of local hiring, two percentage points higher than in 2012. Out of the total number of own employees and contractors, 75% work in Brazil, mostly in the states of Minas Gerais and Pará.

[Read more on page 36](#)



## Reflection

Almost 150,000 employees and contractors were mobilized on the Day of Reflection on Health and Safety to remember the fatalities and reinforce collective efforts to achieve zero harm.

[Read more on page 37](#)

# US\$3 million

will be allocated by Vale in a period of three years, in initiatives developed by institutions in Mozambique and Malawi, in Africa to fight malaria. In 2013, the company became a signatory to the Global Fund to Fight AIDS, Tuberculosis and Malaria, supported by the United Nations (UN).

[Read more on page 37](#)

## Genuine Care

We internally disseminate the concept of Genuine Active Care, which means take care of yourself, take care of others, and let others take care of you.

[Read more on pages 37 to 39](#)

## Update

Our Health and Safety Policy was revised in 2013 to increase compliance with the mission, vision and values of the company.

[Read more on page 37](#)

**57%**

was the level of implementation achieved by our Health and Safety Management System (SGSS in Portuguese), eight percentage points higher than in 2012.

[Read more on page 37](#)



**22%**

was the percentage of educational deficit reduced by Vale among its operational technician level employees since 2012.

[Read more on page 41](#)



## Global Employee Survey

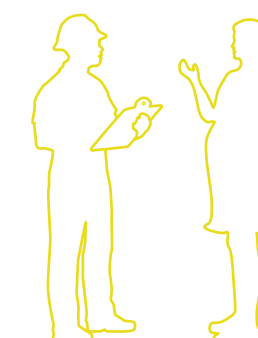
Approximately 78% of our employees participated in the consultation in 2013, nine percentage points higher than in the previous survey.

[Read more on page 34](#)

**85%**

of our employees believe that Vale leaders support diversity in the workplace, recognizing and valuing differences, and 89% agree that the company promotes a work environment that accepts differences between men and women. Data from 2013 Global Employee Survey.

[Read more on pages 42 and 43](#)



## Women in the workforce

The proportion of women out of the total number of employees was 13%.

[Read more on page 44](#)

# 1,500

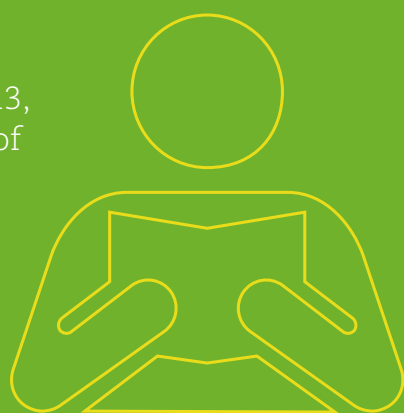
projects and social actions planned for the period 2014-2018, as part of the Multi-Year Plans for Social Action. Of this total, 40% were initiated in 2013.

[Read more on pages 52 and 53](#)

# 3,000

claims were recorded in the community's demands management system, in 2013, in Brazil and in the district of Nacala, in Mozambique.

[Read more on page 51](#)



#### Social dialogue

We built, together with the communities, Relationship and Social Investment Plans in the states of Espírito Santo, Mato Grosso do Sul, Minas Gerais, Maranhão, Pará, Rio de Janeiro and São Paulo.

[Read more on page 51](#)

#### Social and economic studies

These studies guide social dialogue and cover topics such as demography, education, health, infrastructure and public services.

[Read more on page 50](#)

#### Scope

In 2013, year when Vale Foundation completed 45 years of existence, 107 Brazilian municipalities were benefited from its projects. The value of annual investment reached US\$26.9 million.

[Read more on pages 54 and 55](#)

#### Model

Vale Foundation performs in the areas of health, education, sport, culture, urban development and creation of jobs and income.

[Read more on pages 53 and 54](#)



# 1,300

is the approximate number of people trained by program Acreditar (Believe), developed by Vale in partnership with one of the companies responsible for the construction of the Moatize Project, to qualify local workforce to operate in the project, through specific technical courses.

[Read more on page 44](#)



# 1,132

participants

of training programs were hired in 2013: 1,033 trainees and 99 young apprentices.

[Read more on page 56](#)

# 110

trainees

from Mozambique and Malaysia participated in the Vocational Training Program in 2013. They had practical lessons in Carajás (PA) and Port of Tubarão, in Vitória (ES).

[Read more on page 57](#)

# 122,000

indigenous people and members of traditional communities benefited from Vale's voluntary and compulsory initiatives. Of this total, 28,000 live in Brazil, distributed in 11 indigenous peoples and 46 traditional communities.

[Read more on pages 58 and 59](#)

# 15

indigenous peoples have interface with Vale in Australia, Canada, Chile, Indonesia, Malaysia and New Caledonia.

[Read more on pages 58 and 59](#)



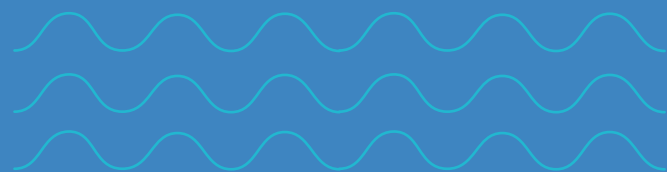
# Sharing value

We invest in the integrated management of the territories in which we operate from the conception of projects to their closure, committed to the generation of a positive legacy

33

is the number of River Basin Committees (CBH in Portuguese) Vale participates in. These include the four basins from which we demand greater volume of new water: Araguari, Cubatão, Piracicaba and das Velhas.

Read more on pages 85 and 86

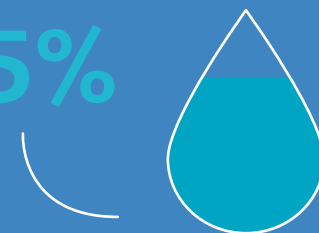


3%

was the percentage of new water withdrawal reduced by Vale, the equivalent to 10 million m³.

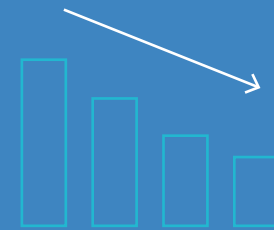
Read more on page 86

75%



is the percentage of water reuse. We stopped withdrawing 1 billion m³ from natural sources.

Read more on pages 85 and 86



## Reduction

of 67,000 tones of non-mineral waste generation.

Read more on pages 73 and 74

40%

is the percentage of non-mineral waste destined to recycling and recovery of materials.

Read more on pages 73 and 74

US\$136 million

was invested in improving processes and actions to control emissions, noise and vibration.

Read more on pages 75 and 76

21%

of Vale's energy sources is composed by renewable energy.

Read more on page 80



182

was the number of suppliers engaged in training on greenhouse gases emission inventories since 2011. The number of inventories received by Vale doubled in 2013.

Read more on page 82



US\$196.9 million

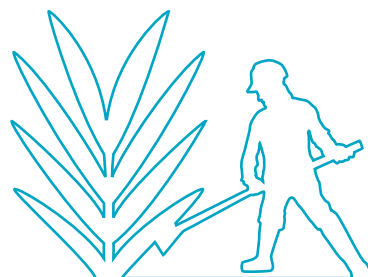
was destined for projects of renewable energy sources in 2013.

Read more on page 80

2.5 times

larger is the total 12.4 thousand kilometres of natural areas that we protect and help protect over the sum of all our operating units.

Read more on page 64.



## Preservation

Through the actions of the Vale Fund, we contributed to protect or develop over 230,000 km² of natural areas in protected areas, settlements and indigenous lands.

Read more on page 64

US\$1.1 billion

is the estimation of the intangible value of 23,000 hectares of Vale Natural Reserve (RNV in Portuguese), in Linhares, Espírito Santo, maintained by the company for 35 years.

Read more on page 68

## Golden seal

Vale had its Inventory of Greenhouse Gases Emissions (GEE in Portuguese) qualified with the gold seal of the Brazilian Program of GHG Protocol for the fourth consecutive year and obtained the highest score on transparency among companies in Latin America in the evaluation of the Carbon Disclosure Project questionnaire (CDP).

Read more on page 77



# End-to-end responsibility

We create value by promoting the sustainability agenda, the development of suppliers and by the results we deliver

## Market leader

Vale occupies the first place in two major rankings: 100 largest Brazilian mining companies from “Brasil Mineral” magazine, and “The 100 companies that have the best reputation in Brazil” in the mining, steel and metallurgy sector by Exame magazine.

Read more in the online content  [2-12]



# +15.4%

## Value Added

Vale's basic earnings amounted to US\$12.3 billion in 2013.

Read more on pages 96 and 97



## More with less

Our operating costs fell compared to 2012, despite an increase in sales volume.

Read more on pages 96 and 97

## Dividends

The total amount distributed to shareholders was US\$4.5 billion, with the commitment to distribute at least US\$4.2 billion in 2014.

Read more on pages 96 and 97



## Promoting the sustainability agenda

More than 100 companies participated in Zero Harm collaborative workshops. 1,195 ideas to reach the zero harm mark were suggested, of which 55 were prioritized and are monitored periodically.

Read more on pages 90 and 92

# + US\$14.2 billion

was the volume of our investments in 2013, excluding R&D. Of this total, US\$9.6 billion was allocated to project execution and US\$4.6 billion in maintaining existing operations.

Read more on page 99



# US\$415 million

were released in financing and credits through Inove, the program to develop Vale's local suppliers.

Read more on page 94

# 61

Brazilian companies participated in the event “Vale de Portas Abertas” (Vale Open Doors), focused on civil work and electromechanical assembly sector. The aim is to allow potential local suppliers to know our demand, major processes and guidelines for health and safety.

Read more on page 94

# 100%

of companies that sell materials, equipment and services associated to operations accept, fulfill and share principles of the Code of Conduct for Suppliers.

Read more on page 91

# 2013 Sustainability Report

- Message from the Board of Directors 4
- Message from the President 6
- Profile and global action 8
- Executive Officers 9
- How to read this report 10
- Index of indicators 100

12

Strategic vision

- Sustainability in Vale's strategic vision 14
- Management and impacts 18
- Transparency 26

32

People

- Person 34
- Health and Safety 37
- Education 41
- Communities 48

60

Planet

- Land use 62
- Climate change and energy 77
- Water 84

88

Creating value

- Value chain 90
- Vale added 96



# Creating value based on relationships of trust with communities and positive legacy <sup>[P11.1]</sup>

In 2013 we made progress in our strategy of sustainable business management. Vale reaffirms commitments taken in the past, focusing on health and safety, resource optimization, building a positive legacy for communities close to areas where we operate, and adopting best practices in social and environmental management, including a positive influence to our value chain.

In the face of a low global economic growth, we strengthened the guidelines that we had already been implementing: enhancing discipline in investments and focusing on core business. This direction helped consolidate the relation between high quality production and low operating cost as one of our market differentiators. In 2013, costs and expenses were below the values recorded in 2012, despite the increase in sales volume, which was a record for iron ore and pellets, copper, gold and coal. Production and sale of nickel were also the highest since 2008.

We completed projects that were necessary for the iron ore production growth in the period from 2014 to 2016, and obtained licenses for the deployment of the S11D project and its logistics. Another highlight was the ramp-up of base metals projects.

Vale recorded the third largest cash flow in its history. US\$4.5 billion were distributed among our shareholders, and for 2014, we take the commitment to distribute at least US\$4.2 billion. Investments, excluding research and development, totaled US\$14.2 billion - 12% lower than in 2012 (US\$16.2 billion). Funds invested in the social and environmental area totaled US\$1.3 billion - almost 79% in environmental initiatives, and 21% in social actions.

In 2014, for the fourth consecutive year, we participated in the Corporate Sustainability Index (ISE) of BM&F Bovespa (São Paulo Stock Exchange) in Brazil. Since 2006, the effectiveness of internal controls is assessed by Vale's own administration and certified by independent auditors, as set forth in the Sarbanes-Oxley Act (SOX) and required of publicly traded companies listed on the New York Stock Exchange with American Depositary Receipts (ADRs).





Picture: Agência Vale

Vale, with the support of the Board of Directors, reaffirms its commitment to the UN Global Compact and the International Council on Mining and Metals (ICMM) and reports in this document the progress in the implementation of its principles. The sustainability indicators presented in this report are also aligned with the Principles for Responsible Investment (PRI).

On behalf of Vale's Board of Directors and shareholders, I thank all those who cooperated to achieve such results for their effort, especially our Board, employees and business partners. We wish you enjoy your reading and invite everyone to get to learn more about the management and projects of a company committed to building relationships of trust with communities and supporting the development of the regions in which it operates, respecting their characteristics and cultural aspects.

**Dan Conrado**

Chairman of the  
Board of Directors

“In the face of a low global economic growth, we strengthened the guidelines that we had already been implementing: enhancing discipline in investments and focusing on core business.”

Message from the President

# Sustainability as a strategic pillar [P11.1]

Over the years, we have reaffirmed our commitment to sustainability. In 2013, we moved forward in integrating environmental and social criteria in our business strategy, based on our five pillars: take care of our people, embed sustainability into our business, manage our portfolio with discipline and efficiency, focus on iron ore, grow through world-class assets.

We reinforced our commitment to transparency and recognized the worth of ethical behaviour by creating Vale's Ombudsman, by reviewing our Code of Ethics and Conduct, and by publishing the policies on Anti-trust, Sponsorship and Anti-corruption.

Caring for health and safety remains a priority for us. We promoted internally the concept of Genuine Active Care, encouraging our employees to take care of themselves, take care of others, and let others take care of them. We implemented the Golden Rules, a set of tangible and non-negotiable behaviours to minimize the main risks that may cause accidents of high potential severity in our company, and we progressed in implementing the Health and Safety Global Management System (SGSS in Portuguese). Despite our efforts in 2013, there were seven fatalities among employees and contractors. We acknowledge that we have a long way to go to achieve the zero harm target.

In the challenge of eliminating the shortcomings of basic education among our own technical and operational level employees, we achieved a reduction in the educational deficit of 22%, since 2012. We published our Human Resources Policy, with an emphasis on promoting meritocracy, collaboration, continuous improvement and appreciation of employees.

In 2013, the Action Plan on Sustainability (PAS in Portuguese) reached 88% of its targets. Associated with key aspects of our operations, the plan aims to materialize our strategic vision in operational practices and tangible benefits.

We launched the Social Action Policy as an incentive to local development, and improved the Issues and Stakeholders Management Model, which promotes a unified view of the critical issues in territories. Together with local communities, we invested in building solutions for the development of the regions where we operate.

We advanced in the development of the methodology for assessing our risks and impacts on biodiversity, and strengthened our actions in the territories through Vale Fund. We developed several projects aimed at improving waste management, monitoring and reducing emissions of particulate matter, and mine closure plans. We are the mining company with the lowest emission intensity of greenhouse gas per gross revenue, which



demonstrates our effort towards a low carbon economy. We aim to reduce water use through new technologies applied to our business and we participate in active forums on water resources, collaborating in discussions on the use and management of these resources.

We obtained solid economic results, based on cost cutting, discipline in investments, and focus on our core business, iron ore. We may highlight obtaining the licenses for the deployment of the Carajás Iron Project S11D, the largest in Vale's history and the iron ore industry.

We seek to influence our suppliers on the sustainability agenda. One of the tools we offered was training on greenhouse gases emission inventories. Another initiative was the Inove Program, through which we released US\$415 million in loans and credits for our partners development.

We also believe in the importance of participating in discussions and global initiatives that promote sustainability. Since 2011, Vale is a member of the select group of companies that are part of the United Nations Global Compact Lead. By supporting this initiative, we commit to promoting its principles on issues related to human rights, labour rights, fighting corruption and protecting the environment. We also participated in the International Council on Mining and Metals (ICMM), with the goal of continuous improvement of our sustainability management.

In this report, we present our initiatives on sustainability and encourage open dialogue with stakeholders, further strengthening Vale's commitment to leave a positive legacy for future generations.

I thank the employees and partners who contributed with their commitment to the implementation of sustainable practices, in line with our policy of austerity. I count on the support and dedication of all to continue achieving results that contribute to maintaining our social license to operate in the long term, in an even more sustainable way.

**Murilo Ferreira**  
Chief Executive Officer

Profile and global action

# For a world with new values

[PI 2.1 to PI 2.8]

Vale's principles are respect and transparency. It is a company that seeks closeness and dialogue with its audiences, conveying confidence that it is performing its role in the most positive way. To support these principles, we launched a new brand positioning early in 2014, summarized by the motto "Vale. For a world with new values". This motto captures the essence of the company, of our beliefs and premises present in the Mission, Vision and Values. We believe this is a great opportunity to boost the will to overcome challenges and inspire people globally with our unique, innovative, sustainable and positive way of mining.

Headquartered in Rio de Janeiro, Vale S.A. is a publicly listed company with global presence. Its shares are traded on the stock markets of São Paulo, New York, Hong Kong, Paris and Madrid.

We are the world's largest producer of iron ore and pellets and the second largest producer of nickel. We also produces manganese ore, ferroalloys, copper, platinum group metals (PGMs), gold, silver, cobalt, metallurgical and thermal coal, potash, phosphate and other fertilizers. We also have activities in the logistics, steelmaking and energy sectors.

The materials we produce are applied in the steelmaking industry, in manufacturing airplanes and cars, in construction materials and in the production of food, among other elements present in people's daily lives, helping to improve their quality of life.

## Vale and China - 40 years of partnership

Vale is a pioneer in the commercial relationship between Brazil and China. In 2013, we celebrate four decades of partnership since the first shipment of iron ore to this country. In this period, the company had over 6,200 shipments carrying 1.1 billion metric tons of high quality iron ore to Chinese steelmakers, helping to make China one of Brazil's most important partners. The celebration of the 40-year relationship between Vale and the Asian country was held in Shanghai in October 2013, over 300 guests attended the event, including employees, customers, partners, suppliers, government officials and the media. The attendees were honoured with a book and a documentary outlining this successful story that grows stronger every day.

Download the book at:

<http://www.vale.com/PT/aboutvale/news/Documents/china-quiz-8/pdf/40anosValeChina.pdf>



**With a smartphone,  
download a QR Code reader  
and use the code on the  
side to watch the "Vale  
and China - 40 years of  
partnership" video - or visit  
[www.youtube.com/vale](http://www.youtube.com/vale).**





# Vale's operations around the world

-  Operations
-  Offices
-  Joint ventures
-  Exploration/  
Projects under development





Position as of March 2014.

Vale is a global company.  
We have offices, operations,  
explorations and joint  
ventures in the five  
continents.

## Americas

- 1 Brazil** Vale's worldwide headquarters  
- 2 Paraguay** 
- 3 Chile** 
- 4 Argentina** 
- 5 Peru** 
- 6 Mexico** 
- 7 Canada** 
- 8 United States** 
- 9 Barbados** 



















## Africa

- 10 Angola** 
- 11 Zambia**  
- 12 Mozambique**  
- 13 Malawi** 
- 14 Guinea** 

## Europe

- 15 Switzerland** 
- 16 Austria** 
- 17 United Kingdom** 

## Asia and Oceania

- 18 India** 
- 19 China**  
- 20 Oman** 
- 21 United Arab Emirates** 
- 22 Japan** 
- 23 South Korea** 
- 24 Taiwan** 
- 25 Philippines**  
- 26 Thailand** 
- 27 Malaysia** 
- 28 Singapore** 
- 29 Indonesia**  
- 30 Australia**  
- 31 New Caledonia** 

# Executive Officers



**Murilo Ferreira**  
President and Chief  
Executive Officer



**Galib Chaim**  
Executive Director,  
Capital Projects



**Humberto Freitas**  
Executive Director, Logistics  
and Mineral Exploration



**José Carlos Martins**  
Executive Director,  
Ferrous and Strategy



**Luciano Siani**  
Chief Financial Officer,  
Finance and Investor Relations



**Peter Poppinga**  
Executive Director,  
Base Metals and  
Information Technology



**Roger Downey**  
Executive Director,  
Fertilizers and Coal



**Vania Somavilla**  
Executive Director,  
Human Resources,  
Health and Safety,  
Sustainability and Energy

# Contribution from the internal perspective for the importance of the priority topics

[PI1.2, PI3.5, PI4.14, PI4.15, PI4.16, PI4.17]

Just as the last two years, Vale's 2013 Sustainability Report is based on relevant issues identified by the company and its stakeholders in the materiality process carried out in 2011, since there was no significant change in the context in which we operate.

However, based on our internal perspective, current strategy and aligned with our senior management, the prioritization of some relevant issues was reviewed, as detailed on the side.

## Guidelines [PI3.1, PI3.2, PI3.3, PI3.9, PI3.10, PI3.11]

For the seventh consecutive year, we are publishing our sustainability report according to the guidelines of the Global Reporting Initiative (GRI), G3 version, including the Mining and Metals Sector Supplement. The 2013 report also maintains the GRI application level A+. This edition refers to 2013<sup>1</sup> and, when comparing it we introduce data<sup>2</sup> on the two previous years, if applicable.

<sup>1</sup> Any differences in the total data and percentages in charts and tables are because these figures were rounded off. In this report the amounts in reais were converted to U.S. dollars at the rate of 2.149.

<sup>2</sup> In view of the complexity of our activities, their geographical distribution and the sampling levels ranging from indicator to indicator, we do not have a single criterion of business unit for reporting. In some locations, the business unit may be a mine or an administrative office, on the other hand, in other regions, it may include various operations like mine, plant, railway, port, among others. Therefore, some indicators we report in terms of percentage, and others with raw numbers.

The report presents data and information according to the principles of the International Council on Mining and Metals (ICMM) and the United Nations Global Compact<sup>3</sup>, international initiatives to which we are signatories. The correlation index allows readers to find information according to the respective principles of these initiatives.

The report structure allows the monitoring of the results achieved by Vale, including the commitments made in the last two reports and in accordance with the three main guidelines proposed by the Vision of the company: People, Planet, and Creating Value. These are preceded by a chapter explaining the Vale's strategic vision.

The methodology applied to define boundaries, which is updated every year, was consistent with that applied in the sustainability reports of previous years. It is consistent with the GRI Boundary Protocol guidelines, which considers the criteria for degree of influence (ownership or operational control) and potential impacts on sustainability.

<sup>3</sup> The Sustainability Report serves as Vale's Communication on Progress (COP) for the Global Compact.





[Read more in the online content](#) [1.01]

In 2013, in line with Vale's strategy of prioritizing strategic investment in world class assets and provide a further step in the streamlining its portfolio, the company sold the copper assets in Chile (Sociedad Contractual Minera Tres Valles), Log-in Logística Intermodal S.A. (logistics company), also in addition to branches of the Vale Fertilizantes S.A. group, Fosbrasil and Araucária Nitrogenados S.A. In some cases, the performance of these units was maintained, according to the available information.

The potash projects in Argentina and iron ore in Guinea were curtailed in 2013. Information concerning newly acquired companies or new projects is taken into account, as applicable, and according to progressive indicators reporting. This is an approach historically adopted by Vale according to the GRI methodology. [1.02]

Throughout this report, the symbol [##.##] will be found to indicate that there is additional content on interactive digital file, available at [www.vale.com/rs2013](http://www.vale.com/rs2013).

#### External assurance [P13.13]

The information in the 2013 Sustainability Report was verified by the independent audit firm Bureau Veritas Certification. The assurance scope included compliance with the GRI methodology and the ICMM guidelines.

In total, we have reported 81 indicators, 43 core, 27 additional and 11 from the Mining and Metals Sector Supplement. Some of this information was included in the print version, while the rest of the information was reported in the electronic file. In terms of management approach, we are continuing to globalize corporate procedures and documents, taking into consideration culture diversity and the characteristics of each business.

#### Assessment and contact [P13.4]

For more information about sustainability, visit [www.vale.com](http://www.vale.com) or contact us through the [Talk to Us](#) channel, selecting the Sustainability category available in our website.

# Strategic vision

Sustainability in Vale's management  
Five pillars define our business goals and how we  
act in relation to our key stakeholders



# Sustainability in Vale's strategy

Our strategy determines how we walk toward our vision. It is based on five pillars that define our business goals and the way we act towards employees, suppliers, communities, government bodies, customers and investors.

## Pillars of Vale's strategy

**Take care of our people** achieve zero harm, develop a team of professionals who are trained and accountable for their decisions and be a great place to work, with motivated individuals, development opportunities and work-life balance.

**Embed sustainability into our business** build positive economic, social and environmental legacies in the areas where we are present, mitigating the impact of our operations on adjacent communities and promoting sustainable practices throughout our value chain. In addition, secure a Licence to Operate through an integrated approach and transparent dialogue with our stakeholders.

**Manage our portfolio with discipline and efficiency** be austere in the use of financial resources, divest assets with low profitability and attract partners to enable projects and manage risks.

**Focus on iron ore** reinforce our leadership in the iron ore segment, increasing the supply and quality of our products, without raising costs, in order to recover our market share.

**Grow through world-class assets** create value rather than merely adding volume, focusing on competitive assets and projects that have scale, are expandable and can sustain multiple economic cycles, in iron ore, nickel, fertilizers, copper and metallurgical coal.

## Organizational skills

To perform this strategy and create value for all stakeholders, Vale needs to constantly develop organizational skills, such as:

- responsible mineral exploration;
- efficiency in the development and implementation of projects;
- understanding of customer needs and market trends;
- transparency and collaboration in relationships, especially with communities and government agencies.





## Target

To strengthen bonds of trust with stakeholders through mechanisms and channels of engagement



## Results

Process integration to enhance management of community demands, in order to have a unified view of critical issues and promote good relationship with stakeholders



## Challenge

To implement the main policies at the same pace at which the company is growing, while respecting local characteristics

Advance in simplification of normative documents and controls focused on key variables

### The importance of mining

Mining is an activity that enables long-term global economic growth because it provides input for three main segments that require mineral commodities: civil construction, manufacture of consumer goods, and food production.

**Civil construction** iron ore is the main element in the production of steel. The civil construction sector consumes 50% of its total<sup>1</sup>. Metallurgical coal is also used in the steelmaking process.

**Consumer goods** the manufacturing process of most products we buy and use in everyday life - cell phones, cars, televisions - requires metallic minerals such as copper or nickel. Nickel is essential for producing stainless steel - used in home appliances or medical instruments, as well as in batteries. Copper is used in the generation and transmission of energy, wiring, and virtually in all electronic equipment.

**Food production** one of Vale's businesses is the production of fertilizers, whose basic function is to enhance the nutrition of plants and consequently increase agricultural productivity. To go from a world population of 2 billion in 1900 to over 7 billion today, it was necessary to invest intensively in techniques to increase food production using the same productive area.

### Positive legacy

We base our activities on the three pillars of Sustainable Development Policy<sup>2</sup>: Sustainable Operator, Local Sustainable Development Catalyst and Global Sustainability Agent.

We are always trying to innovate our way of working. In 2013, we strengthened the integration of environmental and social criteria into strategic planning, in order to ensure that the company's decisions and business processes are aligned with various initiatives that we already promote. The priority topics in our sustainability agenda have been defined based on our materiality

<sup>1</sup> Data from the Organization for Economic Co-operation and Development (OECD).

<sup>2</sup> Available at [www.vale.com](http://www.vale.com)





matrix, developed in 2011, and they are in line with the following commitments previously undertaken by Vale with its stakeholders.

#### People

- To invest in people and build high-quality relationships based on trust.
- To help people grow, as they contribute to our growth.

#### Communities

- To respect and understand neighbouring communities of our operations and projects, including their cultural diversity.
- To support the development and leave a positive legacy in the regions where we operate.
- To contribute to populations' living conditions improvement.
- To strengthen relationships and communication.
- To minimize negative impacts.
- To respect local culture.
- To perform structuring actions and boost social investment.

#### Land Use

- To exercise integrated land management, seeking to generate positive net impact and value sharing in the regions where we operate.

- To contribute to the conservation and sustainable use of biodiversity and ecosystem services promoting engagement with communities, governments and other relevant stakeholders.

#### Climate change

- To reduce GHG emission by 5% by 2020 and influence the value chain in the same way.
- To invest in renewable energy sources, energy efficiency and technological innovation.

#### Water

- To guarantee the harmonious coexistence with stakeholders on water use.
- To reduce the demand for new water in operations through improvements and technology innovations.

#### Value Chain


- To promote the sustainability agenda between suppliers and customers.
- To develop suppliers where Vale operates.

#### Dialogue mechanisms [PI4.14, PI4.15, PI4.16]

We will continue to be a company that prioritizes the quality of life of its employees, maintain commitment to social development and environment protection and seek innovations or technologies that lead to sustainable development.

We believe that through dialogue solutions to challenges are found. That is why partnerships with the scientific community, governments, companies

Our mines can last many years, so building relationships based on trust with communities is critical to our business. We are committed to supporting the development of the areas in which we operate, leaving a positive legacy for them.

or communities are extremely important inside and outside Vale. This kind of activity helps in the search for best practices and alternative sources of funding, besides strengthening the image and reputation of the company and reducing risks. [Explore the online content on the main channels of communication.](#)  **[2.01]**

**Governance** [PI4.1, PI4.2, PI4.3, PI4.4, PI4.5, PI4.6, PI4.7, PI4.8, PI4.9, PI4.10]



Vale's governance structure is based on policies with guidelines and principles that guide our strategy, processes and actions. They provide the necessary transparency for the company to maintain clarity in its short, medium and long term business approaches and decisions.

In 2013, we made progress in formalizing our policies. The Human Resources Policy, which is in line with the commitment to value our employees and recognize their talents through development practices and meritocracy, was approved. Also we approved the Social Action Policy<sup>3</sup>, which reinforces the need for proper management of impacts, admittedly caused by the operations of the company and the importance of our contribution to local

development. We also published policies on Antitrust, Sponsorship and Anti-corruption. The latter reinforces the high ethical and moral norm of Vale in conducting its businesses. Other important steps were the review of both the Health and Safety Policy and the Code of Ethics and Conduct, as well as the policy on Authority Delegation.

In addition to these policies, it is worth mentioning other important documents that guide Vale's activities, leaders and employees:

- Sustainable Development Policy;
- Global Climate Change Mitigation Policy;
- Human Rights Policy;
- Accountabilities Norm for Health, Safety and Environment.

[Read more about our governance and shareholding structure](#)  **[2.02]** [in the online content.](#)  **[2.03]**

<sup>3</sup> Applicable to Brazil and reference for other Vale units abroad.

# Management and impacts

[PI 1.2, EN14, MM2]

From the project design stage to its completion, including the phases of implementation, operation and decommissioning, the company takes into account social, economic and environmental aspects.

We promote the improvements in environmental performance by developing studies and projects based on technological, regulatory and market technology trends.

We invest in processes and internal management tools, as well as in innovation and technology. In addition, the company implements actions and measures to prevent, control or compensate for impacts. Actions include areas that are internal and external to operational units, considering the existing environmental attributes in project's areas of influence.

We use management tools such as the license to operate methodology, the Best Practices Guidelines for Environmental Licensing and Environment, the Communities Relations Guide, the Communities Relations for Capital Projects Manual and the Guide for Environmental Education Program. In the planning, implementation, operation and decommissioning phases, we have several initiatives to continuously improve our performance. In the conclusion phase, we have advanced in plans for mine closure developed, in accordance with international standards.

When environmental studies identify activities with potential to cause negative impacts on the biodiversity and ecosystem services, we create Biodiversity Management Plans with actions that are required by law and also by voluntary initiatives of the company. In areas of particular importance for biodiversity<sup>4</sup>, the Biodiversity Management Plans

may be complemented with special programs developed by Vale.

## Social and environmental management

Vale's social management is based on the Social Action Policy, which reinforces impacts management and the importance of our contribution to local development and has as priority topics health, education and generation of jobs and income. We also recommend the use of the Communities Relations Guide in Brazil and Mozambique, which is based on the main international references on stakeholders' engagement, Vale's strategic pillars and the company experience. Furthermore, we use the Communities Relations Manual, specifically created for capital projects implemented by the company, for an effective social management since the start of its activities.

To prioritize initiatives that generate greater returns for communities - efficiently managing negative impacts and enhancing positive impacts of our projects - we developed the Issues and Stakeholders Model, establishing adequate governance through committees that supports decision making by the company's senior management.

The model that has already been deployed in Brazil and expanded to Mozambique in 2013, promotes a unified view of how to address critical issues related to territories. In addition it also provides structured information to take decisions that enable mitigation

<sup>4</sup> Protected or high biodiversity areas that represent sensitive and important conservation areas and with endangered species.



# 46%

of Vale's operations require Biodiversity Management Plans, and 94% of them have already been implemented. Other operations are in the process of defining project's scope and details.



of impacts and promote good relationships with stakeholders, such as local communities, governments, NGOs and other institutions.

The main processes that support this model are:

**Social dialogue** a practice to share information and promote understanding and mutual cooperation with the objective of incorporating communities' perspectives to the company's decisions.

**Management of demands** a database with demands, complaints and risks of human rights submitted by communities for recording and handling demands and that contributes to targeting resources. It is applied to operations in Brazil, and in 2013 it was deployed in the district of Nacala, in Mozambique.

**Socioeconomic studies** regional integrated socioeconomic diagnoses with information on the regions and the impacts generated by our projects. These studies also support voluntary or mandatory social actions, as well as social dialogue. In the last years, studies have been conducted in Australia, Brazil<sup>5</sup>, Indonesia, Malaysia, Mozambique and Oman.

**Multi-Year Plan for Social Spending** it is the document that guides the allocation of resources in the different regions. This plan is drawn from the alignment between communities' demands, socioeconomic studies and guidelines defined by the Social Action Policy. In 2013, Vale elaborated this type of plan in Brazil and Nacala, in Mozambique. [Read more in the chapter Communities.](#)

#### Case

## Environmental Education Program Guide

To fulfill its commitment of engaging internal and external audiences to actions related to impact and environment management, Vale has developed the Environmental Education Program Guide.

This document is the result of the discussions of the Working Group on Environmental Education, created in 2011, and gathers operational guidelines for projects and operations in line with the Brazilian law. The guidelines for those responsible for managing and conducting environmental education initiatives of the company aim at promoting awareness and raising individual and collective values and motivations on the topic.

<sup>5</sup> Espírito Santo, Mato Grosso do Sul, Minas Gerais, Sergipe, southeast Pará and municipalities crossed by the Carajás Railway.



In line with the Sustainable Development Policy, Vale has developed an Environmental Management System (EMS), a global model with emphasis on controlling environmental aspects and mitigating relevant adverse impacts on the prevention of risks associated with operations, products and services, considering the laws of each country.

The EMS' requirements are included in internal documents and are more detailed and better measured than those of ISO 14001, a benchmark standard in environmental management. The continuous improvement of our management practices and pollution prevention are the pillars of this system.

The biodiversity management, for example, comprises a specific EMS macro-process, with specific requirements for biodiversity and recovery of degraded areas (RAD in Portuguese).

In the second half of 2013, we published the Global Instruction on the Recovery of Degraded Areas that establishes corporate guidelines for the management of RAD activities with the objective of promoting efficiency and best practices.

In its management of environmental risks, Vale uses technical and operational procedures, control devices, qualified teams, specialist consultancies and periodic audits in order to identify, control and minimize the risks of its operations, and maintain tolerable levels determined by requirements defined internally or by legislation.

In emergency situations, we also count with a georeferencing system, a tool that identifies those responsible and the internal and external material resources of operating units to meet the environmental emergency, enabling quick response and contributing to decision making. [See more in chapter Planet.](#)

### **Impacts on biodiversity** [EN12]

The main risks and direct and indirect impacts related to our activities are primarily associated with changes in the components of the physical environment that acts as support for the biotic environment (flora and fauna), and can cause changes in biodiversity and our ecosystem services.

Biodiversity risks can be understood as possible losses or changes in biological diversity arising, directly or indirectly, from a particular activity. Removal of vegetation may be necessary in projects implementation phases or the development of operational activities, such as expanding areas of mining, disposal of waste and tailings.

Loss of specimens (removal of flora and accidental death of fauna specimens) and fragmentation and loss of habitats are among the main direct impacts on biodiversity. Indirect (secondary) impacts are scaring specimens and causing behaviour change (fauna), changing the composition of populations and communities (fauna and flora), and affecting ecosystems functions such as the interruption of water bodies to dig or build tailing dams, interference with important areas for the conservation of water and soil protection, among others.

To reduce these effects, we adopted a set of actions to prevent, control and mitigate impacts at all stages of the life cycle of our activities ([see more in chapter Planet](#)).

### **Impact bioindicators**

Vale is developing a groundbreaking study to assess the real impact of mining activities on the fauna and flora of Carajás National Forest (PA). The main distinguishing feature of this methodology is selecting some fauna groups to monitor considering the impact to which the species are most vulnerable. The study will be implemented in 2014 at the Serra Norte and Serra Sul operations.

The study has been conducted by experts, including university professors, and embraces three environments: canga, forest and aquatic environment. The main mining impacts in selected biotic environment were reduction of water surface availability, generation of dust and noise, and habitat reduction. According to the environment and the impact, bioindicators were defined to diagnose how projects affect the flora and fauna and how species respond to interference from mining activities. This will provide better understanding of the processes, facilitating effective actions to mitigate and eliminate mentioned impacts.

## Potential socioeconomic impacts<sup>[EC9]</sup>

### Direct

- Creation of new jobs associated with the mining productive chain
- Reduction of the number of jobs during the demobilization phase
- Reduction in unemployment rates in affected areas - hiring of skilled local workforce
- Increase in hiring local services and products
- Increase in government revenue
- Disturb the population with company activities
- Eventual relocation of families to install or expand a project
- Generation or intensification of conflicts over land use

### Indirect

- Increase of the number of formal indirect jobs
- Increased income
- Attract new suppliers of services and products
- Attract investments from public and private sectors
- Improvement of infrastructure and services
- Boosting other economic sectors
- Encourage immigration by expectation of employment and business with a consequent increase in the rate of population growth
- Increase in housing deficit
- Incentive for real estate speculation
- Pressure on infrastructure and public services
- Change in traditional ways of life
- Increase and diversification of the supply and demand of services and commercial activities ( local production)
- Training of local suppliers
- Higher political and economic representation in the municipality
- Regional economic development
- Increase in food, housing, goods and services prices
- Professional qualification of communities to act in the mining industry and other economic careers
- Generation of scientific knowledge

## Potential biophysical impacts<sup>6</sup> [EN12]

### Direct

- Air pollution
- Change in levels of sound pressure and vibration
- Acceleration of soil erosion and sedimentation of water bodies
- Soil Loss
- Change in surface and underground water dynamics
- Reduction of water availability (surface and underground)
- Pollution of water (surface and underground)
- Suppression of natural underground cavities
- Modification in the relief
- Landscape modification
- Habitat loss in mine operations areas
- Ecosystems fragmentation
- Depopulation of terrestrial and aquatic fauna communities
- Elimination of plant specimens and population reduction
- Reduction of plants biomass

### Indirect

- Modification of soil properties
- Reduction of the potential for agricultural production
- Increased availability of groundwater (lowering the water table)
- Fragmentation and edge effect<sup>7</sup>
- Disturbance of fauna
- Modification of the biota communities<sup>8</sup>
- Changes in plant physiological functions
- Loss of wildlife habitats outside mining areas
- Increment in fauna trampling
- Increased pressure of fauna illegal hunting and collection
- Increase incidence of vector-borne diseases
- Loss in fauna richness and diversity and reduction in its population

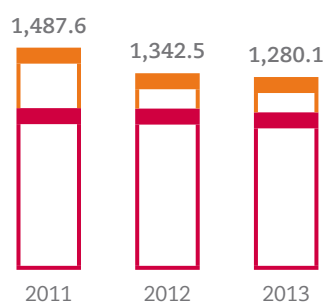
<sup>6</sup> The classification as direct or indirect depends on the type of activity and project.

<sup>7</sup> Habitat fragmentation is the process of division and modification of occupancy areas of a species. The edge effect is the change in structure, composition or relative abundance of species in the marginal part of a fragment.

<sup>8</sup> Biota is the group of living beings in an ecosystem, including flora, fauna, fungi and other organisms.

## Social and environmental expenditures [EC8, EN30]

(in US\$ million)



	2011	2012	2013
<b>Social</b>	457.2	317.2	265.1
<b>Environmental</b>	1,030.4	1,025.3	1,015.0
<b>Total</b>	<b>1,487.6</b>	<b>1,342.5</b>	<b>1,280.1</b>

## Social expenditures [EC8]

(in US\$ million)

Areas of action	Value	%
Impact management <sup>I</sup>	<b>74.9</b>	28%
Human <sup>II</sup> and economic development	<b>62.8</b>	24%
Donation to the Vale Foundation	<b>35.9</b>	13%
Sponsorship <sup>III</sup>	<b>34.4</b>	13%
Infrastructure	<b>33.8</b>	13%
Corporate institutional relations	<b>18.3</b>	7%
Public sector management	<b>4.3</b>	2%
Socioeconomic diagnosis/PGIS	<b>0.7</b>	0%
<b>Total</b>	<b>265.1</b>	<b>100%</b>

<sup>I</sup> Impact management: mitigation or corrective actions to significantly reduce the effect of impacts generated as a result of Vale's presence. Such actions should promote sustainable solutions to the issues observed.

<sup>II</sup> Human development according to United Nations Development Programme (UNDP) is one that places people at the center of development, promotes human potential, increases their chances and enjoys freedom to live the life that they value.

<sup>III</sup> Sponsorship: initiative to strengthen Vale's institutional image coordinated strategically for pre-established corporate guidelines. Through sponsorship, resources, goods or services are transferred exclusively to corporations, for the viability of a particular project that should use the brand Vale and the definition of compensations aligned with the strategic goals of the company.

## Environmental expenditures<sup>I</sup> [EN30]

(in US\$ million)

Type of expenditure	Value	%
Tailings dams, dikes and rock piles security and management	<b>288.7</b>	28.4%
Air emissions	<b>136.0</b>	13.4%
Waste	<b>127.6</b>	12.6%
Water resources	<b>126.2</b>	12.4%
Other	<b>82.6</b>	8.1%
Environmental management	<b>58.5</b>	5.8%
Degraded areas and protected areas	<b>40.9</b>	4.0%
New environmental technologies	<b>23.4</b>	2.3%
Contaminated areas management	<b>23.0</b>	2.3%
Environmental studies and environmental licensing processes	<b>18.2</b>	1.8%
Compliance with legislation	<b>17.6</b>	1.7%

Type of expenditure	Value	%
Environmental conditioning	<b>15.6</b>	1.5%
Hazardous products	<b>14.0</b>	1.4%
Demobilization and mine closure	<b>12.7</b>	1.3%
Fire prevention system	<b>11.8</b>	1.2%
Climate change	<b>9.7</b>	1.0%
Environmental education	<b>3.2</b>	0.3%
Biodiversity	<b>2.4</b>	0.2%
Environmental occurrences	<b>1.9</b>	0.2%
Noise and vibration	<b>0.9</b>	0.1%
<b>Total</b>	<b>1,015.1</b>	<b>100%</b>

<sup>I</sup> Categories associated with Vale's actions for: prevention, maintenance, monitoring, security and management.



The PAS aims to boost the implementation of Vale's strategic vision on sustainability in operational practices and tangible benefits.



#### **Social and environmental expenditures** [EC8, EN30]

In 2013, we invested US\$1.280 billion in social and environmental actions, 79% in environmental actions and 21% in social actions. Of total environmental expenditures, 73% are related to legal requirements and 27% are voluntary. Social area resources (51% voluntary and 49% required<sup>9</sup>) were destined to management of impacts (28%), human and economic development (24%), donation to Vale Foundation (13%) and improvement of infrastructure (13%). For 2014, Vale anticipates investing US\$975 million in social and environmental initiatives, of which US\$787 million (81%) will be dedicated to environmental control and protection, and US\$188 million (19%) to social programs. [2.04]

#### **Action Plan on Sustainability (PAS)**

Indicators that comprise the PAS are part of the management process and are linked to key aspects of our operations, such as energy, water, waste, emissions and recovery of degraded areas (RAD in Portuguese). To monitor Vale's performance in these aspects, absolute or relative targets considered in employees' variable remuneration were set according to the table in pages 24 and 25.

Some 2013 objectives, proposed and referenced in the 2012 Sustainability Report, were adjusted and revised due to changes in the production plan, governance change and new budgetary guidelines. Indicators for variable remuneration in 2014 will focus on critical and priority topics in each operation.

<sup>9</sup> Vale considers Mandatory Social Expenditure to be all of the company's legal obligations (requirements, LOC, TAC etc.), as well as the company's commitments to properly treat impacts on regions where it operates.

By the end of this report these indicators were being defined, therefore goals are not listed in the table.

The results presented in the table consider a scale of 0 to 5, according to goal achievement, and are classified as:

**Target achieved** corresponds to levels 3, 4 and 5 of target.

**Target partially achieved** when at least one unit has not reached level 3. It corresponds to the indicators of direct energy consumption (EN3) of Integra Underground and indirect (EN4) of Integra Open Pit, for the Coal area in Australia and direct energy (EN3) for Fertilizantes. For the EN3 indicator of Integra Underground, there was increased diesel consumption due to changes in vehicle handling at the mine. For EN4, Integra Open Pit, there was increased electricity consumption per ton handled in comparison to the previous year (total electricity consumption was maintained but the volume handled decreased). For the fertilizers indicator, EN3, fuel gas consumption was higher to compensate the shutdown of the ammonia unit due to lack of electricity.

**Target not achieved** when level 3 was not reached in all business units for the indicator of water withdrawn from the source (EN8), as in the case of Nickel area (North Atlantic). There was an increase in the volume of water pumped, as some systems do not allow segregation of rainwater and also as it was an atypical year in terms of rainfall.

## PAS target table

Business unit		Indicators	Metric	Result in 2013	2013 Target (average variation 2012)	Business scope
Iron ore and pellets		EN3 - Direct energy consumption	kcal/t	-	Indicator excluded from the Target Table for the Pellets unit	-
		EN4 - Indirect energy consumption	MWh/t produced	○	1% reduction in 2 units	63.0%
		EN8 - Total water withdrawal by source	m³/t produced	○	24% increase in 1 unit	4.7%
		EN10 - Recycled and reused water	%	○	Maintenance of target in 3 units	97.0%
		EN22 - Total weight of waste	t/Mt handled	○	20% reduction in 3 units	26.7%
		RAD - Recovery of Degraded Areas	%	○	Maintenance of the target (100% achievement of the RAD1 Plan) in 4 units	-
Copper		EN3 - Direct energy consumption	litres/t handled	○	3% reduction in 1 unit	
		EN4 - Indirect energy consumption	kWh/t powered	○	Maintenance of target in 1 unit	
		EN8 - Total water withdrawal by source	m³/t produced	○	25% reduction in 1 unit	100%■
		EN22 - Total weight of waste	t/Mt handled	○	5% reduction in 1 unit	
Manganese		EN8 - Total water withdrawal by source	m³/t produced	○	2% reduction in 3 units	
Nickel	North Atlantic	EN8 - Total water withdrawal by source	m³/production	✗	Maintenance of 2012 result in 1 unit	81.5%
		EN22 - Total weight of waste	%	○	25% increase in 3 units	57.4%
	Asia-Pacific	EN3 - Direct energy consumption	GJ/t Ni produced	○	20% reduction in 1 unit	99.8%
		EN8 - Total water withdrawal by source	m³/t produced	○	New metric	18.5%
		EN20 - NOx, SOx and other significant air emissions by type and weight	t SO2/t Ni produced	○	2% reduction in 1 unit	-
		EN22 - Total weight of waste	ton	○	Maintenance of 2012 result in 1 unit	42.6%
Coal		EN3 - Direct energy consumption	litres/t handled	△	12% reduction in 3 units	38.6%
		EN4 - Indirect energy consumption	MWh/t handled	△	2% reduction in 3 units	56.8%
Fertilizers		EN3 - Direct energy consumption	several	△	10% reduction in 10 units	Different types of fuel
		EN4 - Indirect energy consumption	KWh/t produced	○	4% increase in 9 units	78.9%
		EN8 - Total water withdrawal by source	m³/t produced	○	2% reduction in 4 units	40.8%
		EN22 - Total weight of waste	t/Mt disassembled	○	2% reduction in 1 unit	33.0%

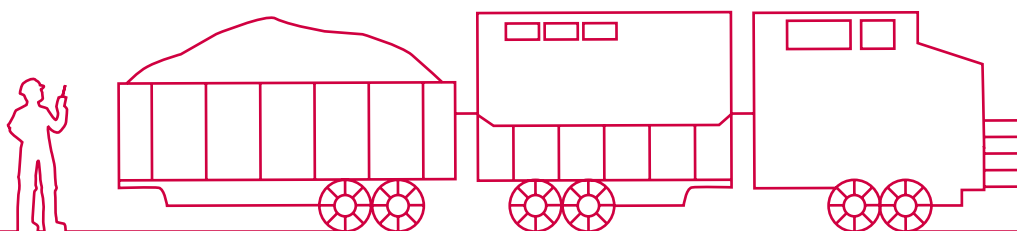


Business unit	Indicators	Metric	Result in 2013	2013 Target (average variation 2012)	Business scope
Logistics	General cargo	EN8 - Total water withdrawal by source	m <sup>3</sup>	○ 44% reduction in 3 units	10.0%
	Tugboats	EN3 - Direct energy consumption	litres/hours worked	○ New indicator specific to the unit	0.8%
	Railways	EN8 - Total water withdrawal by source	m <sup>3</sup> /MTKB	○ 20% reduction in 2 units	17.5%
		EN10 - Recycled and reused water	%	○ 276% increase in 2 units	18.7%
		EN22 - Total weight of waste	kg/MTKB	○ 36% reduction in 2 units	95.6%
		EN8 - Total water withdrawal by source	m <sup>3</sup> /Mt handled	○ 40% reduction in 1 unit	5.5%
	Ports	EN10 - Recycled and reused water	%	○ 58% increase in 1 unit	79.8%
		EN22 - Total weight of waste	t/Mt handled	○ 25% increase in 4 units	4.4%
	Ships	Management of ballast water (NORMAN 20)	%	○ New indicator specific to the unit	-
	Africa	Qualitative Plan	-	○ First year of implementation of PAS	-
General Services	EN22 - Total weight of waste - disposal	%	○	Maintenance of target in twenty-two CMD's	-

- I RAD (in Portuguese) - recovery of degraded areas plan.
- II Targets set only for Sossego Mine.

	Result	Quantity	%
Target achieved: (level 3, 4 and 5)	○	29	88%
Target partially achieved	△	3	9%
Target not achieved	×	1	3%
<b>Total</b>		<b>33</b>	<b>100%</b>

Of the 33 targets set for 2013, 29 (88%) were achieved. All targets have improvement plans developed from technical visits, diagnoses and meetings with those responsible.



# Transparency

In 2013 we created Vale's Ombudsman, with the aim of guaranteeing proactive transparent, independent and impartial communication for internal and external audiences to address complaints.

## **Ethics** [PI4.6, SO2, SO3, SO4]

Reporting directly to the Chairman of the Board of Directors, the Ombudsman has the responsibility of providing information to the Audit Committee and Vale Governance Sustainability Committee.

Potential accounting irregularities or improprieties, as well as on any other accounting issue, auditing matters and those related to internal controls, ethics, human rights, health and safety, the environment and information security can be informed through the Reporting Channel. The Channel provides several access options, such as e-form, letter, email and phone. The Ombudsman intends to expand the scope of the Channel, making room for complaints, questions, suggestions and compliments. In addition, it expects to increase the reporting of results of complaints to the internal public seeking greater transparency to the channel.

Among the Ombudsman actions, planned for 2014 there is the creation of an Ethics Committee and the preparation of training based on the new version of the Code of Ethics and Conduct, published in 2013. The document is in line with our values and reinforces our commitment to ethics, in addition to presenting the concept of Conflict of Interest and describing the behaviours expected of employees and those that are intolerable, therefore subject to disciplinary action.

Since 2006, the effectiveness of Vale's internal controls is internally assessed by the administration itself and certified by independent auditors, as set forth in the Sarbanes-Oxley Law (SOX). We are also

signatories to the Business Pact for Integrity and Against Corruption, created by the Ethos Institute, through an agreement with the Office of the Comptroller General (CGU), in Brazil, and the United Nations Office on Drugs and Crime (Unodoc).

Through ICMM, Vale also contributes to the Extractive Industry Transparency Initiative (Eiti), an important initiative that aims to ensure transparency in financial flows between companies in the extractive industries and the countries where they operate.

In 2013, 62 fraud cases were confirmed, as the chart on the side shows. All cases were presented to managers and directors of the areas involved and action plans were established.

The reported cases refer to measures taken specifically with respect to fraud against the company. There is no case of irregularities or improprieties in the accounting records of the company or its internal controls. Moreover, no case of corruption (active or passive) of civil servants or government representatives by employees was recorded in the period.

Cases identified must be duly grounded and handled rigorously in proportion to the damage incurred or avoided. People demonstrably involved are held accountable and punished with dismissal and prosecution. Companies with proven involvement in unlawful acts have their contracts terminated, are excluded from Vale's registry and are fined in proportion to the damage or injury.

Vale follows best market practices, preventing losses and investigating cases that are associated with fraud, embezzlement and unlawful acts.

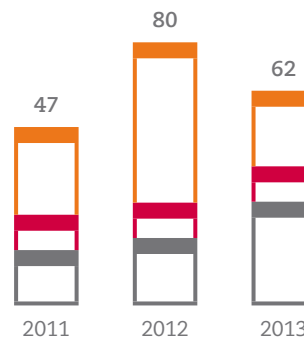
We conduct risk assessment of corruption, particularly in the supply chain, execution of contracts in operational areas, analysis of claims by suppliers and loss prevention in capital and betterment investment projects. All based on the Loss Prevention Guide. Find out online which business units underwent a risk assessment in 2013.

[2.05]

As part of our effort to advance our management of risk analysis and implement routines to prevent losses caused by fraud in capital projects, in 2013 leaders of these projects were trained and contracts were reviewed in 11% of Vale's operations.

To act pre-emptively on this issue the company provides training on Anti-Corruption Policy, Business Ethics and Loss Prevention in Capital Projects. Near 1% of employees took this training in 2013, whether in person or online.

#### Fraud cases



	2011	2012	2013
Cases involving other measures <sup>I</sup>	29	53	25
Cases of non-renewed contracts	6	8	6
Cases with dismissal or punishment <sup>II</sup>	12	19	31
<b>Total</b>	<b>47</b>	<b>80</b>	<b>62</b>

<sup>I</sup> All 62 cases of fraud were presented to managers and directors of areas involved together with their respective action plans. In 8 of the 62 cases there was notification, payment blocks, disallowances and/or fines imposed on suppliers.

<sup>II</sup> In cases of fraud, the number of employees dismissed/punished was 20 in 2011, 35 in 2012, and 83 in 2013.

### Human rights <sup>[HR3]</sup>

We adopted the United Nations Framework for Business and Human Rights<sup>10</sup> in our projects and operations throughout our activities in the production chain and in the regions where we operate. In 2013, we began the process of reviewing the Human Rights Policy<sup>11</sup> with the objective of reflecting advances since its publication, in 2009. In 2012 Vale published a second edition of the Human Rights Guide. This publication provides guidance to clarify and engage employees and other audiences in understanding and respecting human rights. The guide addresses issues such as: respect for diversity, awareness on moral and sexual harassment, in addition to discussing critical issues in the mining sector, such as child labour, forced labour and artisanal mining. In 2014, the contents of the Guide will be updated.

In 2013, a strategic education plan on human rights was established. We continued training our leaders on this subject, in Brazil (Maranhão, Pará, Minas Gerais, Espírito Santo and Rio de Janeiro) and in Mozambique (Maputo, Beira, Nampula, Nacala and Tetê), as well as implemented specific training for teams that work directly on communities relationships. In total, 500 hours of training on human rights with the participation of 459 employees<sup>12</sup> were completed. In addition, about 400 employees from Mozambique participated in an event to raise awareness on the topic.

To increase the capacity of prevention and mitigation of human rights violations in our activities, we have established in recent years management processes and tools. The focus has been on the most relevant aspects for the mining industry and the locations where we operate, such as community rights, labour rights, children's rights, value chain, traditional communities and indigenous peoples and artisanal and small scale mining.

The strategic management panel of human rights violation risks, improved in 2013, focuses on the identification of risk inherent in the regions where we operate. We also created a tool to assess human rights violation risks, to be applied in our capital projects, seeking preventive action. In the case of our operations, action plans have been developed based on self diagnosis derived from the application of Social and Sustainability Aspects Management Tool.

We also defined a methodology for assessing the impact on human rights in order to identify and address impacts of our projects in locations considered most critical. In 2014, we will strengthen the application of the tools developed and the continued integration of human rights in the management processes of the company, in addition to create new initiatives to disseminate the topic.

### Research and innovation

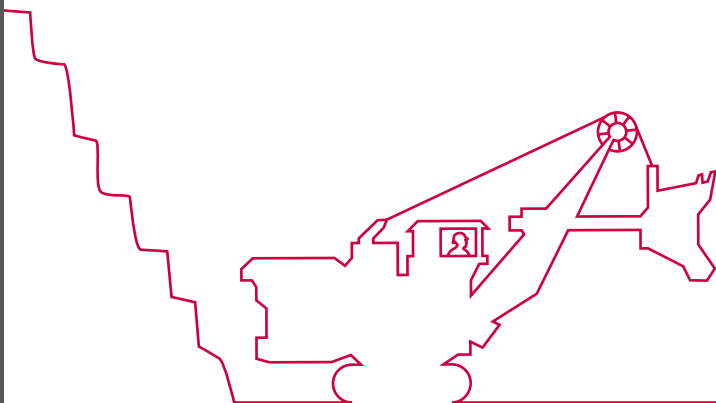
Vale believes that technology and innovation are essential to the progress of its activities and the development of society. In order to coordinate its research and development initiatives the company has an area of technology and innovation that maps and develops opportunities, optimizing investments and actions related to innovation. As a result of this positioning, we have a portfolio of about 2,800 patents focused on operational improvements, research and technological developments in areas such as environment, sustainability, health and safety.

Technology and innovation initiatives are conducted at our research centers and institutes and at operational areas. We also develop projects in partnership with suppliers, universities and research centers in Brazil and abroad. Vale also seeks incentives to innovation, aimed at ensuring the sustainability of its initiatives associated to technological development. We identify, classify and consolidate projects that qualify as innovation in national and international laws (Good Law) to capture these benefits.

<sup>10</sup> Report published in June 2011.

<sup>11</sup> In accordance with the Universal Declaration of Human Rights and the United Nations (UN) "Protect, Respect and Remedy: Framework for Business and Human Rights".

<sup>12</sup> The percentage of trained employees is 0.4%.



Research projects associated with universities and those developed in research centers and operational areas are annually reviewed and monitored by Vale Technology Committee (VTC). VTC is responsible for the technology and innovation strategic coordination and has the participation of directors of areas related to the subject of the company.

Among Vale's centres for Research and Development, one may highlight the Centre for Mineral Development (CDM in Portuguese) the Centre for Ferrous Technology (CTF in Portuguese) both in Minas Gerais - Brazil, and the Centre for Technology in Base Metals, in Ontario. Vale also counts with Vale Technology Institute (ITV), a non-profit institution that aims to pinpoint trends, anticipating potential opportunities or problems in science and technology that may affect Vale's business.

The Institute operates through the integration of three functional areas, the first of which is its core objective:

**Research** promote, disseminate and carry out research, technology and innovation related to mining and sustainable development;

**Education** develop and qualify technical and scientific knowledge through postgraduate courses, doctorate courses and academic and professional MA courses, as well as extension activities and undergraduate science activities;

**Entrepreneurship** foster the formation of a researcher-entrepreneur culture, preparing people to lead technology-based companies or technology transfer processes that may result from the research.

#### Case

## Technology sets the tone of the “third wave of mining”

With investments of about US\$6 billion, Vale is deploying a new technology for the exploitation of minerals hitherto not used due to its low iron content - compact itabirito with an iron content of 40%. With this initiative, the company starts its “third wave of mining”, with greater efficiency in mining and use of low grade iron ore.

Resources are used to build a new ore treatment facility in Itabira and to adapt two existing plants in the municipality, Cauê and Conceição, and also to implement a new plant in Vargem Grande, municipality of Itabirito. In addition to the technology that has been traditionally used for concentration of iron ore, the new process introduces a new stage of grinding, combined with other innovations in the technological control of operations. This processing model will increase the current production volume and will extend the life of activities in both complexes, Itabira and Vargem Grande.

In late 2013, the new plant installed in Conceição Mine started operating. This should reach the mark of 12 million tonne per year (Mtpa) when the plant reaches full capacity. In 2014, the new Vargem Grande plant will come into operation, with a capacity of 11.4 Mtpa. Existing plants should be fully adapted by 2015.

Between April 2010 and December 2013, only in the region of Itabira, direct contracts were signed in the amount of approximately US\$140 million in goods and services, benefiting the industry, trade and the services sector of the municipality. Close to 45 thousand people are already part of the works in the two municipalities working for dozens of contractors. In the same period, Vale also offered about 5,700 vacancies for free courses in the areas of civil construction, electromechanical assembly and services in general.



Together with universities we have supported around 160 research projects (94% in partnership with Brazilian groups), involving the participation of more than 800 scholars.

ITV has partnerships to encourage research and development (R&D). ITV is also in the process of incorporating its own body of researchers with outstanding scientific performance in its two process units: Ouro Preto (MG), focused on mining, and Belém (PA), dedicated to sustainable development. The units will be dedicated to research in the short, medium and long term in areas of interest to the company and develop master's and doctorate training in order to create qualified human resources to contribute in the various aspects of company operations, including minimizing the social and environmental impacts and the increase of efficiency in the mining chain.

Examples of some research initiatives can be found throughout the report, such as the development of a socioeconomic study of the traditional communities of River Capim in northeastern Pará, the restoration of degraded mangrove areas of the peninsula Ajuruteua, in Bragança, Pará, among others.

#### **Integrated risk management** [PI1.2]

We believe that risk management is essential to support Vale's strategic planning and financial flexibility, allowing also an integrated view of risks to which the company is exposed.

Sustainable development, Vale's business objective, is a fundamental guideline for risk management. All events that threaten sustainability or that may cause a deviation from our objectives are identified, and the following types of impact are considered: health and safety, environment, reputation, social, financial and compliance with legislation. [2.06]

#### **Environmental compliance** [EN28]

In 2013, no new cases<sup>13</sup> of non-compliance with environmental requirements were recorded, and one case was closed. During this period, no significant fines or non-monetary sanctions were imposed<sup>14</sup>.

[2.07]

#### **Legal compliance** [SO8]

We comply with legal requirements in our processes, but due to the complexity and interfaces of our actions, in some situations there have been legal demands. In 2013, we recorded 291 relevant cases<sup>13</sup>, 146 judicial and 145 administrative. The judicial cases include 69 related to civil actions concerned with the legality of Vale's privatization and 52 tax cases in which we contested undue demands for Mineral Exploration Financial Compensation (CFEM in Portuguese). This latter issue also represents the majority of the administrative cases (135).

During this period, no non-monetary sanctions were imposed and significant<sup>14</sup> fines were paid, totalling US\$5.5 million related to the Mineral Resources Inspection Charge (TFRM in Portuguese), the Value Added Tax on Goods and Services (ICMS in Portuguese) and CFEM. [2.08]

Information about unfair competition in the online content. [2.09]

#### **Institutional partnerships** [PI4.12]

To monitor trends in sustainable development and identify best practices, the company has established a range of partnerships, such as with the International Council on Mining and Metals (ICMM), the United Nations Global Compact, with Vale's participation in the Global Compact Lead platform, the World Economic Forum (WEF), the World Business Council for Sustainable Development (WBCSD), the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria and the BSR (global network of companies committed with sustainability and social responsibility).

<sup>13</sup> Legal proceedings are considered significant based on the following criteria: a) their value, including compensation claims and fines (greater than 10% of assets in the case of lawsuits, and more than US\$2.5 million in the case of environmental administrative proceedings and US\$400,000 for labour administrative proceedings); b) whether they involve a subject of interest to the company or affect the general public, regardless of value; c) non-monetary sanctions.

<sup>14</sup> In this report, Vale continues to disclose existing cases to which the significance criteria apply. However, the company now discloses only those values recognized as owed or already paid by Vale, to best meet the scope of the GRI indicators EN28 and SO8 and to avoid any distortion of reality concerning judicial and administrative proceedings that, as they are awaiting final decision, cannot normally be accounted for precisely. Vale's Form 20-F report contains an estimated provision in line with accounting criteria.



Picture: Marcelo Coelho

Employees at  
Vale's office, in  
Shanghai, China.

In 2013, we participated in forums, various institutions and initiatives such as the strategic communication project of ICMM, which resulted in the report *Changing the Game*<sup>15</sup>. We also participated in the discussions on environmental, commercial, energy and transparency policies, among others, the Organisation for Economic Cooperation and Development (OECD); the Business and Industry Advisory Committee of OCDE (Biac), the Earth Moving Equipment Safety Round Table (Emesrt) of the Green Building Council (GBC), the Brazilian Mining Institute (Ibram), the Brazilian Business Council for Sustainable Development (CEBDS), the Sustainability 50 and the Ethos Institute for Business and Social Responsibility, among others. [2.10]

More information on our participation in organizations and associations [2.11], recognitions and awards in the online content. [2.12]

### Public policies [505, 506]

Mining is an activity that contributes significantly to the economic and social development of the country. The mining sector is responsible for large private investments in the country, reinforcing the importance of adopting public policies that guarantee the sustainability of the business involved and its activities. For this reason, we maintain

constant dialogue with government authorities in the countries where we operate, seeking proactive participation in the formulation of standards that provide a favourable investment and thus contribute to building a positive legacy. We develop courses for leaders and their teams working in institutional relations to make them more capable in performing their roles, considering the functioning of government structures, the process of formulating public policy and the participation in organizations and associations.

Vale seeks to maintain strict impartiality with regard to political activities, and acts in compliance with the laws of each country where it operates. Employees, as individuals and citizens, are free to participate in such activities, provided that any public statements they make are clearly personal views rather than the company's position.

Vale S.A. does not make donations to electoral campaigns, but other companies in the group are not prevented from doing so. Donations made by these companies can be found in the public records of the official institutions that are responsible for elections in the countries and regions where Vale operates.

<sup>15</sup> Prepared in conjunction with the International Finance Corporation (IFC) and Brunswick, a global communications company.





## Improve together

We believe in building a high-quality relationship based on trust with our employees and the communities in the regions where we operate

# Person

Vale has kept its focus on achieving the zero harm target, building high-quality relationships and trust with its employees, and eliminating the educational deficit for its technical and operational level employees – reduced by 22%<sup>1</sup> since 2012.

Caring for health and safety remains a priority to Vale. Progress was made in the implementation of the Health and Safety Global Management System, the “Golden Rules” and with the promotion of the concept of Genuine Active Care, which means “Take care of yourself. Take care of others. Let others take care of you”.

The company’s commitment to value and investment in its employees was reflected in the publication of the Human Resources Policy and the implementation of the Global Employee Survey, which is used as an important channel of communication.

## **Commitment to people** [PI4.17]

We published the Human Resources Policy to increase promotion of meritocracy, collaboration, continuous improvement and appreciation of employees. We believe in people’s ability, potential and desire for self-realization. To help develop, acknowledge and engage with our workforce ensures continued growth, sustainable results and the fulfillment of our vision.

The concept of engagement, deployed in Vale in 2011, evolved into sustainable engagement. While engagement is characterized by employee’s bond with the company and their willingness to give their best, sustainable engagement is based on complex variables - such as the support that the company offers the professional to perform tasks productively and efficiently, as well as the physical, interpersonal and emotional well-being at work, contributing to

their continuous engagement and, transforming it into sustainable engagement. Recent studies conducted by the international consulting firm Towers Watson show that from this approach, employees can maintain high levels of engagement and that such increase impacts positively in company results.

This maturity is reflected in company’s practices and on the 2013 Global Employee Survey questions, which introduced aspects related to support and welfare issues. The survey is conducted every two years as a census. It is voluntary and confidential. Besides being an important management tool, the survey is a communication channel that helps understand, respect and strengthen the trust of employees and enables leaders to identify corrective actions.

In 2013, participation of employees in the survey was nine percentage points higher (78%) than the previous survey, corresponding to the collaboration of more than 64,000 own employees in 29 countries and in nine languages. As a result, an index of 79%<sup>2</sup> of sustainable engagement was verified. According to the benchmark study conducted by Towers Watson, this percentage is four percentage points above the global mining industry average.

<sup>1</sup> Percentage considering mapped public revision.

<sup>2</sup> 2011 Global Employee Survey indicated that 84% of participants felt a sense of engagement. Considering the same parameters, in 2013 the result would be 82%.





## Commitment

To invest in people and build quality relationships based on trust

To help people grow, as they contribute to the company's growth



## Results

Evolution of the Global Employee Survey with the inclusion of the concept of sustainable engagement

Strengthening the principles for promoting meritocracy, collaboration, continuous improvement and appreciation of employees through the publication of the Human Resources Policy



Picture: Daniel Mansur / Studio Pixel

Employees of the Vitória-Minas Railway (EFVM), in Minas Gerais.



## Vale's people – key figures [PI2.8, PI4.17, LA1]

At the end of 2013, Vale had 212.4 thousand workers, including own employees (with an open-ended employment contract) and contractors (service providers in permanent activities and projects)<sup>3</sup>, in addition to 475 own employees with fixed-term employment contract.

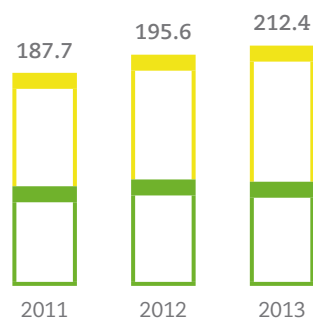
Compared to 2012, there was a decrease of 2.4% in the number of own employees mainly due to the sale of assets<sup>4</sup> and an increase of 17% of contractors, mostly in the implementation of the S11D project. Of all employees - own employees and contractors – 75% (159.5 thousand) work in Brazil, mostly in the states of Minas Gerais and Pará, which together represent 66% of the company's workforce in Brazil. [3.01]

<sup>3</sup> Contractors generally work on retrofitting, expansion and new projects, and as part of maintenance, cleaning and property security contracts, among other services provided.

<sup>4</sup> Sale of Tres Valles, in Chile, and Araucária, in Paraná.

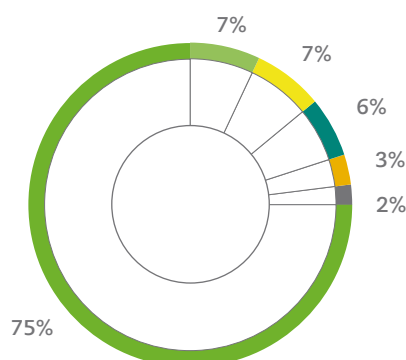
## Workforce [LA1]

in thousands



	2011	2012	2013
<b>Contractors</b>	108.1	110.3	129.1
<b>Employees</b>	79.6	85.3	83.3
<b>Total</b>	<b>187.7</b>	<b>195.6</b>	<b>212.4</b>

## Own and outsourced employees by region<sup>I</sup> [LA1]

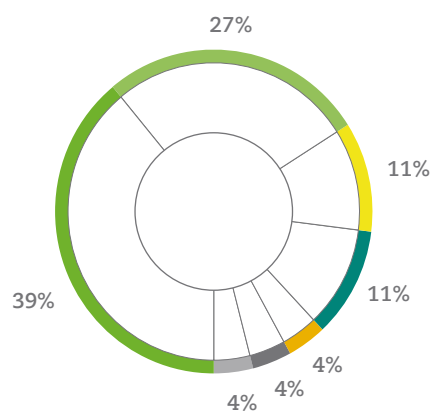


### Countries

<b>Brazil</b>	75%
<b>Canada</b>	7%
<b>Mozambique</b>	6%
<b>Indonesia</b>	3%
<b>Malawi</b>	2%
<b>Others</b>	7%

<sup>I</sup> Employees and Contractors shown in the chart account for 100% of total reported employees.

## Own and outsourced employees by Brazilian state<sup>II</sup> [LA1]



### States

<b>Minas Gerais</b>	39%
<b>Pará</b>	27%
<b>Espírito Santo</b>	11%
<b>Maranhão</b>	11%
<b>Rio de Janeiro</b>	4%
<b>São Paulo</b>	4%
<b>Others</b>	4%

<sup>II</sup> Employees and Contractors shown in the chart account for 100% of total reported employees.



# Health and safety

Health and safety performance continues to evolve within Vale. In the last three years, the total rate of injury and lost time injury rates decreased.

The company acknowledges that there is a long way to go to reach zero harm target. For Vale, zero harm refers to management of risks so that there are no employee injuries or illnesses, no damage to property or the environment, as well as no events involving the community and service providers.

During the Reflection Day, we promoted internally the concept of Genuine Active Care, based on the principle of interdependence in health and safety, which means taking care of yourself, take care of others, and let others take care of you. We continue building this culture in all the company through the health and safety agenda.

## How we care for our employees

We have a set of policies, systemic requirements and procedures designed to prevent and minimize risks and protect lives. The ongoing challenges are to provide conditions and encourage that all these guidelines are incorporated to day to day business. We maintain our belief that life is more important than production, that is why we revised the Health and Safety Policy to increase compliance with the mission, vision and values of the company. In 2013, Health and Safety also represented 10% of the variable remuneration of employees.

The Health and Safety Management System (SGSS in Portuguese), formed by 13 requirements to improve the risk management processes of the company, began to be implemented in 2012 in the whole company. In 2013, the percentage of implementation reached 57%.

The strategy on health and safety is also structured in several programs that showed significant advances in 2013, among them:

- The development of the Prevention of Fatalities Program in Brazil and Africa with the purpose of identifying potential hazards and fatalities, classifying the severity of the risk and establishing corrective actions to eliminate them. 30 projects were carried out in ten operational units,

## Case

### Fighting malaria in Africa

In 2013, Vale became a signatory to the Global Fund to Fight AIDS, Tuberculosis and Malaria, supported by the United Nations (UN). This engagement reinforces the company's commitment to fight the disease. For three years US\$3 million will be allocated to institutions in Mozambique and in Malawi, Africa.

Vale fights malaria in Mozambique, where the disease incidence is high. By means of education programs, our own employees and contractors learn to avoid infection and to combat transmission outbreaks, in addition to receiving repellent and equipment for individual protection (such as uniforms and mosquito nets), and having access to medical care and laboratory diagnostics -all part of the company's infrastructure. In some cases, employees also undergo chemoprevention, a chemical treatment used to inhibit the severe effects of the disease.

Since 2010, we are also part of the GBC Health, a coalition that brings together more than 200 private companies worldwide committed to improving global health.





## Target

Achieve zero harm



## Results

Continued implementation of the Health and Safety Global Management System



### Implementation of the Golden Rules

Conducting workshops on zero harm and the Program of Malaria Control

- first year of assessment of health and safety competence in employees' performance,
- workshops on zero harm in all business units, in order to identify, share and implement best practices,
- we continue implementing the Golden Rules<sup>5</sup>, in order to establish and inform behaviour requirements during critical activities,
- implementation of the Malaria Control Program for a systematic approach to risk in endemic areas. The initiative is part of the company's adherence to the Global Fund to Fight AIDS, Tuberculosis and Malaria (read more on page 37).

#### How our employees take care of themselves

Given the progressive increase of business travelers in the recent years we intensified the risk prevention and mitigation through pre-trip risk assessment, monitoring during and after the period of travel in 2013. This action focuses on prevention, through the assessment of the needs for vaccination and classify the potential risk of the trip. Depending on the result, the trip may not be recommended.

<sup>5</sup> "Golden Rules" are a set of principles to perform critical activities such as are those that involve working at heights, electricity, automotive vehicles, mobile machinery, equipment lockout and tagout, cargo handling, confined spaces, machinery protection, slope stabilization, explosives and blasting, and chemical products.

Another important initiative of disease prevention is vaccination against influenza, with immune action for 12 months. In 2013, 35,000 own employees and 23,000 contractors were vaccinated, which corresponds to 42% and 18% of total employees respectively.

#### How our employees take care of others

We launched an internal campaign to encourage blood donation in Brazil. The World Health Organization (WHO) recommends that the ideal percentage of blood donors in a country is between 3.5% and 5% of its population<sup>6</sup>. In Brazil this number is below 2%, falling even more during winter and holidays. Our goal is to help improve these statistics.

We have two systems of recording and promoting the sharing of leading health and safety practices, including activities, techniques, methods, devices and processes. The Capital Projects Center for Best Practices and Lessons Learned is available on the website, at the Health and Safety section, with access to almost 300 actions in operations and 205 lessons from projects.

Despite our efforts, in 2013, there were seven fatalities, all involving employees or contractors performing their activities in operations and projects, caused by the following incidents:

- accident during cargo handling (one employee in Brazil);

<sup>6</sup> Source: [www.who.org](http://www.who.org)



- accident while working at height (two contractors in Brazil);
- accident during gantry maintenance (one employee in Brazil);
- accident while working at height (one contractor in Brazil);
- hit by moving equipment (one contractor in Mozambique),
- struck by lightning (one contractor in Brazil).

In all instances, as a company standard, we offered support to families and conducted investigations, including root cause analysis. Effective solutions for each identified cause are determined from investigation results, to prevent it from happening again. The solutions are deployed into action plans that are monitored through completion. To ensure continuous improvement in the prevention of fatalities, we periodically review action plans, besides sharing them with Health and Safety areas and managers.

### Emergency Response Plan

We have a crisis management center that operates in an integrated manner in operational areas to monitor, manage and control critical situations and

incidents. The goal is to strategically protect our employees and contractors, as well as its heritage.

To ensure adequate response in emergencies, we use management systems, regulations and plans to intervene quickly and effectively in any unforeseen situation. Responsible teams are also trained, in most cases, with simulation exercises.

### Integrated Health Strategy [PI4.17, LA8]

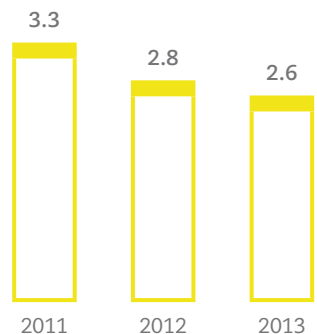
We understand that the workplace has a direct impact on workers health and that it influences their productivity. We try to encourage our employees to have a healthy lifestyle, both in the professional and personal aspect. The Integrated Health Strategy is based on three pillars: Occupational Health (medicine, hygiene and ergonomics), Personal Health, and Community Health.

Through the Integrated Health Program in Brazil, we provide extensive monitoring for both active employees and their families, and also for those who have already retired. With the support of preventive actions, we want to contribute to an ever increasing number of healthy people at all stages of life.

We opened a clinic that complements the services offered by the Integrated Health Program and guarantees the employee a humane and more efficient service. In addition, it also creates an

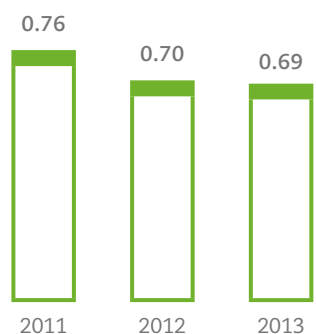
### Total injury rate<sup>I</sup> [LA7]

Number of total injuries<sup>II</sup> / per 1,000,000 person-hours worked



### Lost-time injury rate<sup>I</sup> [LA7]

(Number of lost time injuries / per 1,000,000 hours worked)



<sup>I</sup> Figures in the chart include own employees and contractors and do not include first aid assistance.  
<sup>II</sup> Includes injuries with and without lost time. The rate does not include occupational illness. For Vale Brazil, health and safety indicators are based on monthly person-hours worked estimated for its workforce. The figures include mineral exploration companies, including international ones. For Vale Canada and its subsidiaries, Vale Australia and the Moatize Project, actual person-hours worked are used.  
<sup>III</sup> HHT = persons-hours worked / 1 MM = 1 million.

alternative for local medical care and monitoring and management of critical cases. The facilities, located in Vitória (ES), follow the model that had already been implemented in São Luís (MA) with outstanding results. In 2013, more than 12,000 employees and their families were assisted in the two clinics. [Learn about the list of health programs for the community, Vale employees and their families.](#) [3.02]

### Highlights of 2013

**Internal Global Health Week** Approximately 80,000 Vale employees and contractors took part in initiatives to promote knowledge on healthy lifestyles, well-being and disease prevention.

### Day of Reflection on Health

**and Safety** We mobilized 150,000 employees and contractors to remember the people who lost their lives and reinforce collective efforts to achieve zero harm. It is a time when we all learn together how to make our company more secure.

### Accident Prevention Global

**Internal Week** We discussed with employees on the importance of operational discipline. We presented requirements and safety procedures that help minimize failures and prevent accidents.

### Global safety and health data collection [LA7]

In 2013, we began monthly monitoring cases of occupational diseases (incidence rate) and lost time days (absenteeism) caused by occupational reasons (occupational diseases and accidents at work) and welfare cares, by means of the global data collecting tool. Management actions focused on mitigating risks of occupational illness and absenteeism have been developed across the company. With the implementation of a computerized system (Incident Management - SAP) in 2014, Vale will align all classification concepts. From these data, it is possible to monitor the impact of the work environment on the health of employees and establish specific monitoring programs.

A tool for monthly monitoring causes of medical absenteeism was implemented in Brazil. The results will allow epidemiological studies that will base programs to promote the health of workers and improve working conditions.

### Case

## More security in the deployment of S11D Project

One of the innovative aspects of the Carajás Iron Project S11D – the largest in the history of Vale and the iron ore industry – is the modular construction of a processing plant, still an uncommon practice in the mining sector. This process allows the modules to be built and tested before being transported to the site where they will be installed.

The system, used in industries such as the oil industry, provides greater security for the project, as it allows better staff distribution and greater control of the construction assembly. It can also reduce the project's implementation time, since the assembly of modules can be done simultaneously with earth levelling services and the construction of access roads.

The installation of the modules depends on a major logistical operation involving several Vale areas, in addition to municipal agencies and communities. The complexity of transport requires an advanced engineering study and the use of specific technologies such as the Self-Propelled Modular Trailer (SPMT), which guarantees lateral and longitudinal load levelling on any land.

At the end of the project, the resulting structure will have approximately 60 thousand tons of steel, distributed in 109 modules, which can weigh between 25 and 1,200 tons each. The first module was completed in December 2012 and 50 more were installed in 2013. It is planned to be completed by November 2014.



# Education

We believe education is key for the development of people and the subsequent achievement of business results in line with our Vision.

In 2011 we took on the challenge of eliminating deficiencies in the basic education of our operational technicians. In 2013, we continued the classes started in 2012 and improved the target audience mapping tool. By reviewing the mapped audience, the number of employees in Brazil without a certificate of completion of elementary or high school education went from 4,800 to 3,800.

## Continuing education and training initiatives

[PI4.17, LA10, LA11, HR8]

Vale's Human Resources and Business areas share a goal to ensure proper training of employees. We base the educational strategy on mapping key processes and functions performed in the company, which generates a portfolio of training to develop the necessary skills in order to guarantee operational excellence. The main ones are:

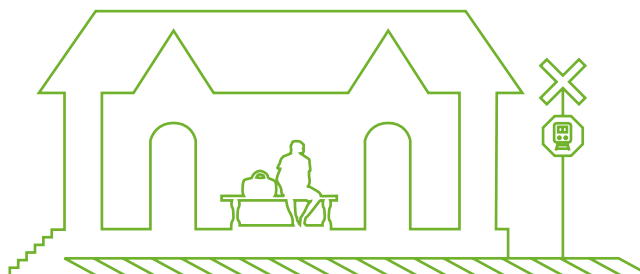
- Technical (operational and specialist);
- Management and Leadership (leaders);
- Cross-Cutting, such as health and safety, environment and diversity (employees in general).

Average hours of training in the company decreased by 7% in 2013 (52 hours per year) compared to 2012, as a reflex of a 12% drop in the development of technical and operational employees (49 hours per year in 2013). In 2013, US\$34.5 million were invested in education in Brazil, where 75% of Vale's total employees are located.

In the categories of leadership and specialist, there was an increase in average hours of training by 8% and 12%, respectively. The result was influenced by the implementation of new forms of development, such as the use of technology platforms for collaboration (read more in the text Community Leaders). Topics such as quality management tools and labour relations were a priority for specialists. [3.03]

In the search for new alternatives to train employees, Vale developed teaching materials<sup>7</sup> and focused on the training of more than one thousand employees to act as internal trainers. This compensated for the reduction of investments over the total training hours. Training on truck operation, training of drivers and communication technique via radio were a priority in 2013. 4.2 thousand leaders were trained on health and safety, having their roles and responsibilities reinforced, and 88.7 thousand operational technicians were trained to increase their perception of risk in activities considered critical.

<sup>7</sup> Total of 55 new important teaching materials for the operation, adding 337 customized contents.





Employee at Valer library - Vale Education, in Rio de Janeiro (RJ).

Picture: Antonio Scorza

### Community Leaders

In order to facilitate knowledge exchange among employees, Vale launched “Community Leaders” (Comunidade de Líderes), a virtual environment to aid in leadership development and strengthening, using the knowledge of professionals themselves.

In this platform, leaders discuss issues and challenges related to management and leadership, using the Discussion Forum, and also share and learn from best practices and lessons learned. They can participate in interactive and collaborative activities such as group readings, case studies, chats and polls.

This initiative reinforces the educational model 70:20:10 adopted by Vale, where 70% of what we need to learn to perform our work is acquired through practice, 20% by exchanging with other people and 10% from formal learning.

Every three months, we promote development cycles to exercise management skills. In 2013, topics such as people development, strategic orientation, health and the role of the supervisor were addressed in the community and attracted approximately 6,000 hits per month, reaching over 11,000 participants during the health and safety cycle.

### Respecting differences [PI4.17]

We believe that diversity and uniqueness of individuals are fundamental to leverage innovation and create long-term value. By promoting an inclusive environment and developing a culture of respect for differences, we reinforce our values and business strategy for the coming years. The Code of Ethics and Conduct and the Human Rights Policy guide our actions and initiatives related to the promotion of diversity and inclusion and reinforce the no tolerance for discrimination of any kind, as well as moral and sexual harassment.

In Brazil, the Gender Equity Project is one of the focuses of this work, with actions such as the viability of the increase of women in the company, the adaptation of environments and working conditions for women, awareness of employees on the subject and participation in events on the topic. The implementation of a mentoring program for women only was one of the main initiatives. Aimed at helping less experienced leaders in developing their potential by identifying their own path of growth, and contributing to increase the presence of women in leadership positions in the company.





## Target

Guarantee that employees at the operational technician level have the certificate of completion of elementary or high school education



## Result

Educational deficit reduction by 22%<sup>I</sup> since 2012, with the continuity of the Educational Training Program

<sup>I</sup> The percentage considers the revision of the mapped audience.

The Equity Network, launched in 2013 in Brazil, was another initiative of the project. Female and male employees gather in regular meetings to discuss issues related to the challenges of career for women in a traditionally male sector. The goal is to promote the company's constant reflection on the subject and suggest specific actions arising from group discussions, in accordance with local realities. The adaptation to local needs is one of Vale's strategy premises for diversity and inclusion in all its dimensions.

The Global Guideline for Physical Working Conditions was also published, based on international standards of occupational health, which provides for the adequacy of work environment to make it healthy, safe and comfortable for employees<sup>8</sup>. In addition, uniforms and personal protective equipment (PPE) were tailored to meet the specific needs of women<sup>9</sup>.

Another important initiative was Vale's adherence to the Principles of Women's Empowerment, developed by UN Women<sup>10</sup>. They are a set of guidelines for companies to train women in the workplace and in communities, besides allowing business leaders to commit themselves publicly with the policies of their companies in the promotion of gender equality.

The results of the 2013 Global Employee Survey show that we are on the right track in the dissemination of gender equality: 85% of employees believe that the company leaders support diversity in the workplace, recognizing and valuing differences, and 89% agree that the company promotes a work environment that accepts differences between men and women.

As part of our focus in diversity and inclusion, through the Program for Inclusion of People with Disabilities, we seek to promote competitive inclusion of these professionals, and invest in their training and qualification. An example was the introduction of the course in mechanical maintenance in partnership with Senai in Espírito Santo. We believe that the presence of people with disabilities in operations and offices confirms equal opportunity in the selection processes, and also complies with legal requirements. That is why we created a Master Plan that establishes actions to ensure continued advances in the subject.

In 2013, 200 disabled people were hired. The number meets the hiring requirement of 140 people, according to the Terms of Adjustment of Conduct (TAC) signed with the Public Prosecution Office in 2004 to comply with Brazilian Law No. 8213 (July 25, 1991), which provides for the reservation of vacancies for people with disabilities.

<sup>8</sup> Considers issues related to hygienic conditions, clothing, eating rooms, kitchen, accommodation and transport.


<sup>9</sup> Considers adjustment in security boots models, gloves, glasses, electrician overall, shirts, trousers, and robes for pregnant women.

<sup>10</sup> United Nations entity created in 2010 in favour of women and girls.



### Women in the workforce [LA13, LA14]

In 2013, the proportion of women out of the total number of own employees remained at 13%. Out of all the women working at Vale, 48%, hold technical positions (operational and administrative), 44.2% are specialists (analysts, engineers, geologists, etc.), 3.1% are supervisors (same as the previous year); 3.7% are managers or coordinators – a slight increase compared to the percentage in 2012 (3.5%).

In accordance with Vale's Remuneration Policy, there is no difference in the base salary between women and men who occupy the same role. The registered salary variation is due to employees' different levels of seniority and experience within their functional category.  [3.04]

### Fighting discrimination [HR4]

To promote the development and continuous improvement of the corporate ethics culture in the company, in 2013, we created the Ombudsman area (read more in chapter Strategic vision). With this initiative, we expect to expand the activities of the Reporting Channel to receive reports of discrimination or harassment in the workplace, always observing the applicable laws in the locations in which we operate.

In 2013, 577 cases of discrimination and harassment were recorded, and 407 were investigated. Out of this total, 155 cases were confirmed. The Ombudsman, with the support of the Internal Audit, Human Resources and Corporate Security areas, investigates and addresses cases of discrimination and harassment by interviewing people involved, peers and managers in order to arrive to a better understanding of the situation. With the results obtained in investigations, senior management applies administrative measures (warning or dismissal), disciplinary actions, or indicates training for managers.

#### Case

## Workers qualified by program in Mozambique

The program Acreditar (Believe) was developed by Vale in partnership with one of the companies responsible for the construction of the Moatize Project, to empower neighbouring communities, where the company operates a coal mining complex. The initiative sought to qualify the local workforce to operate in the project, through specific technical courses. In 2012 and 2013, more than 1.3 thousand people were trained.

Actions have been developed in partnership with Dom Bosco Centre and the National Institute of Employment and Vocational Training (Inefop in Portuguese). The selection process was implemented in several stages. First, the local communities received numbers, followed by a process of evaluation of basic requirements. Tete residents over 18 years old that had completed the 6th grade (local education) could apply. Once selected, the candidate took Portuguese and mathematics tests. Those that passed with 50% or more went through medical and psychological tests, after which only the final selected were left.

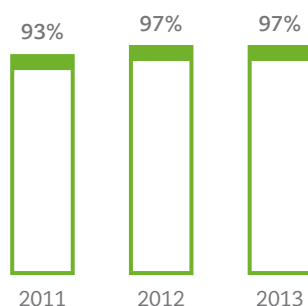
The initiative began in 2012 and was completed in 2013. In all, 942 people completed the Basic Module, and 389 completed the Specific Module. In addition to being strategic to operations - the level of local hiring in Mozambique is higher than 80% - the initiative rose the level of local professional qualifications, as graduates may act as multipliers and transfer knowledge to others.

Acreditar is the result of our commitment to acting in the development of the local workforce and raising the educational level in projects and in regions where we operate.



## Percentage of employees with performance evaluated<sup>1</sup> [LA12]

(%)



<sup>1</sup> Own employees covered by this indicator (LA12) correspond to 97% (2011), 100% (2012) and 100% (2013) of the total reported employees (LA1).



Participant of Vale's Young Apprentice Program, at the office, in Rio de Janeiro.

Picture: Antonio Scarza

## Remuneration and professional assessment [LA12, EC5]

It is part of the Human Resources Policy to ensure that our employees receive a remuneration package and benefits that collaborates to attract, retain and engage employees. We carry out an annual survey of salaries in the regions where we operate to assess whether the total compensation offered by Vale is aligned with the reality of the local market. We also respect the legal minimum salary in each of these places.

Good results achieved by the company are shared through a variable remuneration program, using the Performance Evaluation tool. Each year the Board of Directors discusses and approves targets for the Chief Executive Officer and Executive Directors. Then, targets are set for all other employees. The percentage of employees receiving performance reviews in Vale was 97%.

Vale considers three indicators' blocks: company, collective (with indicators of health and safety and sustainability) and individual/team. The sum of the results determines the final result for each employee.

Young apprentices, interns and those on leave of absence are not assessed due to labour laws and the collective work agreement.

The philosophy of meritocracy is also reflected in the assessment of Career and Succession, which aims to map the skills and potential of employees to guide their development and decisions on people, as well as identifying successors for leadership positions. From the results, employees and managers prepare together an Individual Development Plan (PDI in Portuguese) with the purpose of improving competences and help employees develop to fully fulfil its current or future role. For the company, this is an essential tool for people management strategy.

Additionally, in 2013 there was a skills assessment for operational technician level employees of some locations in Brazil. The standardization and expansion of this process for all areas where Vale is present is being developed.

# At Vale, the right to refuse to work in unsafe conditions is guaranteed and reinforced by the Health, Safety and Environmental Risk Analysis and Management Instructions.

## Benefits [LA3]

The benefits we offer are part of the total rewards package that guarantees the employee and their dependents a condition of safety and security during the term of his employment contract. One of the guiding principles - described in Vale's Human Resources Norm - is to ensure that benefits are offered on a consistent basis in all of the different sites where the company is present, in line with the objectives of its business in each location, the human resources philosophy and corporate strategy, the country's legal demands and local market conditions. [3.05]

## Pension plans [EC3]

Vale recommends in its Human Resources Standard, that in localities where the financial market enables the management of long-term resources in a sustainable manner, a defined contribution pension plan is offered. [3.06]

## Turnover [LA2]

In 2013, Vale's global turnover rate<sup>11</sup> was 6.6%, an increase compared to 5.1% in 2012. This growth was mainly due to the high number of dismissals in the first quarter of the year, above the average of the last two years, reflecting the austerity measures facing the current scenario for the market of iron ore. The turnover rate for women was 8.5%, while for men it was 6.3%. [3.07]

## Retirement [LA11]

The retirement of our employees is planned from a mapping of professionals that are close to ending their activities in the company. We consider the specific legal aspects of each region and evaluate if it is possible to allocate the retired employee in internal activities of the company. [3.08]

## Freedom of association [HR5]

Vale respects the freedom of its employees to form associations and to participate in negotiations. We are committed to not interfering in the settlement, functioning or administration of collective agreements or labour organizations.

In accordance with our Code of Ethics and Conduct, we do not tolerate discrimination based on membership of a union. We guarantee the freedom of association and unionization of employees and trade union rights through collective agreements.

We are signatory to the United Nations (UN) Global Compact since 2007. We respect the laws of the countries where we operates and the eight fundamental conventions of the International Labour Organisation (ILO), as shown in the following table.

## ILO Conventions

Nº 29	Forced Labour, 1930.
Nº 87	Freedom of Association and Protection of the Right to Organise, 1948.
Nº 98	Right to Organise and Collective Bargaining, 1949.
Nº 100	Equal Remuneration, 1951.
Nº 105	Abolition of Forced Labour, 1957.
Nº 111	Discrimination, Employment and Occupation, 1958.
Nº 138	Minimum Age, 1973.
Nº 182	Worst Forms of Child Labour, 1999.

<sup>11</sup> The employee turnover rate corresponds to the total number of employees that left the organization, whether voluntarily or not (including retirees), divided by the total number of own employees.

### Relations with employees [LA4, LA5, MM4]

In November 2013, we renewed the Collective Work Agreement (ACT in Portuguese) with our employees in Brazil. The agreement is valid for two years, as agreed since 2007.

The collective work agreement was based on documents such as the Mission, Vision and Values, Code of Ethics and Conduct, and Human Rights Guide. Among the improvements is the item dealing with the prevention of harassment complaints and expansion of report channels with the creation of the Ombudsman area (more information on Strategic Vision). Another innovation was the implementation of the Vale Cultura, an optional benefit in Brazil that allows employees access to activities and materials property of artistic, cultural or informational nature.

This year there were also ACTs<sup>12</sup> in Nacala (Mozambique), Carborough Downs (Australia), Peru, Indonesia and Oman. The latter represented the first agreement that Vale has made in this operation. In 2013, the percentage of employees covered by collective work agreements was of 96%<sup>13</sup>.

The broad dialogue that Vale maintains with unions, federations and labour unions was fundamental to the success of the negotiations. We believe that transparency and respect among our leaders, employees and unions is the reason for the absence of strikes in the Brazilian operations since 1989 and

for not having any notification of strike or stoppage, throughout the year 2013, in other areas of the world in which we operate<sup>14</sup>.

### Open dialogue with unions [LA9]

In the challenge of achieving zero harm, we recognize the importance that unions have in spreading the culture of health and safety. This is a concern that is present in dialogue with union representatives and the collective work agreements signed by the company.

In addition to respecting local laws and regulations, we take into account the concerns and views of employees' representatives, which determine mechanisms and requirements for preventing incidents and occupational diseases. Among the measures there is machinery training, the provision of personal protective equipment (PPE), regular inspections in operational areas and the maintenance of joint health and safety committees.

### Health and safety committees [LA6]

Besides contributing to the prevention of workplace incidents and occupational diseases, Health and Safety Committees play an important role in identifying ways of continuously improving processes and working conditions. In 2013, 96.5 % of all employees were represented in Health and Safety committees. [3.09]

<sup>12</sup> In 2013, at Vale Canada and its subsidiaries, 80% of employees were covered by collective bargaining and this figure was 63% in Australia.

<sup>13</sup> Employees covered by this indicator (LA4) correspond to 96% (2013) of the total reported employees (LA1).

<sup>14</sup> Prior notification of major changes is not a standard procedure and is not established in Vale's collective agreement. According to the Global Reporting Initiative (GRI), significant changes correspond to changes in the pattern of production, such as restructurings, closures, mergers or acquisitions.



# Communities

Vale is committed to leaving a positive legacy for the communities close to its operations and projects, through the consolidation of trust, mutual respect and the promotion of an open dialogue.

We reinforced our work with the publication and promotion of the Social Action Policy, a document that is an incentive to local development and has impacts management as guideline. This is the result of a commitment to continually improve the living conditions of the populations of the areas where we operate. We understand that this occurs by minimizing the negative impacts, adopting structured actions and increasing social investments.

The document is applied in Brazil and it is a reference to operations in other countries. It is based on the Code of Ethics and Conduct and the Sustainable Development, Human Rights and Health and Safety Policies, -setting principles and guidelines for actions and social expenditures, besides guiding the planning of long term social investments. This expands the application of tools associated with the governance model with the expansion of the Issues and Stakeholders Management Model.

Vale's social action is guided by the characteristics of each location, with respect to their specificities and cultural aspects, considering the current public policies and local social actions of public, private and civil society sectors.

Health, education and income generation are priority issues. Based on specific analyzes, we can act on other fronts.

#### The main social action guidelines are:

- To act with ethics and transparency before the employees and communities.

- To respect the social, cultural, environmental, political and organizational diversity of the territories.
- To act with respect to human rights of employees and communities.
- To identify and manage the impacts of the company's activities in communities.
- To be a catalyst for local development, contributing to building a sustainable legacy in the regions where Vale operates.
- To promote engagement with stakeholders.

#### Governance of relationship with the community

In 2013, we improved the Issues and Stakeholders Management Model by integrating the management of community demands, critical issues, strategic matrix of stakeholders and associated social expenditures. In addition, we expanded the Model to Mozambique and also implemented it in Goiás, Sergipe and São Paulo, reaching a total of ten Brazilian states. We focused on the integration of our processes to improve management, unify how critical issues are seen, provide information for decision making, and promote good relationships with stakeholders. This way, it is possible to prioritize initiatives that generate greater returns for communities, efficiently managing negative impacts and enhancing positive impacts of our projects.





## Commitment

To respect and understand the neighbouring communities of its operations and projects, including their cultural diversity, and to support their development and leave a positive legacy



## Results

Improvement and expansion in 2013 of the Issues and Stakeholders Management Model for Mozambique already applied in Brazil

Publication and promotion of Social Action Policy and Involuntary Relocation Norm for local development contribution

Promotion of the Policy guidelines, as well as the Community Relations Guide and Community Relations Manual for Capital Projects



Picture: Daniel Mansur / Studio Pixel

Activity of the project "Rede Escola Viva", by the Kairós Institute, supported by Vale in Minas Gerais.





## Commitment

To contribute to populations' living conditions improvement. To strengthen relationships and communication. To minimize negative impacts. To respect local culture. To perform structuring actions and boost social investment



## Results

Management of about 3,000 community demands, in Brazil and in the district of Nacala, Mozambique

Participatory implementation of Relations and Social Investment Plans, associated with the Social Dialogue process

Preparation of Multi-Year Plan for Social Action for the period 2014-2018

The governance structure developed by the Model allows Territorial Committees and the Executive Committee for the Environment and Community Relations to discuss critical issues, identify stakeholders and propose solutions for the treatment of demands, risks and critical issues. The main tools that support the Model are social dialogue, demands management, socioeconomic studies, multi-year planning of social expenditures and stakeholders' management.

Throughout 2013, we improved these tools and trained employees on the subject of Communities Relations, with particular reference to the Social Action Policy, the Guide to Communities Relations and the Communities Relations for Capital Projects Manual.

### Guide to Communities Relations

presents guidelines on some of the main relations processes with communities, from global references on stakeholders' engagement, Vale's strategic pillars and the experiences gained by the company over the years.

### Communities Relations for Capital Projects Manual

reinforces the importance of social issues for the company, enabling planning and implementation of integrated actions with other issues pertaining to capital projects, from the planning phase to the operation.

### Social and economic studies [501]

Social actions developed by Vale, whether voluntary or mandatory, are based on knowledge of the territory and impacts generated by the company's projects in different locations.

Since 2006, we produce socioeconomic studies of different regions, such as Minas Gerais, Sergipe, Espírito Santo, Pará Southeast, Mato Grosso do Sul, municipalities along Carajás Railway, Oman, Australia, Malaysia, Indonesia and Mozambique. [\[3.10\]](#)



Social and economic studies also guide social dialogue and cover topics such as demography, education, health, infrastructure and public services.



### Social dialogue

To improve the engagement process and respond to community demands, since 2012 we have been implementing structured, permanent processes of social dialogue with communities, based on the pillars of Vale's Sustainable Development Policy and the Social Action Policy approved in 2013. This practice creates opportunities for social interaction to share information, promote understanding and mutual cooperation, listen and understand the interests and expectations of communities, considering the company's management decisions.

In 2013, we conducted a participatory construction of the Relationship and Social Investment Plans, in which the communities themselves reflected on the challenges and opportunities, establishing priority actions and defining responsibilities and partnerships. This allowed taking assertive decisions on actions and social investments, in line with local needs. The experiment was conducted with communities in Espírito Santo, Mato Grosso do Sul, Minas Gerais, Maranhão, Pará, Rio de Janeiro and São Paulo.

### Engagement channels for claims and complaints

we maintain a permanent dialogue with the communities. For this, we have different channels such as publications for external audiences, one reporting channel available on our website ([www.vale.com](http://www.vale.com)) and the Railway hotline (Alô Ferrovia) (0800-285-7000) available for passengers on Vale's railways and the communities. We also conduct participatory and periodic socioeconomic diagnoses, including meetings with community leaders and face-to-face and telephone meetings with the Community Relations Area and local leaders.

### Management of community demands

By means of the Claim Management tool, we collected all information received from the communities in a database integrated with our operations in Brazil, which can be customized according to the needs of each location. Only in 2013, there were approximately 3,200 demands. In addition to promoting proactive management of claims, the system indicates where to apply resources. In October, the tool was implemented in the district of Nacala in Mozambique, with an expected integration with Brazil in 2014.





Participants of the project "Meninos de Minas", supported by Vale, in Minas Gerais.

### Multi-Year Plan for Social Expenditures

The Multi-Year Plan for Social Expenditures also guides the allocation of resources in the territories. This five-year plan is prepared taking into account community demands and internal company guidelines set by the Social Action Policy, investment analysis, which result in a portfolio of actions consistent with public policies.

The Issues and Stakeholders Management Model fosters a unified view of the critical issues of territories, providing structured information to executive decisions, as well as defining actions that enable mitigation of impacts and promoting good relationship with all stakeholders.

In addition, it can also support multi-year planning on social expenditures, including actions to manage social impacts of the company's projects and operations.

### Railway incidents

Vale operates 10,600 kilometres of railways in Brazil. This amount represents 37% of the country's total railways. Vale's railways are managed according to internationally accepted standards with a focus on reduction in accidents per distance traveled by trains in a particular railway. [3.11]

### Involuntary relocation [MM9]

Involuntary relocation of individuals and vulnerable families is often inevitable in mining and logistics activities, creating inconvenience for those affected. That is why we act proactively for the least possible impact in the end result, both for the individuals that will be relocated, as well as for the communities where the project takes place.

Our actions are guided by five key documents: The Vulnerable Involuntary Relocation Norm<sup>15</sup>, the Social Action Policy, Social Management Procedure for Involuntary Relocation, the Capital Projects Communities Relation Manual and the Communities Relations Guide; establishing principles, instruction, criteria, roles and actions in the process of involuntary relocation.

In 2013, we promoted the Involuntary Relocation Seminar to train leaders and technicians that deal with the subject. The event was attended by representatives of the Brazilian Ministry of Mining and Energy, the National Department of Housing, Eletrobras, the World Bank, the Rubião Bento Foundation and the Special Rapporteur of the United Nations for the Right to Adequate Housing. The results of the meeting also contributed to revisions of our documents, particularly the Social

<sup>15</sup> Applicable to Brazil and reference activities in other countries.

# 1,500



**projects and social actions**  
of the Multi-Year Plan for Social Expenditures planned for the period 2014-2018 are being monitored, of which over 40% were initiated in 2013



## Communities

Efficient management of community's claims is essential for our actions to achieve the best results

In 2013, five Multi-Year Plan for Social Expenditures were implemented - four in Brazil and one in the district of Nacala, in Mozambique. Altogether, ten locations were covered

### Case

## No to child sexual exploitation

The Prevention and Combating of Sexual Exploitation of Children and Adolescents Program, deployed by Vale in the areas surrounding the Salobo Project, won the Neide Castanha Award for Social Responsibility, granted by the Secretariat for Human Rights of the Presidency of the Republic.

Implemented since 2008 in the communities of Vila Paulo Fonteles and Vila Sanção, located in the municipality of Parauapebas, southeastern Pará (Brazil), the program raises awareness and mobilization among workers and the communities to act fighting sexual exploitation. Newsletters and primers are also produced for this purpose.

The program has the support of public institutions such as the Municipal Social Welfare and Health Secretariat, the Council for the Rights of Children and Adolescents, the Guardian Council and those tip-line operators.

In 2013, 12 municipalities in the areas of influence in Maranhão, Pará, Rio de Janeiro and Minas Gerais were included in the program. The methodology will be replicated for other operational units.

Management Procedure for Involuntary Relocation, and the elaboration of a Vulnerable Involuntary Relocation Norm. In 2013, there were 176 involuntary relocations. [\[3.12\]](#)

### Vale Foundation

Vale Foundation main objective is to support the construction of a positive legacy in the territories in which we operate. In fulfilling this role, Vale contributes to local development and improvement of the quality of life of the beneficiary communities through actions and voluntary social programs, resulting in a more effective and qualified application of our social investments.

The main reference of its action is the Public-Private Social Partnership (PSPP), a logic of voluntary social investment that requires joint efforts, resources and knowledge of civil society, governments and companies and communities around a common agenda. By building strategic cross-sector partnerships, PSPP establishes an integrated governance and constitutes a cooperation for territorial development, coordinating structuring short and long term actions and programs for economic and social development.

Over the years, Vale Foundation promoted progressive changes and adjustments in their policies and themes, with gains in quality and effectiveness. Currently, it develops several projects



and voluntary social actions in the areas of education, health, work and income generation, having culture, sports and urban development as complementary action areas.

**Performance model**

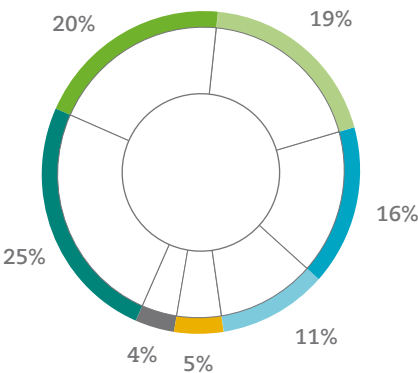
The basis of Vale Foundation action model is the local knowledge, obtained through dialogue with communities and other stakeholders, and the socioeconomic diagnosis of the territories. The Foundation's work is based on the following objectives:

**Health** promoting actions aimed at improving the quality of life for children. In 2013, in addition to children, almost 23,000 people benefited from these actions, including, pregnant women and community leaders; 118 health professionals and 140 families. Educational campaigns have reached 17,000 people and enabled the performance of 2,000 AIDS, Syphilis and Hepatitis A, B, C tests, in partnership with the Ministry of Health. These initiatives reached 59 municipalities.

**Education** contributing to the improvement of basic education to promote inclusion and diversity practices. In 2013, 225 technicians, almost 2,000 teachers and school administrators were trained in 28 municipalities, for a combined a total of 334 hours of training. These actions and programs also benefited almost 26,000 students and 7,000 people in the communities.

**Work and income generation** promoting initiatives that contribute to entrepreneurship, business development and skills development, as well as support for agriculture and women groups. In 2013, 205 family farms, 50 entrepreneur women, and 188 families were benefited, in addition to a thousand young people trained in 18 municipalities.

**Sports** promoting sports as social inclusion, education, citizenship, health and coexistence, encouraging the dissemination of a sporting culture and citizenship in children and teenagers. In 2013, nearly 10,000 students and 1,500 teachers benefited from sports programs and sport activities in 38 municipalities.



**Investments by Vale Foundation'**

Total of US\$26.9 million

	Value	
Education	6.7	25%
Knowledge Station	5.5	20%
Sport and leisure	5	19%
Culture	4.2	16%
Health	3.1	11%
Work and income generation	1.3	5%
Urban development	1	4%
Other	0.1	0%

I In 2013, the difference between the amount donated by Vale to Vale Foundation was of US\$35.9 million and the total investment applied by Vale Foundation was of US\$26.9 million - the remaining US\$9 million are part of Vale Foundation cash.



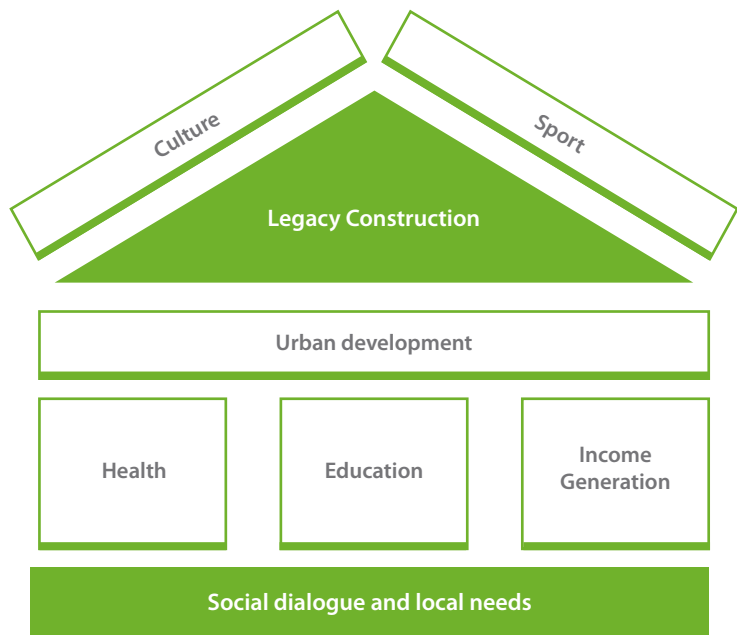
In 2013, the Foundation celebrated 45 years, having benefited 107 municipalities with an investments of US\$26.9 million, being 25% for education and 20% for the Knowledge Station (Estação do Conhecimento).

**Culture** increase communities’ access to cultural assets, valuing popular demonstrations, memory and Brazilian cultural heritage, particularly music and material and immaterial heritage. In 2013 Vale Museum and Vale Minas Gerais Memorial received almost 150,000 visitors, in addition to contributing to the education of 48,000 students of almost 1,500 schools. Vale Music program benefited 427 young people, that did 127 musical performances. The training program on management and cultural entrepreneurship, which operates in 13 municipalities benefited 1,020 people in 224 hours of training.

**Urban Development** contributing to the improvement of municipal capacity, planning and management of cities to strengthen promotion and social protection networks and the promotion of social inclusion and citizenship, encouraging the participation of society in the integration of public policies. With operations in 57 municipalities in 2013, 746 families received support for construction.

Get to know all programs developed by Vale Foundation at the website [www.valefoundation.org](http://www.valefoundation.org)

Performance model



Case

Culture: a value that Vale shares

One of the ways to share value is supporting the culture of the regions in which we operate. For this, Vale has a line of cultural sponsorships, through three axes: “Access and circulation”, “Memory, and vocations” and “Talents”. It selects projects that recognize, value, preserve and disseminate material and immaterial cultural heritage.

Sponsored actions are divided into two major lines: Music and Values of Brazil. The first, with its universal reach and ability to bring people of different cultures and languages together, values what we have in common: our humanity. The project Values of Brazil consists of one action valuing cultural diversity of the country and focuses on the regions where Vale operates.

In the Music segment, we supported the Music Week Workshop (SOM in Portuguese), an itinerant training circuit for instrumentalist musicians conducted in Southeast Pará. A total of 650 musicians participated in this event. In addition to the workshops, more than 4,000 people participated in free lectures and concerts. On the internet, we support the organization and digitalization of the personal collection of the artist Milton Nascimento for the portal of the Institute Antonio Carlos Jobim. 44,000 documents between texts, scores, lyrics, letters, previously unreleased home recordings, albums, CDs, photos of his private and professional collections, newspaper clippings, catalogues and programs, among others were gathered.

In 2013 Values of Brazil also included the Cultural Project Moinho, offering dance and music courses to more than 300 children and adolescents in socioeconomic vulnerable situations in Corumbá (MS). At the end of the training, students are presented “Moinho in Concert”, an event that is already part of the annual city calendar.

### Local hiring [EC7]

We are aware that training and hiring of local workforce is of major importance to the social and economic development of the regions. We reinforce our commitment to local realities and needs, and identifies and implements initiatives, always considering regional vocations. However, we also recognize that there is a long way to generate a significant positive impact on these communities.

In 2013, the local hiring<sup>16</sup> rate was 63%<sup>17</sup> - which is two percentage points higher than the previous year. In senior management<sup>18</sup>, 45% came from local communities, representing an increase of one percentage point compared 2012. Among the

initiatives that helped increase this indicator were reviewing the hiring policy. We prioritized internal recruitment to fill vacancies, using performance evaluation as a supporting tool of the Career and Succession Process and prioritizing local candidates.

### Professional qualification

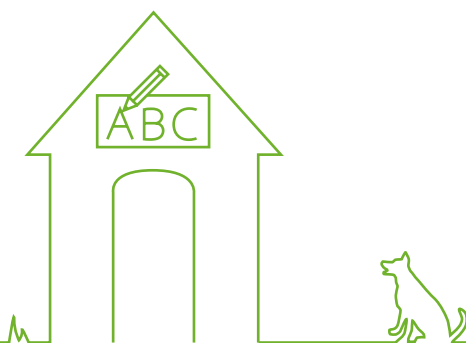
We have helped to transform the lives of young people in the communities in which we operate, particularly through initiatives such as the Vocational Training and Youth Apprentice Program that trains young people from 18 to 28 years old. Besides learning a new craft, young people can join our staff after a period of 24 months of training. In 2013, 1,033 trainees and 99 apprentices were hired.

<sup>16</sup> Although the indicator calculation employees to be local if they were born in the state, the hiring practice adopted, where applicable, prioritizes residents of the state, and not necessarily those merely born there.

<sup>17</sup> Employees covered by this indicator (EC7) correspond to 99.5% (2013) of the total reported employees (LA1).

<sup>18</sup> Vale considers "top management" managers and directors.

In 2013, 50 trainees from Mozambique and 60 in Malaysia participated in the Vocational Training Program. Both classes had practical lessons in Carajás (PA) and Porto de Tubarão, em Vitória (ES), respectively.







### Artisanal and small-scale mining [MM8]

Artisanal and small scale mining can play an important role in social and economic development and job and income creation for the communities. We believe that large mining companies are important agents in the transfer of best practices in technology, health and safety, and recognize the importance of proper treatment of the subject. For this reason we participate in the discussion and adoption of best practices, such as the Working Together Guide created by the Communities and Small-Scale Mining (CASM) group of the International Council on Mining and Metals (ICMM). [3.13]

### Actions in Mozambique

The Moatize coal mine completes its second year in operation, having produced almost 4 million tons of coal in 2013. In addition to our contribution to the development of the mining industry in Mozambique, we are one of the main investors in the local logistics infrastructure through the construction of Nacala corridor, that links the Tete coal basin to the new multi user port terminal in Nacala-a-Velha, and also with the recovery of Linha do Sena, that currently is the main axis of coal distribution, which connects with Porto da Beira.

In 2013, Sena-Beira corridor produced 2,000 coal trains, with almost 3 million tons transported in more than 35 ships. In Nacala Corridor Project, it is planned an investment of US\$4.4 billion by 2015. Works


already starting, generating more than 5,000 jobs in Mozambique and more than 4,000 in Malawi.

We implemented several action to promote social and economic development, namely: training of around 200 people in carpentry, electricity, construction, sewing and household services; purchases of approximately US\$1.4 billion - 75% of local companies; agricultural crops to 1,050 families, planting sesame, beans and fruits and donation of over US\$491,000 for flood victims.

### Resettlement in Mozambique [MM9]

Vale cares about the quality of life of people relocated in Mozambique. In 2012, Vale signed an agreement<sup>19</sup> with the government of the province of Tete and representatives of the communities of the Cateme and 25 de Setembro neighbourhoods resettled in 2010. This initiative resulted in actions aimed at improving the mode and quality of life of the communities, ensuring access to basic services such as education, health, electricity, besides granting access to water and livelihood with a focus on income generation and respecting the cultural diversity of these communities.

<sup>19</sup> Memorandum of Understanding signed on July 6 in 2012.

Since 2011, we reported main actions related to the commitments made by the company. In 2012, several initiatives were implemented, and in 2013 we invested in health infrastructure, agriculture, job and income creation.  [3.14]

### Indigenous peoples and traditional communities [MM5]

Vale acts to establish a constructive relationship with indigenous communities, based on mutual benefit, respect for cultural diversity and specific

rights focusing on ethno-development <sup>20</sup> of indigenous peoples and traditional communities. To establish a long-term relationship, the challenge is joint discussion of structuring actions and sharing an integrated vision to strengthen the role of indigenous peoples and traditional communities ensuring respect to interests of both parties, communities and company.

In 2013, fifteen training courses were held in Brazil for almost 660 people. In addition, we conducted

<sup>20</sup> The notion of ethnic development refers to the practice of social capacity of indigenous peoples and traditional communities to build their future, in line with their historical experiences and the actual and potential resources of their culture, according to projects established according to their own values. It assumes the necessary conditions for the autonomous capacity of a culturally differentiated society to manifest exist, thus, defining and guiding their development.

#### Case

## A Challenge that can be overcome by working together

Dialogue can turn into challenging and potentially conflicting situations in partnerships that create value for everyone involved. This is what happened with Vale's nickel and copper project in Voisey's Bay in Canada.

Access to the mine and concentration plant is by sea. In winter it is more difficult when the water layer freezes, but the project is only feasible if it can be operational all year long. On the other hand, the Innui and Inuit, traditional people from the region, base their transportation system and distribution of crops on the ice formed, besides having a deep cultural connection with the use of ice.

The Voisey's Bay operation during winter left the Innui and Inuit apprehensive, after all, the vessels could harm the ice layer that is so essential to the survival of these communities, in addition to putting community members at risk. To enable the implementation of the project without harming these two communities, a working group was created to discuss safe ways for the company's businesses and traditional communities' activities. One of the solutions presented is hiring a local group to guide the route for vessels to avoid damaging the ice layer and conducting annual public meetings with community residents to provide information on the operations during winter and have the resident's collaboration. Another important initiative was the partnership between Vale and Inuit community to build floating bridges that allow residents to cross the area where the ice was broken, as well as signalling structures in critical navigation points. This care is complemented by an intensive radio and GPS communication system, and by marking the sides of ships in its entire length, with a reflective glass fibre, making it easier to view it from the mainland.

The joint effort resulted in the creation of bonds of trust between the company and the local community for the development of the company's activities in harmony with the other productive areas, taking into account the safety and preservation of traditional communities.





## We are committed to continuously empower employees and third parties to interface with indigenous peoples and traditional communities.

social initiatives for complementary impact management and voluntary social investment, contributing to long-term development.

It is estimated that about 122,000 people of indigenous and traditional communities in the territories in which we operate, have been directly and indirectly benefited by voluntary and compulsory actions supported by Vale. Of this total, 28,000 are located in Brazil<sup>21</sup>, where we interface with 11 indigenous peoples and 46 traditional communities. We have formal agreements with six indigenous communities and six quilombola communities, and supports ethno-development initiatives. Vale also interfaces with 15 indigenous communities in Australia, Canada, Chile, Indonesia, Malaysia and New Caledonia, and has formal agreements with nine indigenous communities.

In July 2013, in a pioneering initiative, we sponsored the Week of Indigenous Peoples of Maranhão to celebrate ethnic diversity and contribute in delivering cultural richness. Around 3 thousand indigenous people of ethnicities Tenetehara Guajajara, Krikati, Ramkokamekrá Kanela, Apaniekrá Kanela, Ka'apor Pukobyê, Awá Guajá and Krenyê participated in the event.

We developed other initiatives, such as the preparation of three environmental impact studies associated with Vale's licensing procedures - two related to indigenous peoples and one to quilombola communities. Two of these processes were completed and filed with licensing agencies.

### Traditional communities

Vale Technology Institute (ITV), in partnership with the Goeldi Museum (MPEG) is developing a socioeconomic study on traditional communities at Rio Capim in northeastern Pará. The objectives are to conduct an archaeological and anthropological survey, promote the improvement of family farming through courses in rural management, and rescue and record in books, booklets and DVD's the cultural richness of traditional communities. The project also includes the construction of a space called Learning and Dreaming (Aprender e Sonhar) at Vila de Santana do Capim, in the Aurora municipality, aimed at boosting children's reading and conducting activities on environmental education and science.

### Monitoring lawsuits <sup>[HR9]</sup>

We maintain wide-ranging, permanent, structured dialogue with indigenous peoples and traditional communities close to its operations and projects. We also aim to establish a continuous social engagement process for better management of social, cultural, economic and environmental impacts and thus contribute to local sustainable development.

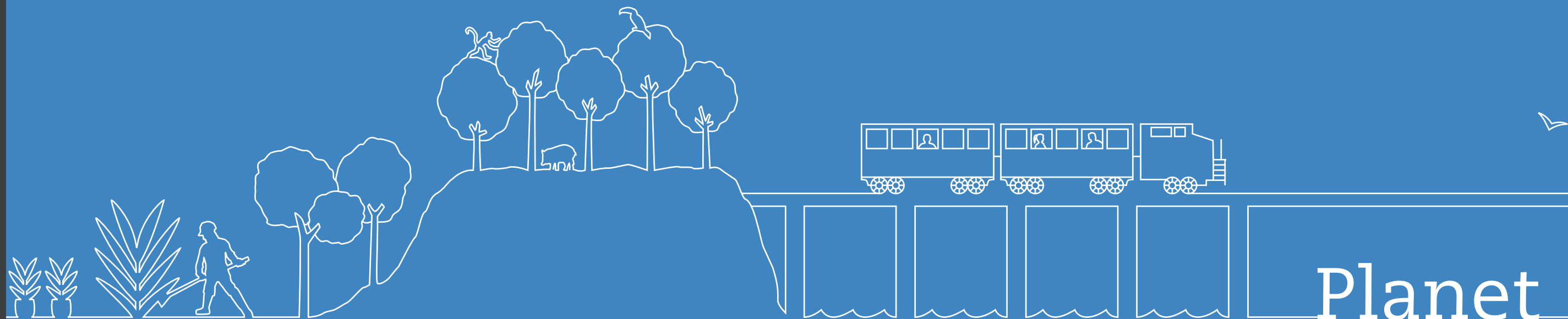
In 2013, we did not record new cases. Currently, Vale has ten active processes, reported in the 2012 Sustainability Report<sup>22</sup>. In 2013, one case was updated<sup>23</sup>.

<sup>22</sup> Available at [www.vale.com](http://www.vale.com).

<sup>23</sup> The agreement signed with the indigenous community of Krenak is in negotiation to expand, being proposed to maintain activities currently supported by Vales as well as preparing an Environmental Management Plan (PGTA) of the Indigenous Territory Krenak. This initiative will provide an integrated vision with Territorial Management supporting ethno-development of this indigenous community in the long term.

<sup>21</sup> In the states of Pará, Maranhão, Minas Gerais, Espírito Santo and Sergipe.





## Sharing value

We invest in the integrated management of the territories in which we operate from the conception of projects to their closure, committed to the generation of a positive legacy



# Land use

Vale is responsible for managing several territories, including areas of high cultural value and great biodiversity importance.

The company recognizes the importance of integrated management of these areas to maintain its license to operate and its access to new areas, aiming to develop projects and building a positive legacy. This involves considering the specific social, economic and environmental aspects of each region in our policies and procedures.

This vision is present from the moment the project is planned until its closure, and extends through the actions of territorial development promoted by Vale Fund. At all stages of our projects, we develop and support actions that encourage the conservation and sustainable use of natural resources.

Moreover, we recognize the role of ecosystem services<sup>1</sup> provided by biodiversity to maintain the company's activities. These services are mainly associated with water, climate change and energy, all priority issues for Vale.

In 2013, we made progress in the review of methodologies to identify effective forms of evaluating the risks and impacts of our activities on the biodiversity and ecosystem services, considering the specificities of each region, in order to assess the net long-term positive impact<sup>2</sup>.

These practices are in line with our commitment to mitigate impacts on land use while preserving

and recovering territories in the regions where we operate.

## Biodiversity Strategy [EN14, MM2]

Our biodiversity strategy is based on the commitment to adopt best practices to mitigate negative impacts and enhance positive impacts (read more in the chapter Strategic Vision). The focus is on rehabilitation and conservation of biodiversity. In the first case, we use technologies to the effective recovery of degraded areas and their transformation for collective use. Related to biodiversity conservation, there is in particular the maintenance of protected areas, which contribute to maintaining environmental balance, protect natural resources and capture and store gases that cause the greenhouse effect (GHG).

When environmental studies identify activities with potential to generate negative impacts on the biodiversity and ecosystem services, we create Biodiversity Management Plans including actions that are mandatory by law and voluntary initiatives of the company. Currently, 46% of our operations require Biodiversity Management Plans, of this total, 94% have already been implemented and the rest are in the process of defining the scope and detailing. In areas of particular importance for biodiversity<sup>3</sup> the Biodiversity Management Plans may be complemented with special programs developed by Vale.

<sup>1</sup> Functions and processes by ecosystems and its species that allow the maintenance of life conditions on the planet, including the provision of resources (food, water, timber and fiber), support services (soil formation, photosynthesis and nutrient cycles) and regulating services (climate regulation, flood control, control of infectious diseases and pests, maintaining the quality of water and air).

<sup>2</sup> When the results of actions taken by the company outweigh the negative effects of its operations.

<sup>3</sup> Protected or high biodiversity areas that represent sensitive and important conservation areas and that shelter endangered species.





## Commitment

To exercise integrated land management, seeking to generate positive net impact and value sharing in the regions where Vale operates



## Results

Protection or development of 230 thousand km<sup>2</sup> of areas in conservation units, settlements and indigenous territories through Vale Fund's partnerships

Expansion of the Biopalma cultivation area creating more jobs

Review of methodologies to evaluate risks and impacts of our activities on biodiversity and ecosystem services



Employees in a geological research in Canaã dos Carajás, Pará.

Picture: Lucas Lenc



## Commitment

To contribute to the conservation and sustainable use of biodiversity and ecosystem services promoting engagement with communities, governments and stakeholders



## Results

The company protects or helps to protect an area of 12,400 km<sup>2</sup>

Strengthening an agenda of economic incentives with the government, companies and the civil society through Vale Fund

We protect or helps to protect<sup>4</sup> 12,400 km<sup>2</sup> of natural areas that are almost 2.5 times larger<sup>5</sup> than the sum of our operating units of 4,900 km<sup>2</sup>, where 60% are areas of industrial planting. If we do not consider the industrial planting areas, this ratio is six times higher.

Moreover, Vale Fund contributed to protect and/or develop more than 230,000 km<sup>2</sup> of natural areas in conservation units, settlements and indigenous territories through its partnerships and thereby helps in promoting integrated management of protected areas in the Amazon. When operating in the development of these areas, we consider strengthening environmental governance, the formation of socio-biodiversity value chains and conciliation of environmental, social and economic dimensions in the territories.

<sup>4</sup> The general approach to the protection, conservation and restoration of habitats does not consider environmental compensation.

<sup>5</sup> The ratio was lower than that reported in 2012 (3.5 times), mainly due to advances in the S11D project in Pará and ferrous operations in Pará and Minas Gerais, and disinvestment in TresValles (Chile) and Fertilizantes Araucaria (Brazil).

### Vale Fund (SOS)

Vale Fund is a non-profit institution created by Vale in 2009, as a Civil Society Organization of Public Interest (Oscip in Portuguese). It functions as a cooperation fund that works in partnership with public, private and third sector organizations for territory development. Since its foundation, it has invested about \$ 45 million in actions for sustainable development, especially in the Amazon. Vale Fund operates in six Brazilian states (Pará, Amazonas, Mato Grosso, Acre, Rondônia and Amapá), in partnership with 24 social and environmental organizations.

In 2013, integrated with other local actors, Vale Fund contributed to the improvement of management and environmental governance - essential conditions for the local economy to develop in a sustainable basis. Vale Fund currently influences the formulation of public policies in the states of Pará (where Vale Fund participates in the Green Municipalities Program aimed at promoting economic development from municipalities' environmental assets), Amazon, Mato Grosso and Rondônia, and it is already developing programs in more than 30 municipalities in the Amazon.

Vale Fund also promotes the consolidation of an integrated vision of the forestry agenda in Brazil between the civil society, government and companies. For this purpose, Vale Fund engaged with over 60 organizations encouraging public policies on the forest issue within a consolidated territorial perspective. [More information at www.fundovale.org](http://www.fundovale.org).



## Operational areas [EN11, EN12, EN15]

- Operational areas totalling 4,900 km<sup>2</sup>, are associated with mineral extraction, industrial production, processing and beneficiation, product transportation and initiatives related to industrial plantations.

Operations are planned and conducted so as to cause the least possible environmental impact, contributing positively to the maintenance and conservation of local biodiversity. This applies to all types of operations, regardless of the initial state of conservation of an area, including forest plantations, which are entirely associated with previously altered areas. Of the total operational areas, 60% are industrial plantations. 60% of these last are dedicated to the restoration and maintenance of native vegetation<sup>6</sup> and the remainder are dedicated to productive planting.

See below the classification criterion for the location of operational areas (4,900 km<sup>2</sup>):

- location in relation to areas of high biodiversity value as defined by the governments of each country: 39.8% (1,970 km<sup>2</sup>) are located in areas of high biodiversity value (outside protected areas), and 21.2% (1,050 km<sup>2</sup>) are adjacent to areas of high biodiversity value<sup>7</sup>;

- location in relation to legally protected areas: 12.2% (601.1 km<sup>2</sup>) are located close to legally protected areas and 5% (248.2 km<sup>2</sup>) are within legally protected areas (conservation units);

- considering the classification of regions of high biological relevance, assessed as internationally important for the conservation of biodiversity<sup>8</sup> over 92% of Vale's operational areas is located in regions classified as wilderness areas (77.8%)<sup>9</sup>, or as hotspots (14.7%)<sup>10</sup>, distributed in nine countries, as represented on the following map.

In areas where the company operates, 4,000 plant species and 3,400 animal species<sup>11</sup> were identified. Approximately 3% of the species are on the Red List of the International Union for Conservation of Nature (IUCN), and about 3% are in official national lists of threatened species. [4.01]

<sup>6</sup> According to Brazilian law, all rural properties must maintain representative areas of the natural environments of the region where they are located, to be designated for the sustainable use of natural resources, conservation and rehabilitation of ecological processes, biodiversity conservation, and to shelter and protect native flora and fauna. The size of the Legal Reserve is proportional to the total size of the property, varying according to the biome and, in the case of the Amazon, according to the region where the properties are located.

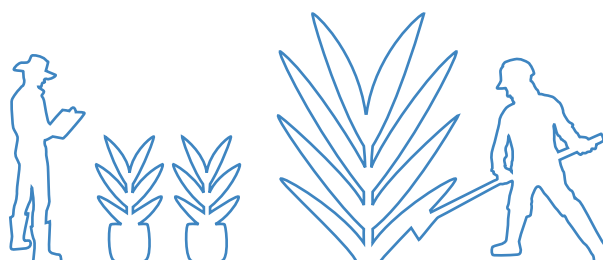
<sup>7</sup> To calculate the adjacent area a buffer of 10 km from the external boundaries of protected areas was considered and from areas of high biodiversity value (surroundings) and its overlap was assessed in respect to the area of the Operating Unit. When an operation was associated with more than one protected area or areas of high biodiversity value, the intersection of buffers in the stretches of overlap between areas was considered. The areas related to indigenous lands were not considered in the analysis.

<sup>8</sup> Hotspots and wilderness areas are large geographical areas considered to be important for world flora and fauna conservation. They function as complementary categories of biodiversity importance, and are officially recognized by various international organizations. Hotspots are more endangered areas with high biological value for the planet and having its original vegetation coverage reduced by 30% or less, (Mittermeier et al., 2004). Wilderness areas, in turn, are large areas of land (over 1 million hectares each) with representative biodiversity and currently little changed or unchanged (wild areas), with over 70% of their original coverage intact and human density lower than or equal to five people per km<sup>2</sup>, (Mittermeier et al., 2003).

<sup>9</sup> There are six wilderness areas (Amazon, Gulf of Oman desert and semi-desert, Patagonian steppe, Eastern Canadian Shield taiga, Midwestern Canadian Shield forest and Pantanal. Amazon and Gulf of Oman desert and semi-desert are considered high biodiversity wilderness areas.

<sup>10</sup> There are six hotspots (Cerrado, Coastal Forests of Eastern Africa, Japan, Atlantic Forest, New Caledonia, and Wallacea.

<sup>11</sup> These numbers include species registered during environmental studies carried out since 2008 to analyze environmental feasibility of projects and monitoring conducted throughout the implementation and operation phases of the units, as well as other environmental studies such as forest inventories and reports of wildlife rescue.





# Vale and the biodiversity

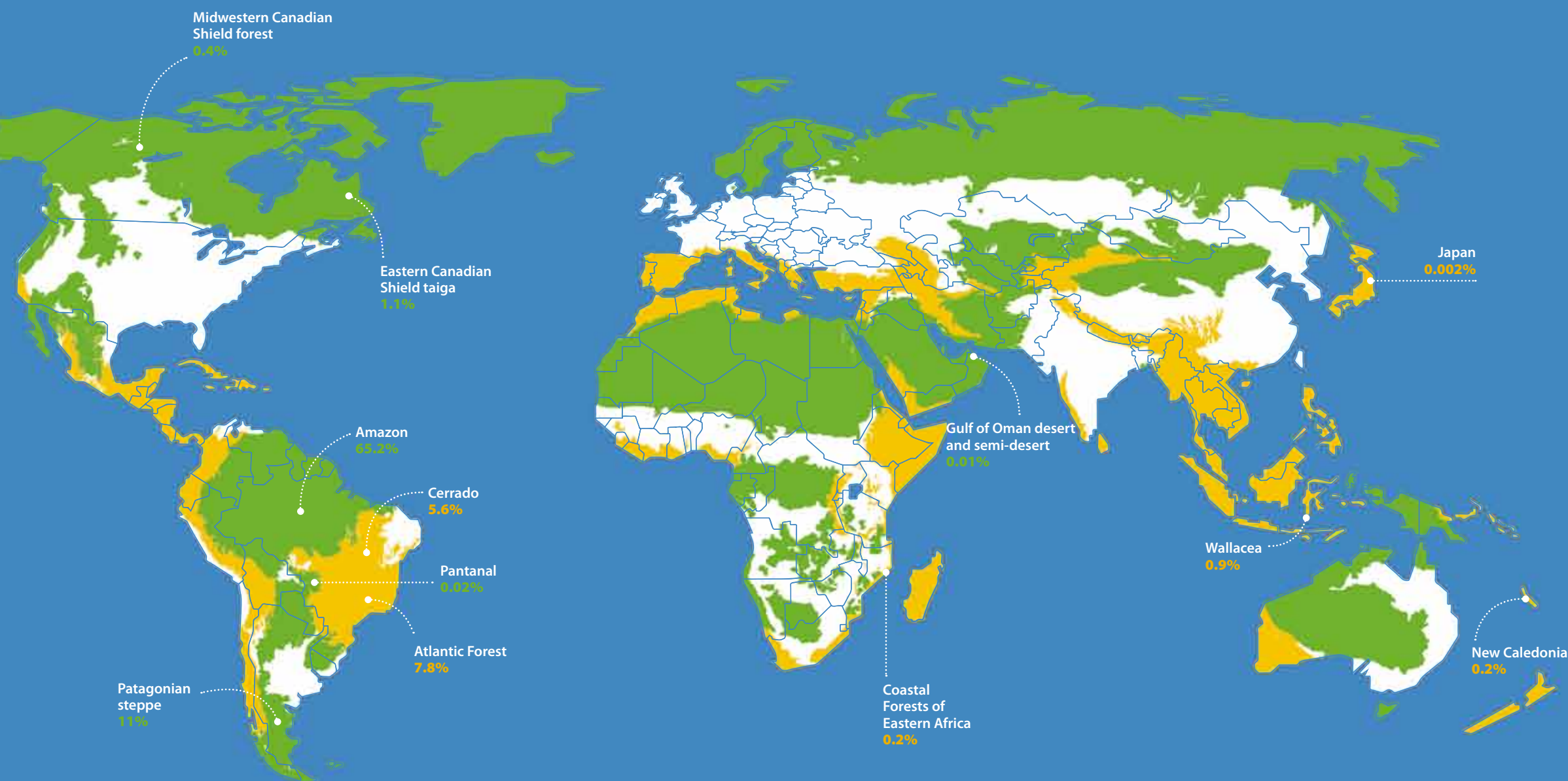
The map shows the percentage of company operations areas located in regions of high importance for biodiversity

## Hotspots

More endangered areas with high biological value for the planet reduced to 30% or less of their original vegetation coverage.

## Wilderness areas

Large areas of land (over 1 million hectares each) with representative biodiversity and currently little changed or unchanged (wild areas), with over 70% of their original coverage intact and human density lower than or equal to five people per km².



Of the Special Biodiversity Management Plans so far implemented, we highlight:

### Amazon

Jaborandi Conservation Plan, species with therapeutic properties collected by local communities for economic purposes.

Harpy Eagle, Crested Eagle and Hyacinth Macaw Conservation Project in Carajás Mosaic.

### Transition zone between the Atlantic Forest and Cerrado area

Iron Quadrangle Biodiversity Conservation Plan, composed of actions related to the conservation and management of local flora and fauna.

Created in 2007, Iron Quadrangle Biodiversity Research and Conservation Centre (CeBio in Portuguese), which is especially dedicated to the development of research for the conservation and ecological restoration of the region's typical ecosystems.

### Atlantic Forest

Research project for the conservation of Tucuxi dolphin (*Sotalia guianensis*) in Sepetiba Bay.

### New Caledonia

Research projects aimed at improving the ecological restoration and conservation of local flora and fauna species.

Vale operational areas occupy 4,900 km². Over 92% of these areas are located in regions classified as:







#### Case

## Economic assessment of Vale Natural Reserve

For 35 years, Vale has been maintaining 23 hectares of Vale Natural Reserve in Linhares, Espírito Santo, where 20% of the birds registered in Brazil and more than 2,800 species of plants can be found. The company invests US\$3.3 million in the reserve, one of the last great remnants of the threatened Tabuleiro and Posto Avançado Forest at the Atlantic Forest Biosphere Reserve.

Vale Natural Reserve conducted a total economic value (TEV) study, aimed at identifying the financial values associated with environmental resources. The study, conducted in partnership with the Lawrence Berkeley Laboratory, University of California, assigned to Vale Natural Reserve a total intangible value estimated at US\$1.1 billion. This amount can be divided in three aspects: almost US\$1 billion is allocated to the economic benefit of the existence of biodiversity at Vale Natural Reserve; US\$77 million are related to the direct use value, derived from the carbon stored in the reserve, the carbon sequestered by plants produced in the nursery and recreation activities, and approximately US\$25 million associated with the indirect use value, such as pollination, water supply and regulation of air, water and soil.

In addition to the conservation of flora and fauna, at the reserve there are education and recreation activities, scientific research (with over 100 scientific articles published), as well as seedling nursery, that since 1976 has contributed to the reforestation of more than 18,000 hectares.

#### Protected areas [EN13]

As mentioned earlier, we protect or help protect 12,400 km<sup>2</sup> of natural areas. Some of our operational units are located in areas that the company helps protect, such as the Tapirapé-Aquiri National Forest and Carajás National Forest. Currently, about 97% of the Carajás National Forest is protected and less than 3% is occupied by our operations. The company also protects areas around its operations, which it either owns or protects through partnerships, such as Private Natural Heritage Reserves (RPPN in Portuguese) and State Conservation Units located in the Iron Quadrangle in Minas Gerais, as well as the Natural Reserve ForêtNord, in New Caledônia.

In addition, we protect areas - owned or through partnerships - that are not related to any of our operations (almost 30% of the total), notably Vale Natural Reserve and Sooretama Biological Reserve, both in Espírito Santo, and Ilha Grande State Park located in Rio de Janeiro.

Of the total area that we protect or help protect, 97.6% is protected in partnership with local governments, while 2.4% are areas that we own. Of this total, 70% are in regions classified as wilderness and 30% as hotspots. [\[4.02\]](#)



## Challenges

Minimize land use impact

Conserve and restore areas



## Results

Activities to recover 30.6 Km<sup>2</sup> of degraded areas were initiated in the last two years

We made progress developing a methodology to prepare Regional Plans for Integrated Mine Closure

### Impacted and restored areas [EN13, MM1]

As part of its biodiversity strategy, we conduct restoration activities, especially on degraded areas where different procedures are adopted for recovery until reaching a level of maturity that allows its evolution without human interference. To ensure the environmental balance of areas in recovery, we conduct maintenance activities and environmental protection services to prevent harmful agents from affecting recovery - such as access by people and animals, and especially the occurrence of fires.

The process of recovery of degraded areas (RAD in Portuguese) occurs concomitantly with the operations, and the quality and effectiveness of activities are monitored by those responsible for the operational areas through the use of appropriate indicators and technical procedures. During the process of recovery of an environment, there is no validation of external specialists. In the mine closure phase, recovery results are evaluated by external audits. Vale conducts an analysis of geographic data, registering areas in recovery or suppressed, with georeferenced polygons and remote sensing images, and allowing to visually demonstrate the effectiveness of the work over time, besides other purposes.

In 2013, the total area in recovery was 17.8 km<sup>2</sup>, with 10.8 km<sup>2</sup> in permanent recovery and 7.1 km<sup>2</sup> temporary. The total impacted area was 18.4 km<sup>2</sup> (see indicator EN13 table in the online content).

 [4.03]


### Recovery of degraded areas

The recovery of degraded areas (RAD in Portuguese) is part of the mining process. It is carried out since the vegetation suppression phase, using different techniques that are selected according to environmental conditions such as soil type, climatic conditions, relief map and biome of the area, among others.

### Replanting of mangroves

In order to restore degraded mangrove areas along Ajuruteua peninsula in Bragança (PA) (where the Marine Extractive Reserve Caeté-Taperaçu is located), Vale Institute of Technology (ITV in Portuguese) is conducting a project in partnership with the Federal University of Pará (UFPA in Portuguese).

Some of the planned initiatives are the promotion of participation and awareness among coastal communities, with environmental education activities targeted specially at children and teenagers, with lectures, courses, videos and books production. Also, studies will be conducted on the mechanisms of carbon sequestration and mangroves replanting in degraded areas and surrounding communities.

Read more about our partnerships in Research and Development in the online content:  [4.04]

## Caves

Natural underground caves, also known as caverns or grottoes, represent an important topic for Vale's business. Understanding the importance of the subject, the company now has a dedicated speleology area, in order to ensure maximum utilization of mineral reserves and comply with legal requirements for conservation of speleological heritage. It also seeks to improve technical knowledge of these natural structures, contributing to the development and dissemination of scientific knowledge about them.

In the Project Carajás S11D, in Pará, for example all the caves in the project area were studied in terms of their physical, biological, historical and cultural attributes, complying with legal requirements related to licensing in areas with natural caves, and considering their relevance in the local and regional context. Caves with a unique or rare genesis, a unique morphology, notable dimensions in terms of length, area or volume or unique speleothems were classified as being of maximum significance, and they will be fully preserved.

Vale is developing environmental programs and actions specifically aimed at the area's speleological heritage, including a program for the surrounding area and another program to monitor vibrations (seismic). The aim of these programs is to enable the maintenance of the caves' physical integrity, determining the vibration thresholds that they can withstand.

The company also has a program designed to minimize physical and biological losses related to the irreversible elimination of caves. We prioritize significant aspects that can add information to the understanding of cave formation processes, the ecology of caves or their use as shelter by fauna and people.

The aforementioned programs are currently being deployed at some of Vale's other operational units, notably the Carajás Mining Complex and Vargem Grande Mining Complex. The main results obtained at these locations have reinforced the company's commitment to evaluating and developing actions aligned with key concerns raised by stakeholders with regard to caves.

## Cangas

Canga is a type of rock, originally described in Brazil, but also in various tropical and subtropical regions of the world. It is a product of the weathering of iron-rich rocks. Fields of rocky outcrops are biodiversity-rich ecosystems that commonly occur in canga areas, although they are not restricted to them. As these ecosystems are still little studied, restoration

programs for areas impacted by mining activity in these environments still require more consistent information to achieve good results.

Aware of the importance of the issue, Vale has conducted several experiments to rehabilitate these environments in its operational areas, as well as supporting research projects together with a number of Brazilian universities, some via the Vale Institute of Technology.

Vale has been investing in ecological studies of canga environments since 2007, in order to better understand the biology of the species that inhabit this ecosystem, and then implement these results in projects to preserve, conserve or restore these environments. Studies are currently under way in the Iron Quadrangle region, with the same purpose, and also to look for similarities among these environments in different regions. Besides benefiting from the results of these studies in its own activities, Vale has contributed to the scientific community, sharing the knowledge generated.

## Conflicts over land use [MM6, MM7]

We understand the importance of having good relations with communities and base our conduct on seeking solutions for the common good. An important tool is the dialogue channels, which have been expanded and improved. [Communication with stakeholders follows an integrated model of community relations, which guides on how to manage demands and forward them in the most appropriate way.](#) [\[4.05\]](#)  
(Read more in chapter People)

## Mine Closure [MM10]

Mine closure permeates the entire life cycle of our projects, including viability of new projects in planning stages. Nevertheless, it is a relatively recent issue, with opportunities for the development of technological innovations and improvement of processes. In the last years, we have advanced in the development of a methodology for the preparation of Regional Plans for Integrated Mine Closure. With these plans, we leverage regional synergies, considering the corresponding municipal interdependencies.

96% of the operating mines in Brazil have mine closure plans, including project S11D, in Carajás (PA). The plans follow Vale's internal guidelines, such as the Mine Closure Guide and Terms of Reference for Preparing Plans for Mine Closure.

In other countries, 82% of our operational units have mine closure plans and comply with the specific laws of each location and consider social, economic and environmental aspects. Examples include the

In 2013, we advanced in elaborating mine closure plans for our Brazilian units.



Vitória-Minas Railway train (EFVM), near Piracicaba river (MG).

Picture: Daniel Mansur/ Studio Pixel

Bayóvar (Peru) units and operations across Sudbury, Canada. The closure plan for Moatize operation, in Mozambique, is under review in order to adapt it to new structures and its future use. [\[4.06\]](#)

#### Mining waste <sup>[MM3]</sup>

Our commitment to environmental and social issues is also reflected in the way we manage specific kinds of waste in the production process. These materials are disposed of in tailings dams (containing tailings and sediments) or piles (containing waste rock and tailings), and their volume is directly linked to production and geological characteristics at the site.

**Waste rock:** Material overlying the ore body. It is removed during mining process and is disposed of in piles or used in earthworks and other structures of the mine itself.

**Tailings:** Waste material resulting after processing iron ore. It may be disposed of in piles or tailing dams.

In 2013, we invested US\$290 million in dams, dikes and waste rock piles. This represents the largest

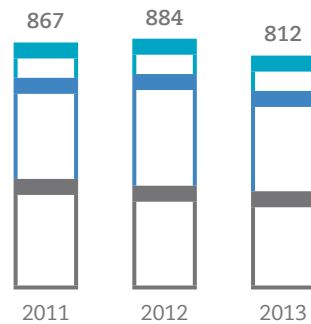
category of our environmental expenditure (28%). In this area, we seek to optimize waste rock and tailings disposal processes, through various initiatives such as the following:

- mining and recovery of iron ore in tailings dams and waste rock piles;
- recovery and utilization of these materials in other industrial processes such as the production of cement, ceramics and other aggregates;
- segregation of waste rock, making separate piles materials with the highest iron ore content, which may potentially be reused in the future in the light of possible new technologies;
- evaluation of alternative waste disposal methods – without compromising geotechnical safety – reducing the number of conventional dams, since large volumes may be contained in such dams and piles, and so it is essential to ensure that such structures are stable in order to control the risk of impacts.



## Total mining and metallurgical waste <sup>[MM3]</sup>

In million metric tons



	2011	2012	2013
Iron ore - Tailing	67	69	65
Iron ore - Waste rock	401	443	398
Other business areas <sup>1</sup>	399	372	350
<b>Total</b>	<b>867</b>	<b>884</b>	<b>812</b>

<sup>1</sup> Waste rock and tailings from mining nickel, potash, manganese, coal, copper and slag (manganese alloy) and Fertilizantes by-products.

In 2013, there was a decrease of approximately 8.1% in generation of mining waste, which reached 812 million tons. The generation of waste rock resulting from iron ore production decreased by approximately 10.1%, and tailings by 6.6%. The decrease was mainly due to the processes for obtaining environmental permits for new areas and prioritization of mining in areas with lower

concentrations of tailings. Other segments reduced waste rock generation to a total of 350 million tons, compared to 372 million in 2012.

Vale has also invested in processes, systems and tools for the automation of dams monitoring, which resulted in the definition of a standardized model, which is expected to be implemented as of 2014. [\[4.07\]](#)

### Case

## Use of manganese slag

One of the initiatives developed by Vale in the recovery and reuse of minerals waste, as well as its use in other industrial processes, is the use of slag, a by-product of the production of manganese ferroalloys, in the cement industry, with the intention of replacing non-renewable raw materials. The project contributes to the elimination of operational risks associated with the temporary storage of slag, and also to the reduction of CO<sub>2</sub> emissions as there is less production of cement raw material, clinker<sup>12</sup>.

As an example for Vale Manganês, in Barbacena (MG), this initiative meant savings in the cost of moving 52,000 tons of slag - the total amount of slag generated by the unit per year.

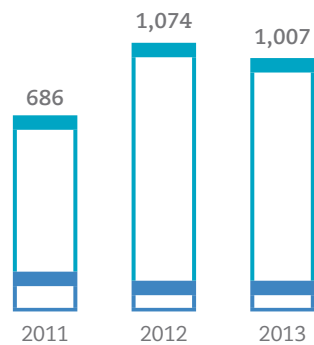
The technical and commercial feasibility of this process was proven through research conducted with cement companies. These studies were monitored by the Brazilian Portland Cement Association (ABCP in Portuguese), based on the technical specification standards by the Brazilian National Standards Organization (ABNT in Portuguese) and ABCP's Seal of Quality regulation.

<sup>12</sup> CO<sub>2</sub> emissions result from clinker decarbonisation processes.



## Consolidated amount of waste generated [EN22]

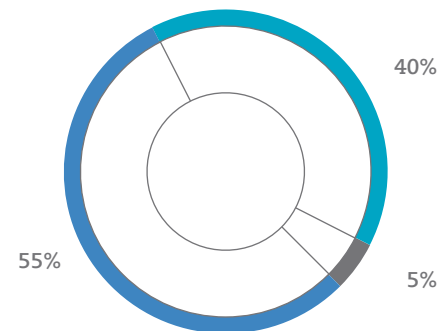
In thousand tons



	2011	2012	2013
<b>Non-hazardous</b>	603	1,044	977
<b>Hazardous</b>	83	30	29
<b>Total</b>	<b>686</b>	<b>1,074</b>	<b>1,007</b>

## Disposal and destination of waste<sup>I</sup> [EN22]

Total of 853,000 tons



Type	
<b>Soil disposal<sup>II</sup></b>	55%
<b>Reprocessing, recycling and reuse</b>	40%
<b>Other</b>	5%
Composting	1%
Co-processing	2%
Incineration	1%
Biological treatment	1%
<b>Total</b>	<b>100%</b>

### Non-mineral waste [EN22]

Our waste management is based on control, minimization, segregation, traceability, valuation and proper disposal, as well as fostering job creation and income generation from recycling practices. In 2013, US\$127.6 million were invested in waste management (12.6% of total environmental expenditures). Hazardous and non-hazardous waste generated at our units is sent to licensed companies for disposal. As part of the program for evaluating waste recipients, 78 audits were conducted in supplying and partner companies, out of a total of 258, with the aim of checking their environmental performance and promoting its improvements.

In 2012, all business areas maintained their targets for recycling and reduction in the generation of hazardous waste. The consolidated recycling target was 73%, including composting, reuse, re-refining, reprocessing and recycling, applicable only to Vale's Waste Management area. This target was exceeded by 12%, reaching a final value of 82% ([more information in the Action Plan on Sustainability on page 24](#)).

### Coconut fibre

Coconut fibre is a waste available in large quantities in the region of Vitória (ES). To reuse this material, Vale's pelletizing group is developing a project to produce pellet binders from this residue together with the Federal University of Espírito Santo (UFES in Portuguese). This initiative, as well as contributing to local sustainability, has the potential to reduce operating costs of pelletizing.

<sup>I</sup> Differences between the amount of waste generated and the amount of final disposal are due to temporary storage.

<sup>II</sup> External and internal sanitary landfill, waste rock piles and underground disposal.



### Oil and conveyor belts recycling

In line with the National Solid Waste Policy, we developed a program to reuse lubricating oils. The material - originally used in equipment maintenance - now serves as input to manufacture the explosive Anfo (Ammonium Nitrate Fuel Oil). This initiative reduces costs on the purchase of raw materials and risks of storage and transport of this product. In 2013, around 1,350 tons of oil were used to manufacture Anfo. The remainder was destined to recycling in rerefining companies.


Waste from conveyor belts, straps and blankets generated at Vale's units, which were previously stored or discarded, also began to be recycled. These are transformed into recycled belts, truck liners, steel cables for corrals and other materials. In 2013, 9,420 tons of scrap waste were recycled, helping reduce the consumption of raw materials, the volume of waste sent to landfills and the disposal costs for the company.

There are also positive impacts, such as the creation of jobs in the recycling chain.

In 2013, our operations generated a total of 1 million metric tons of waste: 97% non-hazardous and 3% hazardous. The areas that generated more waste were Nickel (41%) and Fertilizers (26%).

The total generated in the year is about 6% lower than 2012. One of the main reasons for this reduction is the interruption of activities at the pellet plant of São Luís (MA) and the change in the criterion for reporting sulphur sludge, which is no longer reported at indicator EN22 (total weight of waste) and is now reported at indicator MM3 (total amount of waste rock, tailings and sludge).

The nickel unit of the Sudbury complex in Canada increased by 32% its generation of non-hazardous waste, compared to 2012. This increase is related to a specific generation of waste arising in the process of digging for demobilization of an area, that were sent to the unit's internal landfill.

We aim to add value to waste. In 2013, disposals related to recycling and reuse totalled 40% of the total destination.  [4.08]

#### Case

## Air Emission Control Master Plan

Vehicular traffic on unpaved roads is one of the most significant causes of Vale's emissions of particulate matter. In the South Ferrous area, for example, it causes 80% of the emission in Itabirito, Paraopeba and Vargem Grande complexes, constituting the main source of this impact in directory operations.

To decrease the amount of particulate matter in the air, the most common practice is to wet the roads with tank trucks, in a process called wetting. This practice can be optimized through the use of dust suppressing agents, products that delay evaporation of the water used to wet roads or agglomerates the dust particles, making them heavier, which makes it more difficult for particles to be blown by the wind.

In 2012 and 2013, the South Ferrous area conducted a technical and economic analysis of dust suppressants. The initiative is part of the Master Plan to Control Air Emissions, which seeks to increase the effectiveness of the mechanisms for control and reduction of particulate matter in the area, ensuring better air quality for communities surrounding the operations.

The survey results showed that with the use of suppressors, the volume of water required for wetting is 75% smaller, and less tank trucks are needed - fewer trucks reduces the emission of greenhouse gases (GHGs) by 40%.

Given the good results obtained, these dust suppressants are being applied in other mines such as Solobo and Carajás, in Pará.

### Transforming waste

The Vale Institute of Technology (ITV in Portuguese) Ouro Preto (MG) unit is developing a study to seize the fluosilic acid, an important industrial byproduct of the generation of phosphoric acid produced by Vale Fertilizantes. The research investigates the possibility of turning this costly and hazardous waste disposal into a commercial by-product, which may be used by the agricultural industry.

Spills [EN23]

In 2013, 15 spills considered critical<sup>13</sup> were recorded, involving hazardous products, in line with Vale's relevance matrix.

As spills can significantly damage the environment, the company has effective emergency response plans to mitigate impacts. All units involved acted to remediate the damages caused by these occurrences in the most appropriate way, and to investigate these events in order to avoid future spills. [4.09]

Air emissions and noise [EN20]

We maintain our commitment to continuously improve the control mechanisms for atmospheric emissions, noise and vibrations arising from our activities. For this purpose, in 2013 Vale invested US\$136 million (13.4% of total environmental expenditures) in enhancing processes and actions on this control.

The most significant particulate matter emissions are from diffuse sources (fugitive emissions). They are originated mainly in vehicle traffic on unpaved roads, areas exposed and subject to wind drag, handling of ore and other materials and railway areas. The use of chemicals such as dust suppressants constitutes an important technology in controlling these emissions.

In 2013, specific methodologies for performance tests on dust suppressants were developed, on laboratory and real scales. The tests are part of a set of actions that we took to reduce atmospheric emissions during railway transport of ore. The job includes preparation of monthly reports on the composition of the particulate matter to implement additional control measures, and awareness campaigns for employees to identify and report any occurrences of emissions in railways.

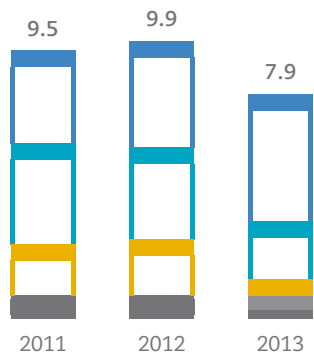
In Tubarão Complex, in Vitória (ES), the Centre for Environmental Control (CCA in Portuguese) is responsible for collecting and storing information generated online by 22 cameras, two of which monitor activities outside the complex. Operating 24 hours a day, the CCA expedites the identification and reporting of events of atmospheric emissions, enabling faster and more effective corrective actions.

A project for the modernization of the system that uses glycerine to reduce dust in pellets circuit is being implemented in pelletizing plants at Tubarão. The system is scheduled to start operating in the first half of 2014. At the Piaçaguera fertilizers unit in Cubatão, a new gas scrubber system was installed in the ammonium nitrate plant with technology that is much more efficient in controlling the finer fractions of particulate matter. This plant reduced emissions by 75%.

<sup>13</sup> A significant spill as classified by the GRI corresponds to the definition of a critical accident used by Vale, that is, one that goes beyond an operational unit's boundaries and causes a residual impact on the environment and/or health and safety inside or outside the operational unit, after the completion of mitigation procedures.

Particulate matter emissions [EN20]

In thousand metric tons



Business unit	2011	2012	2013
Nickel	3.6	4.2	4.7
Pelletizing	3.6	3.4	2.2
Fertilizer	2.0	2.0	0.7
Manganese	0.3	0.3	0.2
Others <sup>1</sup>	0.0	0.0	0.1
Total	9.5	9.9	7.9

<sup>1</sup> Includes coal and copper emissions.

In Mozambique, at the Moatize Industrial Complex, we invested in the modernization of the monitoring network, which will count with new automatic meteorological and air quality monitors. This initiative will contribute to the monitoring of the levels of air quality in the region and to improve the management of air emissions at the Complex.

We also implemented other initiatives to improve the management of emissions. The technical training programs underway in the operational units represent essential tools for the development and dissemination of best practices. In addition, we also conduct regular meetings in two thematic subcommittees: the Atmospheric Emissions, Noise and Vibration and the Environmental Technology work groups, with representatives from the company's operational units and corporate area.

Vale invests in initiatives that aim to minimize environmental noise arising from its railway operations. Among them, it is noted the implementation of railway lubrication systems, improvement of welds maintenance in permanent ways, intensification of the rails grinding<sup>14</sup> process and the use of cutting-edge mobile technology in

switches routes. These initiatives minimize noise, reduce the level of vibrations, active wear and increases safety in the company's operations.

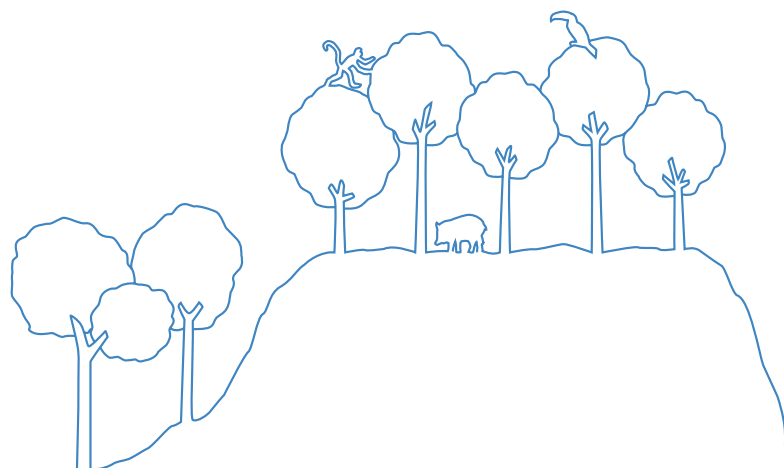
Emissions of particulate matter through specific stationary sources were 7.9 thousand tons, generated mainly in units of Nickel, Pellets and Fertilizers. In 2013, there was a 20.7% reduction in emissions of particulate matter when compared to 2012.

The reduction of total emissions is due to the sale of Araucaria Industrial Complex - which represented 10% of this total, and the interruption of activities in three pellet plants located in Vitória (ES) and São Luís (MA). These plants stopped producing in late 2012. Improvement actions in control equipments of a Pelletizing Plant in Victoria, and incorporation of a new gas scrubber system in the fertilizer unit Piaçaguera, in Cubatão, also contributed significantly to this reduction.

Emissions of particulate matter from fixed-sources, nitrogen oxides (NOx) and sulphur oxides (SOx) do not have a global effect, having limited impact in air quality in areas where operations take place. Vale also monitors emissions of NOx and SOx. [\[4.10\]](#)

<sup>14</sup> Sanding action to reduce the roughness of a material.

In 2013, there was a 20.7% reduction in emissions of particulate matter when compared to 2012.



# Climate Change and Energy

Reducing emissions remains a priority in our sustainability agenda with the Carbon Target, our commitment to reduce Vale's greenhouse gas (GHG) emissions by 5% by 2020.



## Commitments

To reduce GHG emission by 5% by 2020 and influence the value chain in the same way



## Results

Development of projects to reduce GHG emissions

As a result of the training conducted in the previous year, Vale doubled the number of GHG emissions inventories received from suppliers

Today, we are the mining company with the lowest intensity carbon emissions per gross revenue in the market.<sup>15</sup> The location in countries with predominantly renewable electrical grids and the quality of our mineral reserves are contributing factors. We are considered a leader in transparency in carbon management, integrating by the fourth time the Climate Disclosure Leadership Index<sup>16</sup> (CDLI) and

for the fourth consecutive year, our inventory was awarded the Gold seal of the Brazilian GHG Protocol Program.

Guaranteeing energy supply for our operations is a priority. Our own production of energy reaches 60% of the total consumed, favouring renewable sources, energy efficiency and technology.

<sup>15</sup> CDP report, Global 500 Climate Change Report 2013, available at <https://www.cdp.net/cdpreports/cdp-global-500-climate-change-report-2013.pdf>.

<sup>16</sup> Result of the CDP Global 500 Climate Disclosure Leadership Index 2013 available at <https://www.cdp.net/en-us/results/pages/cdp-2013-disclosure-scores.aspx>





## Commitments

To invest in renewable energy sources, energy efficiency and technological innovation



## Results

US\$196.9 million invested in renewable sources projects

Development of seven energy efficiency projects, generating savings equivalent to the consumption of 45,000 homes

### Climate change strategy

The Global Climate Change Mitigation and Adaptation Policy - available at [www.vale.com](http://www.vale.com) - includes our commitments on climate change. We quantify GHG emissions, identify risks and opportunities, and conduct research on initiatives for emission reduction. We reiterate our support for mobilizing sector organizations, governments and companies to address issues related to climate change, and for this purpose, we participate in relevant discussions at forums and trade associations (See other institutional partnerships in chapter Strategic Vision).

### Carbon Target

Reducing emissions is a priority in our sustainability agenda. In 2012, Vale committed to reduce its projected 2020 global GHG emissions by 5%.

To achieve the Carbon Target, energy management is paramount, as highlighted in the Action Plan on Sustainability that sets targets for the reduction of fuel and electricity consumption at Vale's operations (read more in chapter Strategic Vision). We have the support of our operational areas and our research centres on seeking innovative solutions such as carbon capture and diversification of energy sources from renewable sources. GHG reduction projects implemented are described on page 81.

### GHG emissions [EN3, EN4, EN16, EN17, EN29]

In 2013, our total GHG emissions were 15.4 million tCO<sub>2</sub>e<sup>17</sup>, between scope 1<sup>18</sup> (14.1 million tCO<sub>2</sub>e) and scope 2<sup>19</sup> (1.3 million tCO<sub>2</sub>e).

To consistently compare changes in indicators from one year to another, the previous year should be recalculated considering the scope of the reporting year. In 2013, there were interruptions in some units, such as pelletizing plants 1 and 2 in Vitória (ES), the ferronickel plant in Ourilândia do Norte (PA), the furnace shutdown of ferroalloys and demobilization of the Pellet Plant of São Luís (MA) and also the sale of Araucária Industrial Complex (PR). These changes reduced Vale's GHG scope 1 emissions by 6% and scope 2 by 2%. The reduction in scope 2 was not as high as scope 1, as it directly depends on the emission factor of the national electric system. Therefore, even with the interruptions and disinvestment, the reduction in scope 2 emissions was lower.

Vale's GHG emissions are a reflect of the energetic sources profile, composed by 21% of renewable energy and 79% of non-renewable energy, totalling 193,000 TJ. Of the total volume, 154,000 TJ (80%) are related to direct energy, whose main sources of emissions are fossil fuels, such as oil and natural

<sup>17</sup> Tons of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e): greenhouse gas emission measuring unit. It considers the conversion of all types of greenhouse gas based on their global warming potential.

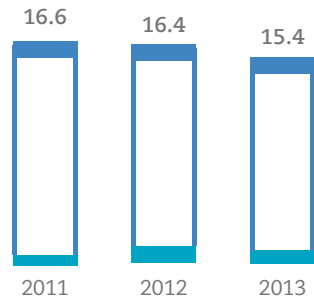
<sup>18</sup> An organization's direct emissions, covering emissions from fuel use and production processes.

<sup>19</sup> An organization's indirect emissions, covering emissions from the purchase of electricity and process steam.



## Greenhouse gas emissions<sup>I</sup> [EN16]

Scope 1 and 2 – million metric tons of CO<sub>2</sub>e

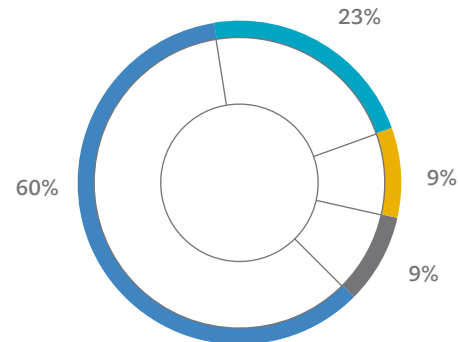


	2011	2012 <sup>II</sup>	2013
Scope 1	15.8	15.0	14.1
Scope 2	0.8	1.4	1.3
<b>Total</b>	<b>16.6</b>	<b>16.4</b>	<b>15.4</b>

- I Total emissions do not consider the renewable portion.
- II 2012 (mobile base year) was recalculated to reflect the divestitures that occurred in 2013.

## Emissions by source<sup>I</sup> [EN16]

Scopes 1 and 2 – Total of 15.4 million tons of CO<sub>2</sub>e



Source	%
Fuel consumption <sup>II</sup>	60%
Industrial process <sup>III</sup>	23%
Fugitive <sup>IV</sup>	9%
Purchase of electricity and steam	9%

- I Agricultural emissions represent approximately 0.2%.
- II Mobile and stationary sources.
- III Pellet burning, nickel and co-products, ferroalloys, ammonia and urea, phosphate rock and nitric acid.
- IV Coal mining, post-mining and use of refrigerant fluid.

### Case

## Vale installs weather radar with cutting edge technology

The Capixaba Hydrometeorological Monitoring Center (CCMH in Portuguese) - a partnership between Vale and the Government of Espírito Santo -, will enable prediction and monitoring of coast weather and tide conditions with the degree of certainty and anticipation required to take preventive actions in case the state is hit by extreme weather conditions, such as strong storms. Completed in 2013, with an investment of more than US\$18.6 million, the CCMH is one of the most modern and efficient monitoring centers in Latin America.

In addition to benefiting the state population, the CCMH will ensure that Port of Tubarão operations and vessels docking and undocking manoeuvres at the terminal are conducted with even more safety.

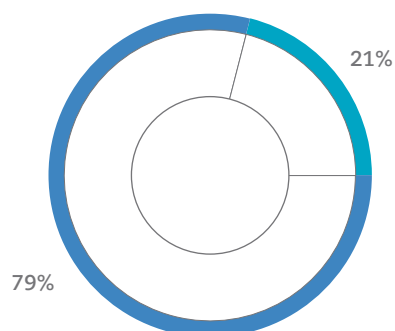
CCMH's structure includes a climate monitoring system with a long-range radar and 25 automatic weather stations that measure temperature, pressure, rainfall, wind speed and direction integrated to a system of satellites for uninterrupted operation. The mathematical processing of climate variables entered into the system will be performed by a computer called supercluster, considered one of the most powerful in the Southern Hemisphere.

For Vale, participation in the initiative is essential to bring more security and reliability to its operations in the state, in addition to supporting the company's strategic guideline to monitor risks and opportunities arising from climate change and contributing to the dissemination of knowledge on the subject.



## Consolidated energy sources [EN3, EN4]

Total of 193,000 TJ



Non-renewable	79%
Renewable	21%

gas. Oil and natural gas consumption are still the most significant, accounting for 45% and 16% of the total energy consumption, respectively. Another important component of our energy sources is electricity consumption (20%, which equals to in direct energy consumption of 39,000 TJ)<sup>20</sup>. [4.11]

### Generation and self-production of electricity

Vale's energy self-production across the world was approximately 60%. We work to ensure energy supply for our operations, focusing on renewable sources, efficient energy and technology. Investment in renewable sources in 2013 totalled US\$196.9 million, distributed among biomass and wind, solar and hydropower energies.

In Brazil, the power grid is based on hydroelectricity. We have equity stakes in 12 hydroelectric power plants and nine small hydroelectric power facilities in operation in Brazil,

<sup>20</sup> The total indirect energy does not account for the generation of electricity from Hydroelectric Power Plants. This volume is consolidated in EN3 and amounts to 10,000 TJ. The total electricity consumption reported in the energy matrix amounts of renewable electricity from the network (14%), non-renewable electricity from the network (6%) and Hydroelectric Power Plants (5%).

## Consolidated energy sources' [EN3, EN4]

<b>Direct energy</b>	80%
<b>Oils</b>	45%
Diesel oil	26%
Other oils <sup>I</sup>	11%
Shipping oils <sup>III</sup>	8%
<b>Natural gas</b>	16%
<b>Coal and coke</b>	9%
<b>Renewable<sup>IV</sup></b>	7%
<b>Other gases<sup>V</sup></b>	2%
<b>Indirect Energy</b>	20%
Renewable electricity from the network	14%
Non-renewable electricity from the network	6%

<sup>I</sup> Other sources not listed that represent together less than 1%: gasoline, methanol, jet fuel, kerosene and steam.

<sup>II</sup> Residual oil, fuel oil, light industrial fuel oil, high sulphur fuel oil

<sup>III</sup> Marine diesel Oil, IFO, MGO.

<sup>IV</sup> Biomass, charcoal, biodiesel and ethanol.

<sup>V</sup> Liquefied petroleum gas, CO RichGas, fuel gas, propane, purge gas, HLR.

Canada and Indonesia, and also in Norte Energia S.A.<sup>21</sup>, a special purpose entity set up to build the Belo Monte hydroelectric power plant, which is expected to be operational in 2015.

In December 2013, Vale entered into an agreement with Cemig Geração e Transmissão S.A. (Cemig GT) to create a joint venture that will host some power generation projects and assets of both companies. The transaction is subject to regulatory approvals and other customary conditions in transactions of these characteristics. For more information on the agreement between Vale and Cemig Geração e Transmissão S.A., see the Form 20-F, available at [www.vale.com](http://www.vale.com).

<sup>21</sup> Vale entered into an agreement with Cemig Geração e Transmissão S.A. (Cemig GT) for the sale of 49% of its 9% stake in the capital of Norte Energia S.A.

Vale seeks alternatives to replace diesel in its operations and invests in the development of fuels such as natural gas and biodiesel.



**Carbon reduction and capture projects** [EN18]

Considering all our initiatives to reduce emissions and implement energy efficiency projects, it was possible to reduce the volume of emissions in 2013 by 1,172 thousand tCO<sub>2</sub>e, as detailed in the aside table.

The projects at units 1 and 2 in Cubatão are registered within the scope of the Clean Development Mechanism (CDM), as established by the United Nations Framework Convention on Climate Change (UNFCCC). Additionally, there was a reduction of 120,000 tCO<sub>2</sub>e in new projects. [Learn more about our carbon reduction and capture projects in the online content.](#) [4.12]

Our 17 RPPNs<sup>22</sup> in the state of Minas Gerais and Vale Natural Reserve in the state of Espírito Santo, store 3.5 million tCO<sub>2</sub> and 9.3 million tCO<sub>2</sub> respectively. This volume is equivalent to more than half of Vale’s annual GHG emissions.

22 RPPNs: Private Reserves of Natural Heritage

Unit	Reduction in thousand tCO <sub>2</sub> e/year
Units 1 and 2 Cubatão (SP): maintenance of projects to reduce N <sub>2</sub> O in nitric acid plants	280
Pelletizing Plants in Tubarão Complex (ES): replacement of fuel oil with natural gas	402
Carborough Downs (Australia): reduction of methane	490
<b>Total</b>	<b>1,172</b>

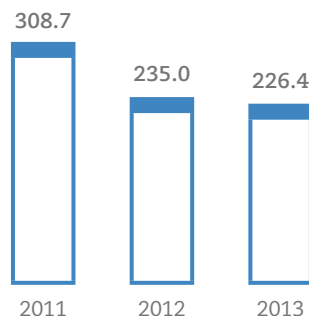
**Climate change**

Vale Institute of Technology (ITV in Portuguese) invests in several research projects related to climate change. Among them:

- Impact of global warming on the distribution of rainfall affecting operations in eastern Amazon and southeastern Brazil;
- Climate change forecast;
- Characterization of seasonal rains in the areas of operations situated in northern and southeastern Brazil;
- Mapping carbon stored in the Amazon Rainforest and measurement of carbon flux in the ocean.

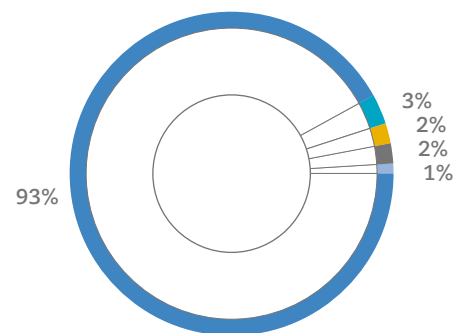
## Indirect GHG emissions [EN17]

Scope 3 – million tons of CO<sub>2</sub>e



## Indirect GHG emissions<sup>1</sup> [EN17]

Scope 3 – Total of 226.4 million tons of CO<sub>2</sub>e



### Type

Processing of products	93%
Mobile sources used	3%
Purchasing of materials and services	2%
Use of products	2%
Purchasing of energy inputs	1%

<sup>1</sup> The categories purchase of capital goods, employees air travel and ground transportation hired, showed no significant emissions.

### Suppliers engagement

We seek to influence our suppliers on issues related to climate change. Since 2011, 182 companies participated in training on greenhouse gas emissions inventories. We also held the Second Forum on GHG Management for suppliers with the purpose of sharing best practices and discussing challenges. We incorporated to our standard contracts a voluntary clause concerning the provision of GHG emissions inventory. In 2013, the number of suppliers who sent in their inventory doubled.

Regarding our emissions along the value chain, it is estimated an emission of about 226.4 million tCO<sub>2</sub>e, as shown above.

### Risk management [EC2]

Vale's risks on climate change are monitored and classified as physical, regulatory or other. The information is published annually in the CDP questionnaire<sup>23</sup>. We also monitor legislation to contribute with the creation of new regulatory frameworks. We investigate new opportunities

<sup>23</sup> The Carbon Disclosure Project (CDP) is an international non profit organization that has developed a global system for companies and cities to measure, publish, manage and share information on emissions and other environmental topics. Source: CDP website.


related to identifying solutions for effective emissions reduction in order to contribute to the growth of associated carbon markets. [\[4.13\]](#)

### Energy Efficiency [EN5, EN7]

Energy management is a relevant topic for Vale. We promote the conservation and rational use of energy resources through different initiatives, such as mapping and implementing opportunities to reduce consumption, both in existing operations and in capital projects, adopting energy management tools, reviewing and preparing technical documents and holding workshops and forums to mobilize various areas of the company to adopt technical measures that result in less energy consumption.

In 2013, investments in energy efficiency projects totalled US\$2.3 million, including engineering services in operations and capital projects. 27 projects were identified for a portfolio of improvements and the seven most attractive were prioritized. Altogether, these projects represent annual savings of US\$2 million, by reducing diesel annual consumption by 1.7 million litres and electricity by 7,000 MWh - equivalent to the consumption of approximately 45,000 homes. These projects also contribute to the reduction of GHG emissions by almost 5,200 tCO<sub>2</sub>e (direct emissions of 4,500 tCO<sub>2</sub>e and indirect emissions of 670 tCO<sub>2</sub>e).

Mapping of opportunities to reduce energy consumption allows us to identify areas with the greatest potential to develop strategic actions, such as in material transportation systems (pumping and conveyor belts), utility systems (ventilation, water withdrawal and compressed air) and thermo-intensive systems (furnaces, boilers and burners).

The implementation of the Energy Information System at the Vitória pelletizing operations and at Vale Fertilizantes enabled a detailed monitoring of energy performance of these units, in addition to mapping opportunities to reduce consumption. 

[4.14]

### **Biodiesel**

The North Biodiesel project is part of our strategy to diversify the energy sources, especially due to the fact that Vale is a major consumer of diesel, accounting for approximately 3% of the Brazilian consumption. Almost half of the diesel is consumed in the Brazilian Northern Region, where the large mining expansion projects are located.

The construction of a plant to produce biodiesel for internal use at the operations of the North System will meet the demand of the equipment of the Carajás mining complex and trains of the Carajás Railway. In 2013, we completed the cycle of studies and engineering design of the plant, whose projected production capacity is 200,000 tons of biodiesel per year.

By 2016, it is expected to start the plant operations and use of B20 (a mixture of 80% diesel and 20% biodiesel), a pioneer initiative in Brazil, where the mandatory biodiesel percentage is 5% (B5). Depending on the technical limits of the equipment, it will be possible to use B25 (a mixture of 75% diesel and 25% biodiesel). The use of biodiesel will reduce emissions of greenhouse gases, contributing significantly to Vale's Carbon Target.

To maintain an integrated chain - key condition in the production of biodiesel- in early 2011 we acquired the shareholding control of Biopalma, the company responsible for palm plantation and oil extraction. Palm planting and deployment of extracting units is already underway - the first plant, located in the municipality of Moju in the state of Pará (Brazil), was inaugurated in June 2012. The second extraction plant, that is expected to be operational by 2014, will be located in Acará municipality, also in Pará. Its maximum processing capacity will reach 560 metric tons of fruit per hour.

To enable production of biodiesel we expanded the palm plantation area to approximately 60,000 hectares, considering our own planting and family agriculture. The goal is to reach a total planting area of 80,000 hectares by early 2015.

The production of palm oil is an important vector for social inclusion in the region, through the generation of jobs and income. Palm cultivation requires intensive workforce, and, in 2013, generated approximately five thousand direct jobs. By 2017, Biopalma will have six thousand direct employees. The first oil extraction plant has 250 employees, many of them trained through internal training programs and selected in the projects area of influence. The scope of training is significant, particularly in safety, occupational health and management techniques.

The family agriculture program reinforces the project's social inclusion proposal, strengthening a model of socioeconomic development that has significant positive impacts on improving the quality of life of the population in the areas directly and indirectly affected by the project. The project has the support of the National Program for Strengthening Family Agriculture (Pronaf in Portuguese) and has a participation target of 2 thousand families by 2015.

In 2013, we continued our investment in research and development of alternative energy, focusing on biomass. A noticeable project is the sugarcane genetic improvement, another source of biomass that shall contribute to increase our renewable energy sources.



# Water

We invest in technologies and actions to control total water consumption, losses and effluents, besides increasing reuse.

The United Nations (UN) declared 2013 as the International Year of Water Cooperation. Throughout the year we developed activities to highlight the importance of water resources management and strengthen employee engagement on sustainable use of water and its importance for business and company operations.

The impact on water resources is inherent in the mining process. To ensure the conservation, protection and quality of water resources, we develop initiatives that go beyond compliance with legal requirements, and strengthen our commitment that goes beyond reducing the use of new water.

The initiatives reflect our alignment with different cooperative efforts related to water management, thereby contributing to guaranteeing multiple present and future uses. Out of our total environmental investments in 2013, 12.4% was allocated to water resources management (US\$126.2 million).

## New challenges [PI4.17]

We promote the development of processes that require the least possible use of water, such as ore processing using its natural moisture. We also believe that reuse and recycling actions are important to reduce new water withdrawal, and also to improve management of the subject.

Some units have established specific demand reduction targets, which consider withdrawing a smaller volume of water per ton moved or produced in accordance with the Action Plan on Sustainability (learn more on table on page 24).

## Olhos d'Água Program

This project will recover almost 500 springs of the Capim River in Aimorés (MG). They are part of the Doce River basin, which extends between Minas Gerais and Espírito Santo.

Terra institute is responsible for the development of the work, which includes reaching the community through lectures, the adaptation of 300 rural properties into a sustainable model and the construction of 180 septic tanks on farms to protect the soil and water from contamination.

## Analysis, regulations and monitoring

The Water Resources Management Instruction is our main normative document. It sets out principles, guidelines, tools and responsibilities for the proper management of water.

In 2013, we also released an internal document with guidelines for selecting equipment that is more modern and suitable for processes, resulting in a more efficient monitoring of the flow of water and effluents.

Improvement of programs and monitoring equipment, besides facilitating the identification of waste and of potential improvement, it increases reliability of data reported by units, and is one of the factors that contribute to the reduction of total water demand in the company.

Around 500 projects were developed at the 794 points identified as priority to monitor flow in the units of São Luís, Carajás, Itabira, Mariana, Vargem Grande, Azul Mine, Sossego, Itabirito, Paraopeba, Vitória, Corumbá and Bayóvar.





## Challenges

Guarantee the harmonious coexistence with stakeholders on water use

Use technology to reduce the demand for new water in operations



## Results



Participation in river basin committees and water resources councils, collaborating on discussions on the use and management of water resources

Application of new technologies in the process of beneficiation of iron ore in Pará

### Integrated Monitoring Network

In 2012/2013 an integrated network was developed to monitor the quality of water in five complexes and 14 operations of the Ferrosos Sul department, located in the Velhas and Paraopeba river basins in Minas Gerais (Brazil) effluents of the São Francisco River. This region has the highest number of Vale's units and is the third in Brazil in terms of volume of water withdrawn.

Among the results, we highlight the optimization of existing monitoring networks, either in number of sampling points, as well as in parameters and environmental conditions of the projects. Based on this integrated network, we developed a proposal for Network Monitoring Associated with the Mining Institute of Water Management (IGAM in Portuguese), the water resource management agency of Minas Gerais, which approved the network project.

The main benefits of the initiative are reducing the cost of monitoring, greater regional knowledge, transparency and credibility with environmental agencies.

### Water footprint

In 2013, we conducted further studies on the water footprint indicator on iron ore produced in Carajás. Currently, there are numerous methodologies for calculating water footprint and an ISO standard is under development. While the standard does not define the methodology to be used, it sets the rules for structuring a study for this purpose.

The lack of consensus on a single methodology and on the effective gains on the introduction of this indicator - both for internal management and public agencies planning - demonstrates that the topic still needs to go through a long debate.

### Multiple use of water <sup>[505]</sup>

We follow global and local discussions on water and liaise with government entities with the aim of anticipating trends and participating of regulatory changes.

In Brazil, the Water Resources Policy determines that River Basin Committees (CBH in Portuguese) are responsible for discussions on the priorities of water use, conflict management and approval of plans for water resources in river basins. There are 39 operating units located in Brazilian basins that have River Basins Committees. Of this total, we participate in 33 committees that include the four river basins out of which we have the greater demand of new water: Cubatão, Araguari, Piracicaba and das Velhas.

### Case

## Economy in washing the passenger train

A new system is bringing more agility to the process of cleaning wagons, with savings of up to 60,000 litres of water per month - equivalent to the average monthly consumption of three families in Brazil.

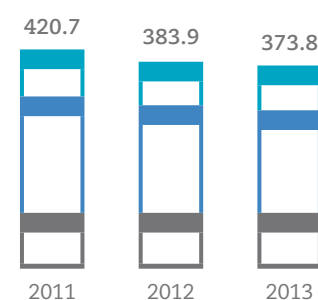
The equipment was installed at the wagons garage in Porto Velho (ES), on the Railway Vitória-Minas, and it is similar to a common car washer. Automatic brushes and soap and water jets do the cleaning. All water used comes from alternative sources: 70% of the effluents are filtered and sent back to the system, and 30% comes from rainwater, which is stored in a reservoir at the garage.





## Total water withdrawn by source <sup>[EN8]</sup>

In million m<sup>3</sup>/year

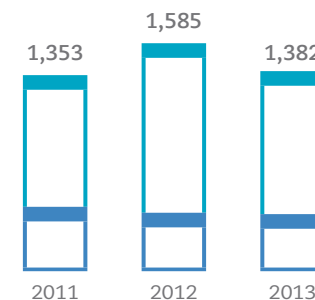


	2011	2012	2013
Ground source	101.0	92.6	96.1
Surface source	251.1	231.0	220.3
Other <sup>I</sup>	68.6	60.3	57.4
<b>Total</b>	<b>420.7</b>	<b>383.9</b>	<b>373.8</b>

<sup>I</sup> Captured rainwater, piped water supplied by water companies and water from other organizations. Water from surface or underground surfaces withdrawn exclusively for use by third parties is also included in this category.

## Total volume of water recycled and/or reused + withdrawn water <sup>I,II</sup> <sup>[EN10]</sup>

In million m<sup>3</sup>/year



	2011	2012	2013
Recycled and/or reused water	953 (70%)	1,227 (77%)	1,035 (75%)
New water	400 (30%)	358 (23%)	347 (25%)
<b>Total</b>	<b>1,353</b>	<b>1,585</b>	<b>1,382</b>

<sup>I</sup> To calculate the percentage of recycled and/or reused water for this indicator, the total volume of water withdrawn does not include withdrawal for third party use. Hence, the value is different from the value presented in the graph which records total water withdrawn per source.

<sup>II</sup> In general, data is obtained by direct measurement, except in certain operations for which estimates analyzed according to their water balances are conducted. Vale has been working on continuous improvement of measurement procedures.

In 2013, in addition to maintaining our participation in the Water Resources Network of the National Industry Confederation (CNI in Portuguese) of Brazil, we also occupied the vice-chair of the Water Thematic Chamber of the Brazilian Business Council for Sustainable Development (CEBDS in Portuguese), representative of the World Business Council for Sustainable Development (WBCSD), further reinforcing our intention to act in cooperation with other users of water resources.

To promote the exchange of experiences and disseminate best practices, we identified our representatives on committees and councils.

As shown on the map <sup>24</sup> on the next page, less than 10% of our operations are located in areas of high or extreme risk of water stress. They are responsible for approximately 7% of the total volume of water withdrawn by the company. Out of the ten operations with greatest water withdrawal in 2013, eight are located in regions with a below average water stress risk rating.

<sup>24</sup> Data generated using the World Resources Institute's Aqueduct tool and indicators reported in this report. [www.aqueduct.wri.org](http://www.aqueduct.wri.org)

There are four operations located in regions of high or extreme risk. In 2013, 56% of the new water demand for these operations were supplied by sea water, withdrawn in Peru. The operation in China had 99% of its water demand met by water reused from the unit itself.

### Capture and recirculation <sup>[EN8, EN9, EN10]</sup>

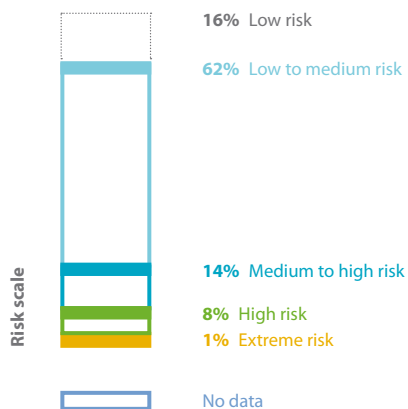
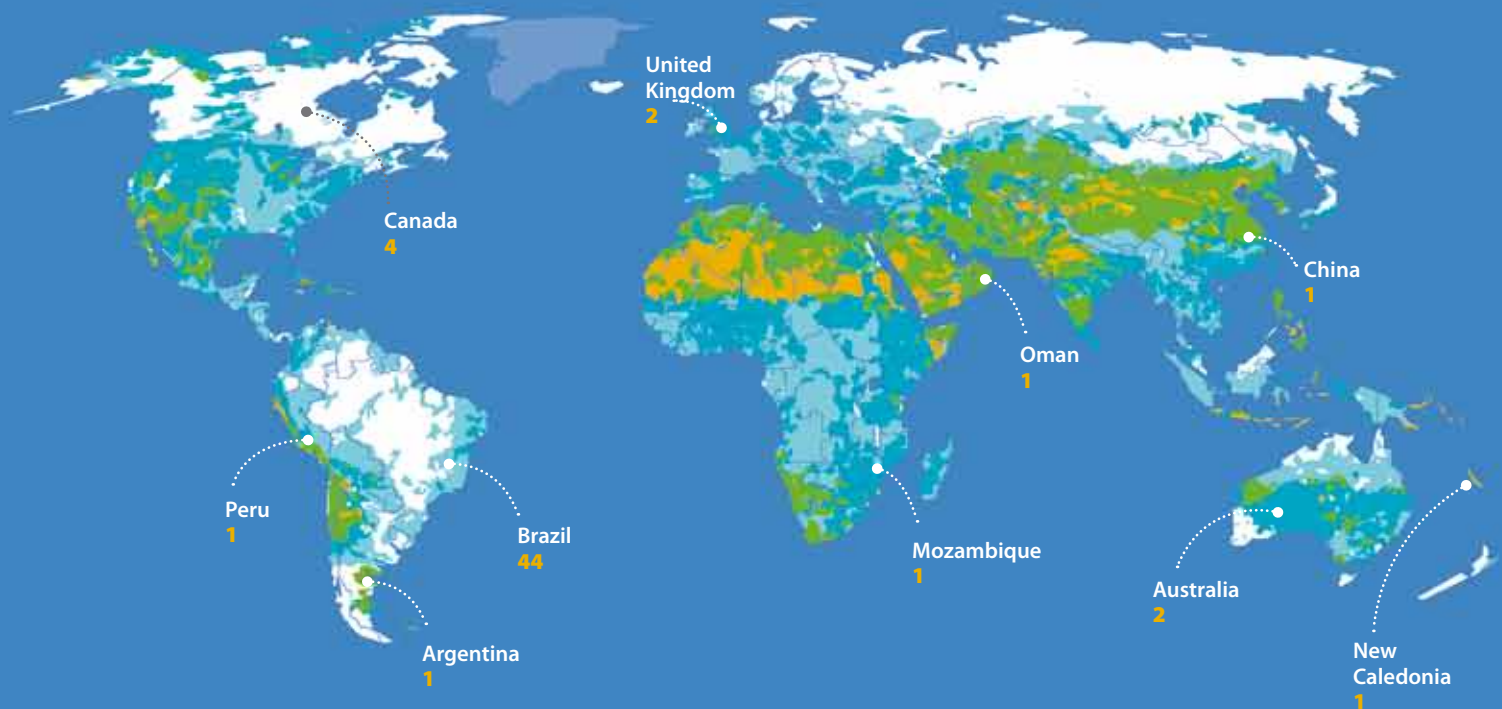
In 2013, new water withdrawal at Vale was reduced by approximately 3% compared to the previous year, or 10 million m<sup>3</sup>, with a reuse rate of 75%. We stopped withdrawing approximately one billion m<sup>3</sup> of water from natural sources.

Although the reuse percentage is lower when compared to 2012 (77%), if the same reporting scope <sup>25</sup> is considered the results show a 1% increase.

Considering the total water demand (withdrawn water and recycled water), there was a 13% reduction over the previous year (information on our effluents in the online content). [\[4.15\]](#)

<sup>25</sup> To assess actual indicator performance, the following areas were not considered: São Luís Pelletizing Plant, Araucária Industrial Complex, Broadlea and Tres Valles, that left our portfolio in 2012.

# Location of Vale's operations and water stress risk areas<sup>1</sup>



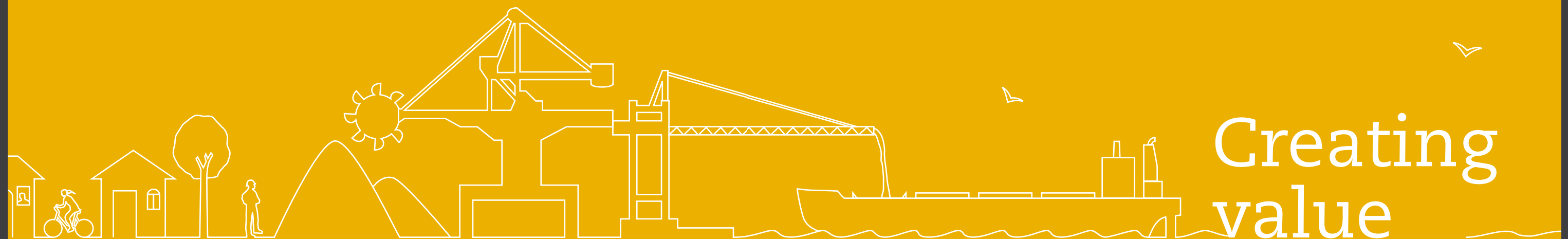
## 99%

of the water demand of Vale's operation in China is supplied by reuse water from the unit itself.



Out of the ten Vale operations with higher water withdrawal, eight are in regions classified as below medium risk.

<sup>1</sup> The difference in the total number of operations shown on the map in relation to 2012 is due to the change in the analysis methodology and the sale of assets in Brazil and Chile.



## End-to-end responsibility

We create value by promoting the sustainability agenda, the development of suppliers and by the results we deliver



# Value chain

We seek to influence the supply chain in promoting the sustainability agenda, promoting best management practices and the commitment to respect the human rights.

To enhance both the development of regions where we operate, as well as our suppliers, we continue with the guideline of providing more autonomy to business areas and encouraging local purchases.

We strengthen relationships with our customers and seek operational excellence to improve the quality of our products. Through innovative solutions, we seek to meet the expectations of our business partners and enter new markets. At the same time, we invest in reducing environmental impacts and in health and safety.

## **Pig iron** [PI4.17]

For Vale it is fundamental to raise the awareness of the supply chain to the importance of sustainable production of charcoal, aiming at eliminating practices and activities that violate labour rights or cause damage to the environment.

In 2013, the Brazilian Steel Institute (IABR in Portuguese) requested the Brazilian National Standards Organization (ABNT in Portuguese) to open a process for creating a certification to address the sustainability issues and requirements linked to the production of charcoal-based pig iron. The initiative is the implementation of the first phase of the program included in the Charcoal Sustainability Protocol, created by the steel companies under the auspices of the Brazilian Steel Institute (IABR), and had the support of Vale in 2012.

A study committee was created to verify sustainability issues to be met in the production of charcoal-based pig iron, from the origin of wood and charcoal, including good production practices, environmental control and monitoring measures and systems and other sustainability criteria. Vale participates in the committee contributing technically with the studies.

## **Promotion of the sustainability agenda** [PI4.17, HR1, HR2, HR6, HR7]

In 2009, the Suppliers Code of Conduct<sup>1</sup> became part of the process to register all new suppliers of Vale in Brazil, and currently 100% of the companies that sell materials, equipment and services associated with the operation adhere and share the principles in the document.

Besides contributing for its partners to be aligned with the company's values and practices, the code mobilizes companies to act based on internationally recognized documents such as the Guiding Principles on Business and Human Rights<sup>2</sup> and the Universal Declaration of Human Rights, both from the United Nations (UN), Agenda 21, the Millennium Development Goals, and the International Council on Mining and Metals, as well as the guidelines of the International Labour Organisation (ILO).

<sup>1</sup> Available at [www.vale.com](http://www.vale.com)

<sup>2</sup> Prepared by John Ruggie, special representative of the UN General Secretary for business and human rights.



Picture: Marcelo Coelho

Ship loading at the Port of Sohar, Oman.

In addition, since 2010, we have included a sustainability clause in contracts with suppliers in Brazil. This clause binds companies to comply with the Suppliers Code of Conduct, the Sustainable Development Policy and Vale's Human Rights Policy. The proposal is that this aspect is also included in supplier's contracts in other countries where we operate.

Our suppliers must respect several commitments on issues such as health and safety, environment, human rights and local labour, fiscal and tax laws. All employees hired by suppliers must have a contract governed by local labour laws. We also require that the supply chain (supply and customers) respect the Convention 138 of the International Labour Organisation (ILO), which is the minimum age for admission to employment.

In the process of registering suppliers on Vale's internal dependencies we check whether companies meet their legal obligations and if they have pending matters before the National Social Security Institute (INSS in Portuguese) and the Government Severance Indemnity Fund for Employees (FGTS). Companies with irregularities and that are not willing to resolve them are not registered in Vale's list of suppliers. The area of supplier management monitors companies'

The relationship with our suppliers encompasses three stages: certification, based on the company's values, evaluation of compliance with legal and contractual obligations, and monitoring companies' economic and financial health.

performance, as well as its economic and financial health.

We also monitor the list published by the Ministry of Work and Employment (MTE in Portuguese) that identifies companies and individuals reported for possible occurrences of forced labour. In 2013, three suppliers active in our database were identified in this list. We had not conducted any commercial transactions with them in that period and new acquisitions are blocked with these companies.



Child labour, forced or compulsory labour, and exposure of young people to hazardous work are an inexistent risk in Vale's internal areas

Through a strategic management panel of risks of violation of human rights, we identified locations with higher inherent risk of child labour, forced or compulsory labour. Both issues are addressed with the value chain, in all the risk management tools and human rights processes in our projects and operations.

Moreover, in 2013, a module of sustainability was prepared to compose the existing process of suppliers' risk analysis. The module deals with environmental risks, health and safety and human rights, including child labour and forced or compulsory labour. A pilot application is currently being held.

Vale participates in national and international forums that discuss the subject, such as the working groups of the Ethos Institute, the International Council on Mining and Metals (ICMM), the Global Business Initiative (GBI), the Business for Social Responsibility (BSR) and the United Nations Global Compact (UN).

Since 2008, we have included clauses in contracts with clients in Brazil allowing it to terminate iron ore supply contracts if there is evidence of non-compliance with obligations relating to environmental protection, and the non-use of child or slave labour. At the end of 2013, Vale resumed its support to the Citizen's Coal Institute<sup>3</sup>.

Considering the analysis of the suppliers of products and services that are critical<sup>4</sup> in matters related to human rights in Brazil and the methodology of the Global Reporting Initiative (GRI), in 2013 there was no violation of human rights in any of Vale's 195 contracts

In case of human rights violations - duly proved by government authorities and through instruments provided for in legislation - the supplier, partner or

customer is notified and instructed to take corrective measures. If such companies fail to adopt these measures, disciplinary measures are imposed on the company, and their business relationships with Vale may be terminated. New acquisitions are immediately blocked with identified suppliers, and the supplier is subject to unsubscribe from Vale's supplier database.

Risks and social impacts are of the utmost importance for strategic decision making during mergers and acquisitions<sup>5</sup>. Among the topics assessed the commitment to respect for human rights is included.

Regarding Health and Safety, in 2011 we initiated a program of engagement of the leading suppliers in the areas of construction, automakers and managers.

Companies that worked on capital projects and current projects participated in the Zero Harm Collaborative Workshop. Because of the success of the initiative with partners, this was applied to other categories: transport, internal handling, railway maintenance and during long periods of operation interruption.

More than 100 companies attended the workshops, which have contributed with 1,195 ideas to achieve zero harm, of which 55 were prioritized and are monitored periodically. As examples, there is the creation of an environment for the exchange of lessons learned and best practices among the company's partners (online platform), and the awareness and implementation of policies on alcohol and drugs consumption for suppliers. In 2013, four workshops were held.

We are aware that this is a long-term job and maintaining our suppliers engaged is the company's responsibility. Therefore, these partner companies are periodically invited to discuss the results of the program and to watch presentations of best practices and lessons learned.

<sup>3</sup> The Citizen's Coal Institute's mission is to promote social responsibility, ensuring ethics, peace and citizenship, assuring the dignity of the worker in the pig iron production chain of Carajás Industrial Complex.

<sup>4</sup> Suppliers with contracts effective in 2013, performing corporate security and supply of food, wood and textile products. Sporadic supplies were not considered.

<sup>5</sup> In 2013, there was no assessment for merger and new acquisition processes.





## Commitments

Promote the sustainability agenda between suppliers and customers

Develop suppliers where Vale operates



## Results

Strengthen contractual commitments on sustainable development

---

100% suppliers in Brazil assessed quarterly

---

More autonomy for business areas and promoting local purchases

---

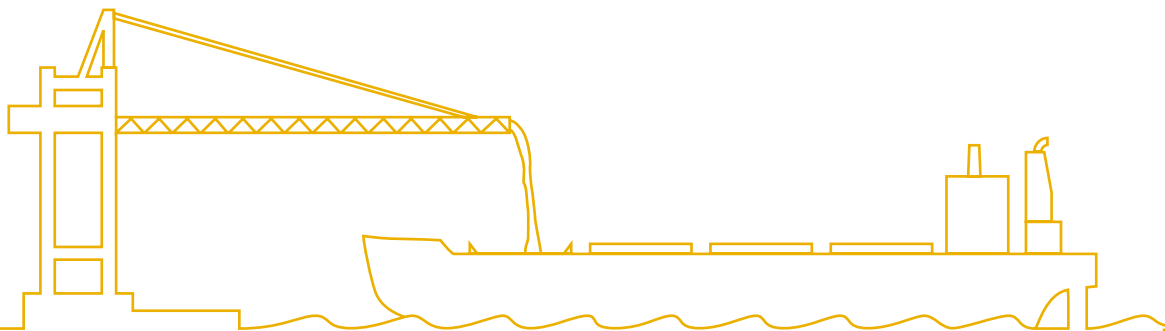
Training of suppliers in various topics, such as inventories of atmospheric emissions

We also mobilized our value chain to reflect on climate change. Through the Greenhouse Gas (GHG) Emission Management program, we encourage our suppliers to reduce their impact and create long-term value. We promote training that help companies establish their emission inventories, improve management of the topic and perfect their practices.

This initiative is part of the Vale Carbon Program, which is part of the company's Climate Change Mitigation

and Adaptation Policy including different preventive actions for global warming. Contracts between Vale and its suppliers already include a voluntary clause concerning the establishment of a GHG inventory.

In 2013, we also held the second Forum on GHG Emission Management for suppliers, with the purpose of sharing practices on the preparation of GHG Emission inventories and the challenges faced ([read more in chapter Climate Change](#)).



### Development of local suppliers <sup>[EC6]</sup>

We are committed to developing local suppliers in order to boost the economies of regions where we operate and to qualify and encourage companies to operate in an increasingly competitive market.

We redesigned its processes in major operations in Brazil to provide more autonomy to the business areas and encourage local purchases. These changes include structuring certain purchasing solutions and contracts to make them more agile.

One of our initiatives to strengthen our supply chain is its local content program (Inove), which aims to develop local suppliers through training, credit lines and business incentives. In 2013, around US\$415 million were awarded in funding and loans. In addition, more than 700 companies participated in classroom and distance learning courses.

In 2011 and 2013, in partnership with the Brazilian Service to Support Small and Micro Companies (Sebrae Nacional), the program trained several companies, helping them to identify opportunities to enhance their management and become more competitive. In 2014, we plan to renew this agreement for another two years, expanding it to other suppliers.

In 2013, to stimulate the identification of new local suppliers, we conducted the Vale de Portas Abertas (Vale Open Doors) event targeted at civil work and electromechanical assembly Brazilian companies. It was conducted in two stages: the first part in Belo Horizonte, with 44 companies, and the second part in Belém, with 17 companies in the states of Pará and Maranhão. During the event, suppliers became familiar with our demands per product and service, in addition to our key processes and health and safety guidelines.

### Supplier performance

The Supplier Performance Index (IDF in Portuguese) is part of a quarterly program that evaluates services and materials suppliers in the following categories: technical aspects, health and safety, environment, compliance with legal and labour obligations and sustainability. We created an action plan for suppliers whose performance is below expectations, which is monitored in the following cycle, to assess the progress of the expected results. In 2013, we initiated a comprehensive review of indicators and questionnaires used by the program to make them conform to the reality of the market and increase benefits.

#### Case

## Sustainable disposal of waste tires

In 2013 Vale eliminated the stock of truck tires from operations in the ferrous mines of South and Southeast systems, action directly associated with focus on management of non-mineral waste and the commitment to mitigate impacts generated by the production process.

This was possible through a partnership with companies that purchase discarded truck tires (dump and off-road trucks). When recycled this material goes through a grinding process to become the raw material to manufacture different rubber parts, such as vehicles suspensions, boots soles and heels, and other products used in mining operations.

Another step was the agreement with a partner that developed a Brazilian technology in partnership with Vale to process tires into flooring boards to replace plates of cast iron or steel.

Using tires to replace other non-renewable raw materials, contributes to the development of a new market with environmental benefits and reduction of the volume of tires destined to landfills, contributing to the economy of the fuel used in the transportation, and eliminating possible dengue sources.



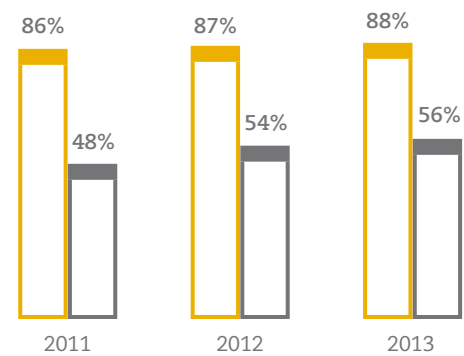
The Supplier Performance Index is also used to help generate a ranking of our best suppliers, which are given awards each year by the Supplier of the Year Award. Since 2012 the category Outstanding Sustainability awards companies that had the best combination of social, environmental and economic actions. Through such initiatives, we expect to mobilize suppliers to adopt Vale’s policies and guidelines for sustainability. [5.01]

**Customers** [PI4.17, PR2, PR5, PR7, PR9, MM11]

Vale’s business are conducted primarily with other companies businesses (business to business), and not with final consumers (business to consumer). Therefore, our communication strategy prioritizes specific actions for corporate customers.

We use Life Cycle Analysis (LCA) to develop and deploy new products, identifying opportunities for eco-efficiency and assisting in decision making. In this process, the following aspects are taken into account: energy consumption, greenhouse gas emissions, water consumption, effluent generation, toxicity, ecotoxicity and land use. [5.02]

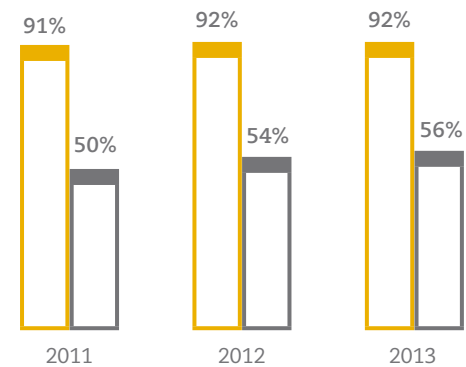
Percentage of local purchases in monetary values – global results [EC6]



Average percentage of purchases in the country

Average percentage of purchases in the state/region

Percentage of local purchase in monetary values – Brazil [EC6]

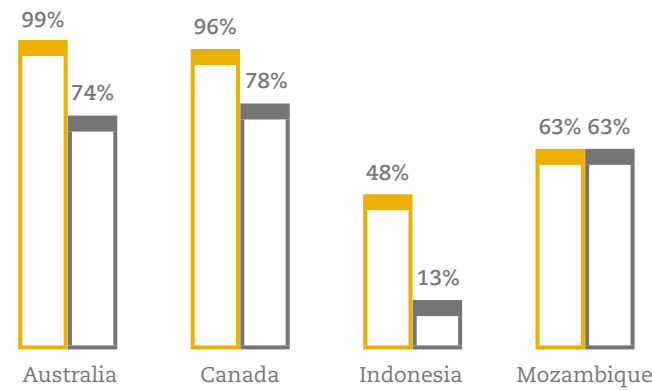


Average percentage of purchases in Brazil

Average percentage of purchases in the main states<sup>1</sup>

<sup>1</sup> The average percentage considers purchases made by major operations in Espírito Santo, Maranhão, Minas Gerais and Pará.

Percentage of local purchase in monetary values – other countries [EC6]



Average percentage of purchases in the country

Average percentage of purchases in the main provinces/states

# Value added

In a year where the global economy grew at below-trend rate, Vale worked to lay the foundation that will enable a higher volume and free cash flow<sup>6</sup> growth in the coming years.

At the same time, the company delivered a solid financial performance, with record sales of iron ore and pellets, copper, gold and coal, and the third largest cash generation of its history.

Results obtained come from our cost-cutting efforts, discipline in investments and focus on core business, strengthening the relationship between high quality and low operating cost, as one of our strengths in the market. In 2013, there was a substantial reduction in costs and expenses compared to 2012, even with increased volume of sales.

The total amount distributed to shareholders was US\$4.5 billion, with the commitment to distribute at least US\$4.2 billion in 2014. Vale's basic earnings<sup>7</sup> was US\$12.3 billion in 2013, 15.4% more than in 2012. The net income attributed to the company's shareholders, in turn, was US\$584 million and in 2012, US\$5.5 billion. The decrease is in part due to the entry of the company in federal taxes refinancing system in Brazil (Refis), which led to the resolution of the dispute concerning the income tax and social contribution on income of its foreign subsidiaries. The resolution of this issue allows us to concentrate efforts on key strategic and operational aspects of our business.

Vale's sales volume was a record for iron ore and pellets (305.6 Mt), copper (353,000 t), gold (297,000 ounces) and coal (8.1 Mt), in addition to having sold more nickel (261,000 t) since 2008. The production, in turn, was a record for copper (370,000 t), gold (286,000 ounces), coal (8.8 Mt), phosphate rock (8.3 Mt). Nickel, obtained the highest annual figure since 2008 (260,000 t).

The year also marked the completion of projects necessary for the growth of iron ore production in the years 2014-2016, receipt permits for the implementation of S11D project and its logistics and early ramp-up of basic metals projects (Salobo I, restart of Onça Puma and continuous advances in New Caledonia). Important projects like the Long Harbour and Totten were also completed, ending a cycle of investment that will enable achieving our goal of generating US\$4-6 billion in the coming years.

We also made positive progress on the discussion regarding caves with recent authorization to mine additional N4E mine areas, supporting the annual production target of 120 Mt in Carajás in 2014, and increasing the confidence in the growth program for 2015 and 2016.

To learn more about our results, access the Report 20-F, available in [www.vale.com](http://www.vale.com), Investors section.

<sup>6</sup> Free cash flow is the movement of cash in operating activities adding capital investment made.

<sup>7</sup> Basic earnings are calculated without taking into account the exchange variation or non-recurring financial impacts, as in the case of Vale in 2013, with the purchase of Refis.





## Economic value generated and distributed'<sup>[PI2.8, EC1]</sup>

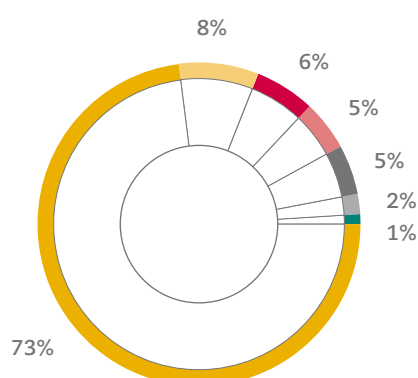
In US\$ million

	Brazil	South America, except Brazil	Canada	North America, except Canada	Australia and Asia	Europe	Africa	Total
<b>Direct economic value generated</b>								
Revenues	40,201	403	4,404	222	1,943	267	380	47,820
<b>Economic value distributed</b>								
Operational costs	17,016	757	3,475	232	2,226	364	710	24,780
Employees' salaries and benefits	2,842	54	1,011	4	421	57	64	4,453
Payments to capital providers	9,991	–	–	954	–	–	–	10,945
Payments to the government	9,227	194	(259)	(1)	78	73	(10)	9,302
Spending in the community	187	1	15	0	33	1	28	265
<b>Total</b>	<b>39,263</b>	<b>1,006</b>	<b>4,242</b>	<b>1,189</b>	<b>2,758</b>	<b>495</b>	<b>792</b>	<b>49,745</b>
Economic value generated minus economic value distributed	938	(603)	162	(967)	(815)	(228)	(412)	(1,925)

<sup>1</sup> The accounting standard used is that of USGAAP, with some adjustments, as established by the GRI methodology: in addition to gross operating revenue, revenues in the table include financial income and income from the sale of assets.

## Revenue by product

Total of US\$46.8 billion

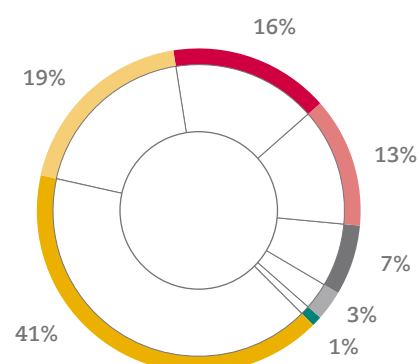


### Type

Iron ore pellets	73%
Nickel	8%
Fertilizers	6%
Copper	5%
Coal	2%
Manganese and ferroalloys	1%
Other	5%

## Revenue by destination

Total of US\$46.8 billion



### Type

China	41%
Europe	19%
Asia excluding China	16%
Brazil	13%
Americas excluding Brazil	7%
Middle East	3%
Rest of the World	1%

## Production volume <sup>[PI2.8]</sup>

In thousand metric tons

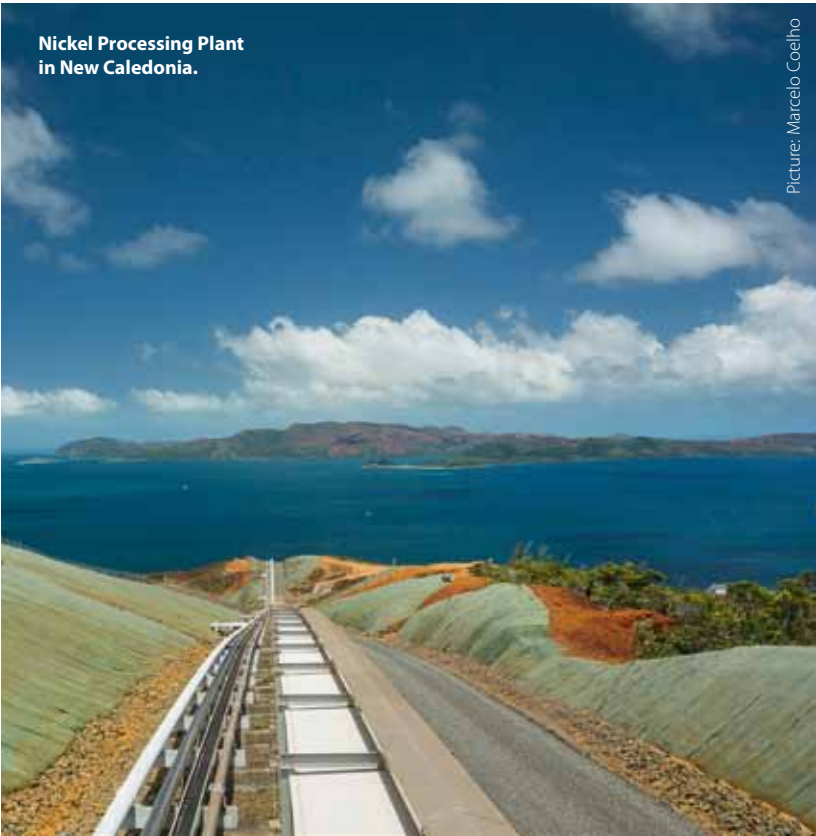
Product	2012	2013
Iron ore <sup>1</sup>	319,960	310,682
Pellets	55,067	49,558
Manganese ore	2,365	2,378
Ferroalloys	390	176
Metallurgical coal	5,083	6,885
Thermal coal	1,999	1,878
Nickel	237	260
Copper	292	370
Cobalt (metric tons)	2,343	3,532
Platinum (thousand troy ounces)	134	145
Palladium (thousand troy ounces)	251	352
Gold (thousand troy ounces)	165	286
Potash	549	492

Product	2012	2013
<b>Phosphate</b>		
Phosphate rock	7,982	8,277
Monoammonium phosphate (MAP)	1,201	1,128
Triple superphosphate (TSP)	913	905
Single superphosphate (SSP)	2,226	2,102
Dicalcium phosphate (DCP)	511	444
<b>Nitrogen</b>		
Ammonia	475	347
Urea	483	219
Nitric acid	478	416
Ammonium nitrate	490	419

<sup>1</sup> Including Samarco production attributable to Vale at 50%.



In 2013, excluding the Research and Development (R&D), we invested a total of US\$14.2 billion, 12,1% less than in 2012 when we invested US\$16.2 billion.



**Focus on value generation**

The commitment to the sustainability of our operations is reflected in investments of US\$1.28 billion in this area. Of the total, over almost US\$1 billion was allocated to environmental protection and conservation and US\$265 million to social projects (read more in chapter Strategic vision).

Throughout the year, we continued with the non-core assets disposal program. During this period, US\$6.0 billion<sup>8</sup> non-core assets were generated, reinforcing the company’s commitment to simplifying its asset portfolio and focusing management attention to complete ongoing projects and deliver volume growth.

We continue to focus on value generation and committed to use free cash flow to reduce indebtedness. With this, we will be able to distribute increasing dividends to our shareholders and share value with stakeholders. We know that there is still much to be done, but we believe that results and actions presented in this report indicate that Vale is following the right path.

**Investments by type<sup>I</sup>**

In US\$ billion

	2012	2013	2014 <sup>II</sup>
Execution of projects	11.6	9.6	9.3
Maintenance of ongoing operations	4.6	4.6	4.5
<b>Total</b>	<b>16.2</b>	<b>14.2</b>	<b>13.8</b>

- I Expenditures with Research and Development (R&D) were not included.
- II Estimated value of budgeted investment.

<sup>8</sup> Including the VLI sale (US\$2 billion), still subject to the approval of the relevant government bodies.



## Indicators remissive index [6.01]

Indicator	Global Compact Principle	ICMM Principle	ISE Dimension	Page
<b>Strategy and analysis</b>				
1.1 Message from the CEO and Board of Directors	—	2, 10	1, 3	4-7
1.2 Description of key impacts, risks and opportunities.	—	4	1	10, 18, 30 and [4.13]
<b>Organizational profile</b>				
2.1 Name of the organization	—	10	1	8
2.2 Primary brands, products or services.	—	10	—	8
2.3 Operational structure of the organization	—	10	—	8
2.4 Location of organization's headquarters	—	10	—	8
2.5 Countries where the organization operates	—	10	—	map
2.6 Nature of ownership and legal form	—	10	—	8
2.7 Markets served	—	10	—	8
2.8 Scale of the organization	—	10	—	8, 36 and 97
2.9 Significant changes during the reporting period	—	2, 10	—	11
2.10 Awards and certifications during the reporting period	—	10	—	[2.12]
<b>Report parameters</b>				
3.1 Reporting period for information provided	—	—	—	10
3.2 Date of most recent previous report	—	—	—	10
3.3 Reporting cycle (annual, biennial, etc.)	—	—	—	10
3.4 Contact for questions related to the report and its content	—	—	—	11
3.5 Process for defining report content.	—	—	—	10 e 11
3.6 Boundary of the report	—	—	—	[1.02]
3.7 Specific limitations related to report scope and boundaries	—	—	—	[1.02]
3.8 Basis for reporting	—	—	—	[1.02]
3.9 Data measurement techniques and the bases of calculations	—	—	—	10
3.10 Re-statement of any information in previous reports	—	—	—	10
3.11 Significant changes in report scope, boundary or data measurement techniques	—	2	—	11
3.12 GRI Index	—	—	—	100-102
3.13 Current policies and practices on research and external verification for the report	—	—	—	11
<b>Governance, commitments and engagement</b>				
4.1 Governance structure, including committees of highest governance body	1-10	1	3	17 and [2.02]
4.2 Chair of the highest governance body. Mention if the Chairman of the Board of Directors is also an Executive Director	—	1	3	17 and [2.02]
4.3 Members of the highest governance body that are independent and/or non-executive members	—	1	3	17 and [2.02]
4.4 Mechanisms for recommendations by shareholders or employees	—	1	3	17 and [2.02]
4.5 Linkage between compensation and performance (including social and environmental)	—	1	3	17 and [2.02]
4.6 Processes to ensure conflicts of interest are avoided	—	1	3	26
4.7 Qualifications of the members of the highest governance body	—	1	3	17 and [2.02]
4.8 Internally developed statements of mission or values, codes of conduct and relevant principles	—	1	3	17 and [2.02]
4.9 Responsibilities for the implementation of economic, environmental and social policies	—	1, 4	3	17 and [2.02]
4.10 Processes for evaluating the highest governance body's own performance	—	1	3	17 and [2.02]
4.11 Explanation of how and whether the precautionary approach is applied in the organization	7	—	1	[2.06]
4.12 Social charters, principles or other external initiatives	1-10	—	1	30 and [2.10]
4.13 Memberships in associations and/or national/international organisms	1-10	—	1	[2.10]
4.14 List of stakeholder groups engaged by the organization	—	—	3	10, [1.02] and 16
4.15 Basis for identification and selection of stakeholders	—	—	—	10, [1.02] and 16
4.16 Stakeholder engagement approach	—	—	3	10, [1.02] and 16
4.17 Key topics and concerns raised through stakeholder engagement	—	—	—	10, 41, 90 and 95
<b>Economic performance</b>				
Management approach: economic performance	1, 4, 6-7	—	—	96-99
EC1 Economic value generated and distributed	—	9	4	97
EC2 Financial implications and other risks and opportunities due to climate change	7	9	4	82
EC3 Defined benefit plan obligations	—	—	6	46
EC4 Significant financial assistance received from government	—	—	—	*
Management approach: market presence	1, 4, 6-7	—	—	56, 95
EC5 Standard entry level wage compared to local minimum wage in important operational units, by gender <sup>1</sup>	1	9	6	45
EC6 Policies, procedures and proportional spending on locally-based suppliers	—	9	6	94, 95
EC7 Local hiring	6	9	6	56
Management approach: indirect economic impacts	1, 4, 6-7	—	—	18-21
EC8 Development and impact of infrastructure investments for public use	—	9	4	22, 23
EC9 Description of significant indirect economic impacts	—	—	4	21
<b>Environmental performance</b>				
Management approach: materials	7, 9	—	—	[5.01]

Indicator	Global Compact Principle	ICMM Principle	ISE Dimension	Page
<b>EN1</b> Materials used by weight or volume	8	6	—	[5.01]
<b>EN2</b> Percentage of recycled materials used	8-9	6	—	[5.01]
<b>Management approach: energy</b>	<b>7-9</b>	—	—	<b>77 and 82</b>
<b>EN3</b> Direct energy consumption by primary source	8	6	5	78 and 80
<b>EN4</b> Indirect energy consumption by primary source	8	6	5	78 and 80
<b>EN5</b> Energy saved due to conservation and efficiency improvements <sup>1</sup>	8-9	6	5	82
<b>EN6</b> Initiatives to provide products and services with low energy consumption <sup>1</sup>	—	—	—	—
<b>EN7</b> Initiatives to reduce indirect energy consumption and reductions achieved <sup>1</sup>	8-9	6	5	82
<b>Management approach: water</b>	<b>7-9</b>	—	—	<b>84-87</b>
<b>EN8</b> Total water withdrawal by source	8	6	5	86
<b>EN9</b> Water sources affected by withdrawal of water <sup>1</sup>	8	—	—	86
<b>EN10</b> Percentage and total volume of water recycled and reused	8-9	—	5	86
<b>Management approach: biodiversity</b>	<b>7-9</b>	—	—	<b>18, 20, 62-69</b>
<b>EN11</b> Location and size of areas owned by Vale	8	7	5	65
<b>EN12</b> Significant impacts of biodiversity of activities, products and services	8	—	5	20, 21 and 65
<b>EN13</b> Habitats protected or restored	8	—	5	68-69
<b>EN14</b> Strategies for managing impacts on biodiversity	8	—	5	18, 20, 62
<b>EN15</b> Number of species in IUCN Red List and other conservation lists	8	—	—	65
<b>Management approach: emissions, effluents and waste</b>	<b>7-9</b>	—	—	<b>73, 74, 79, [4.15] and [5.02]</b>
<b>EN16</b> Total direct and indirect greenhouse gas emissions	8	6	5, 7	78 and 79
<b>EN17</b> Other relevant indirect greenhouse gas emission by weight	8	6	5, 7	78 and 82
<b>EN18</b> Initiatives to reduce greenhouse gas emissions and reductions obtained	7-9	—	5, 7	81
<b>EN19</b> Emission of ozone-depleting substances <sup>1</sup>	8	6	5	—
<b>EN20</b> NOx, SOx, and other significant air emissions	8	6	—	75
<b>EN21</b> Total water discharge, by quality and destination	8	6	5	[4.15]
<b>EN22</b> Total weight of waste, by type and disposal method	8	6	5	73
<b>EN23</b> Number and total volume of significant spills	8	6	5	75
<b>EN24</b> Transported waste deemed hazardous	8	—	—	[5.02]
<b>EN25</b> Description of protection and biodiversity index of water bodies and habitats <sup>1</sup>	8	6	—	[4.15]
<b>Management approach: products and services<sup>1</sup></b>	<b>7-9</b>	—	—	—
<b>EN26</b> Initiatives to mitigate products environmental impacts. <sup>1</sup>	7-9	—	5	—
<b>EN27</b> Products and packaging materials that are reclaimed, by product category. <sup>1</sup>	8-9	—	5	—
<b>Management approach: compliance</b>	<b>7-9</b>	—	—	<b>30</b>
<b>EN28</b> Monetary value and total number of fines resulting from non-compliance with laws	8	6, 8	5	30
<b>Management approach: transportation</b>	<b>7-9</b>	—	—	<b>75 and [5.02]</b>
<b>EN29</b> Environmental impacts of transporting products and employees	8	—	—	78
<b>Management approach: overall</b>	<b>7-9</b>	—	—	<b>22 and 23</b>
<b>EN30</b> Environmental protection expenditures and investments	7, 9	—	5	22 and 23
<b>Social performance – labor practices and decent work</b>				
<b>Management approach: employment</b>	<b>1, 3, 6</b>	—	—	<b>44-46</b>
<b>LA1</b> Total workforce by employment type, employment contract and region, by gender	—	3	6	36
<b>LA2</b> Total number of new hiring and employee turnover by age, gender and region	6	9	6	46
<b>LA3</b> Benefits provided to full time employees that are not provided to temporary or part-time employees	—	—	6	46
<b>Management approach: labor/management relations</b>	<b>1, 3, 6</b>	—	—	<b>46 and 47</b>
<b>LA4</b> Collective bargaining agreements	1, 3	3	6	47
<b>LA5</b> Minimum notice (periods and procedures)	3	3	6	47
<b>Management approach: occupational health and safety</b>	<b>1, 3, 6</b>	—	—	<b>37-40</b>
<b>LA6</b> Percentage of workforce represented in formal health and safety committees	1	3, 5	—	47
<b>LA7</b> Rate of occupational diseases, lost days and work-related fatalities by region and gender	1	5	5	39 and 40
<b>LA8</b> Education, prevention and risk control programs	1	5	5	39
<b>LA9</b> Health and safety topics covered in formal agreements with trade unions	1	3	—	47
<b>Management approach: training and education</b>	<b>1, 3, 6</b>	—	—	<b>41</b>
<b>LA10</b> Average hours of training by year, employee, gender, and functional category	—	2	—	41
<b>LA11</b> Programs for skills management and continued education	—	3	—	41, 46
<b>LA12</b> Percentage of employees with regular performance and career development reviews, by gender	—	—	—	45
<b>Management approach: diversity and equal opportunity</b>	<b>1, 3, 6</b>	—	—	<b>42 and 44</b>
<b>LA13</b> Composition of corporate governance bodies and classification of employees by functional category, gender, age, minorities and other diversity indicators	1, 6	3	6	44
<b>LA14</b> Ratio of basic salary of men to women, by functional category, and significant operational units	1, 6	—	6	44
<b>Social performance – human rights</b>				
<b>Management approach: procurement practices</b>	<b>1-6</b>	—	—	<b>90-93</b>
<b>HR1</b> Percentage and total number of significant investment agreements that include human rights clauses	1-6	2, 3	—	92
<b>HR2</b> Percentage of contracted companies, suppliers and other partners that have undergone screening and actions taken	1-6	3	6	92

Indicator	Global Compact Principle	ICMM Principle	ISE Dimension	Page
<b>HR3</b> Total hours of employee training on policies and procedures concerning aspects of human rights, including percentage.	1-6	—	—	28
Management approach: non-discrimination	1-6	—	—	44
<b>HR4</b> Total number of incidents of discrimination and actions taken to correct and mitigate new cases	1, 2, 6	3	6	44
Management approach: freedom of association and collective bargaining	1-6	—	—	46, 47
<b>HR5</b> Operations identified in which the right to exercise freedom of association and collective bargaining may be at risk	1, 2, 3	3	6	46
Management approach: child labor	1-6	—	—	28, 90-92
<b>HR6</b> Operations and suppliers identified as having significant risk of child labor	1, 2, 5	3	6	91 and 92
Management approach: forced and compulsory labor	1-6	—	—	28, 90-92
<b>HR7</b> Operations and significant suppliers identified as having significant risk of incidents of forced or compulsory labor	1, 2, 4	3	6	91 and 92
Management approach: security practices	1-6	—	—	41
<b>HR8</b> Percentage of security personnel trained in aspects of human rights.	1, 2	3	—	41
Management approach: indigenous rights	1-6	—	—	58 and 59
<b>HR9</b> Total number of violations involving rights of indigenous people and measures taken	1, 2	—	—	59
<b>Social performance – society</b>				
Management approach: community	10	—	—	48-55
<b>SO1</b> Operations with programs implemented in local communities, impact assessment, development and engagement	—	4	6	50
Management approach: corruption	10	—	—	26 and 27
<b>SO2</b> Units analyzed for risks related to corruption	10	1	1	26 and 27
<b>SO3</b> Percentage of employees trained in anti-corruption policies and procedures	10	1	1	26 and 27
<b>SO4</b> Actions taken in response to incidents of corruption	10	1	1	26 and 27
Management approach: public policy	10	—	—	31, 64 and 85
<b>SO5</b> Position on public policies	1-10	—	6	31, 64 and 85
<b>SO6</b> Policies on contributions to political parties, politicians or institutions	10	—	6	31
Management approach: anti-competitive behavior	10	—	—	[2.09]
<b>SO7</b> Number of legal actions for anti-competitive behavior	—	—	—	[2.09]
Management approach: compliance <sup>II</sup>	10	—	—	—
<b>SO8</b> Significant fines and total number of nonmonetary sanctions	—	—	—	30
<b>Social performance – product responsibility</b>				
Management approach: customer health and safety <sup>II</sup>	1-8	—	—	—
<b>PR1</b> Health and safety impacts assessed during the life cycle of products and services <sup>II</sup>	1	8	—	—
<b>PR2</b> Non-compliance related to impacts of products and services. <sup>I</sup>	1	—	6	95
Management approach: product and service labeling <sup>II</sup>	1-8	—	—	—
<b>PR3</b> Type of product and service information required by labelling procedures <sup>II</sup>	8	8	—	—
<b>PR4</b> Non-compliance with regulations concerning product and service labeling <sup>II</sup>	—	—	—	—
<b>PR5</b> Practices related to customer satisfaction, including survey results	—	—	6	95
Management approach: marketing and communications <sup>II</sup>	1-8	—	—	—
<b>PR6</b> Adherence to laws, regulations and voluntary codes <sup>II</sup>	—	—	—	—
<b>PR7</b> Cases of non-compliance related to communication of products and services	—	—	6	95
Management approach: customer privacy <sup>II</sup>	1-8	—	—	—
<b>PR8</b> Complaints regarding breaches of customer privacy <sup>II</sup>	—	—	—	—
Management approach: compliance	1-8	—	—	30
<b>PR9</b> Non-compliance fines concerning the provision and use of products and services	—	—	—	95
<b>Mining and metals sector indicators</b>				
<b>MM1</b> Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	—	7, 9	—	69
<b>MM2</b> Number and percentage of total sites identified as requiring biodiversity management plans	—	7, 9	—	18, 19 and 62
<b>MM3</b> Total amounts of overburden, rock, tailings, and sludge and their associated risks	—	6, 8	—	71 and 72
<b>MM4</b> Number of strikes and lock-outs exceeding one week's duration, by country	—	3	—	47
<b>MM5</b> Total number of operations taking place in or adjacent to indigenous people's, or sites where there are formal agreements	—	3	—	59
<b>MM6</b> Number and description of significant disputes relating to land use, customary rights of local communities and indigenous peoples	—	3	—	70
Management approach: mechanisms to manage demands and complaints	—	—	—	16 and 51
<b>MM7</b> The extent to which demand mechanisms were used to resolve disputes relating to land use	1, 2	3	—	70
Management approach: artisanal and small-scale mining	—	—	—	57
<b>MM8</b> Number (and percentage) of company operating sites where artisanal and small-scale mining (ASM) takes place	—	9	—	57
Management approach: resettlement	—	—	—	52
<b>MM9</b> Sites where resettlements took place, number of households resettled in each, and how their livelihoods were affected	—	3	—	52
Management approach: closure planning	—	—	—	70
<b>MM10</b> Number and percentage of operations with closure plans	—	2	—	70
Management approach: materials stewardship	—	—	—	95
<b>MM11</b> Programs and progress relating to materials stewardship	8, 9	8	—	95

[#.#] The numbers in brackets indicate that the information is available in the online content.

\* Read more information in the Tax Incentives section in the Report 20-F available at [www.vale.com](http://www.vale.com)

I Indicators reported partially. More details in the digital file.

II Not reported because it is non-material. More details in the digital file.



# Summary of the digital file

---

## Overview

---

- [1.01] Materiality
- [1.02] Report scope

## Strategic vision

---

- [2.01] Communication channels with stakeholders
- [2.02] Governance
- [2.03] Shareholding structure
- [2.04] Social and environmental expenditures
- [2.05] Ethics
- [2.06] Integrated risk management
- [2.07] Environmental compliance
- [2.08] Legal compliance
- [2.09] Anti-competitive behaviour
- [2.10] Institutional partnerships
- [2.11] Participation in organizations and associations
- [2.12] Recognitions and awards

## People

---

- [3.01] Vale's people - key figures
- [3.02] Integrated health strategy
- [3.03] Continuing education and training initiatives
- [3.04] Women in the workforce
- [3.05] Benefits
- [3.06] Pension plans
- [3.07] Turnover
- [3.08] Retirement
- [3.09] Health and safety committees
- [3.10] Socioeconomic studies
- [3.11] Railway incidents
- [3.12] Involuntary relocation
- [3.13] Artisanal and small-scale mining
- [3.14] Resettlement in Mozambique

## Planet

---

- [4.01] Endangered species
- [4.02] Areas that Vale protects or helps protect
- [4.03] Impacted and restored areas
- [4.04] Research and development
- [4.05] Conflicts over land use
- [4.06] Mine Closure
- [4.07] Mining waste
- [4.08] Non-mineral waste
- [4.09] Spills
- [4.10] Atmospheric emissions
- [4.11] Energy
- [4.12] Carbon reduction and capture projects
- [4.13] Risks and opportunities associated with climate change
- [4.14] Energy efficiency
- [4.15] Effluents

## Creating value

---

- [5.01] Consumption of materials
- [5.02] Customers

## GRI Summary

---

- [6.01] Index of indicators



## [1.01] Materiality

In 2011 Vale set its materiality matrix with the participation of the senior management, as well as external stakeholders, represented by specialists in climate change, forests, communities, human resources and education, among others.

In this process the following steps were followed:

### Identification of issues

**Primary sources** – Inputs from the results of the materiality process in 2010; Interviews with senior management (21); Interviews with specialists (14); Panel of specialists; Analysis of media.

**Issues identified** – Communities; People; Health and Safety; Climate Change; Energy; Water; Land Use; Globalization; Government; Value Chain; Education; Waste; Biodiversity; Innovation; Consumer Culture.

### Validation

Involvement of senior management and key stakeholders.

**Internal** – Board of Directors; CEO and senior management of the company; Review by Department responsible for the sustainability agenda.

**External** – Opinion on Sustainability Report from specialist consultancy.

### Prioritizing issues

Consistent use of filters to identify the most material topics and prepare the materiality matrix.

**Inclusive filters** – Impact on reputation; Regulatory impact; Business continuity; Frequency of topic.

**Exclusive filters** – Alignment with business strategy.

More information in the 2011 Sustainability Report, pages 7-9, available at [www.vale.com](http://www.vale.com).





## [1.02] Report scope [PI3.6, PI3.7, PI3.8]

In addition to the changes listed in the section “How to read this report,” we maintained operational control, but we sold 62.4% of our wholly-owned subsidiary VLI S.A., an integrated logistics company of general cargo controlled by Vale that manages the operations of Ferrovia Centro-Atlântica S.A. (FCA) and Ferrovia Norte Sul S.A. (FNS). We also sold our participation of 22% in Norsk Hydro ASA (company that produces aluminum) and entered into agreements with CEMIG Geração e Transmissão S.A (CEMIG GT) for the sale of 49% of the 9% of our equity stake in Norte Energia S.A., in December 2013 still in progress. In accordance with GRI methodology, companies can be classified in the following three categories of sustainability information disclosure:

**Performance indicators** – in addition to Vale’s own units, this classification includes companies controlled and/or operated by Vale. The scope of companies and projects included in each indicator reported may vary in line with the availability of information. The main exceptions, when applicable, are highlighted. For companies classified in this category, the sustainability performance is reported through performance indicators, as presented throughout the report<sup>1</sup>.

**Disclosures on Management Approach (DMA)** – this category includes companies or entities over which Vale has significant influence. It includes affiliates, of which Vale owns 20% to 50% of the voting capital, either directly or indirectly, and companies or entities over which Vale exercises shared control. Vale has positions in the different governing bodies of these organizations, and may also participate in committees dealing with environmental, health and safety, human resources and finance issues, among other topics. Through these mechanisms<sup>2</sup>, Vale participates in strategic decision making and influences the development of rules and policies at these companies or entities<sup>3</sup>, including in terms of sustainability issues.

**Issues and dilemmas** – this classification includes companies over which Vale has influence, including affiliates in which Vale owns less than 20% of the voting capital, directly or indirectly. The material issues for companies classified in this category are presented as follows:

---

<sup>1</sup> Companies without productive activities, such as sales offices, are not included in this performance report as they have a limited impact on sustainability.

<sup>2</sup> Not applicable for companies in the Oil and Gas Consortium.

<sup>3</sup> In accordance with legislation in effect in the company’s place of establishment.

Continue on next page >

Companies in which Vale has direct or indirect participation

Company	Products or services	Vale's equity stake	Material issues
Norte Energia S.A.	Belo Monte Hydroelectric Plant	Sale of 49% of Vale's 9% equity stake in the capital of Norte Energia S.A.	The reduction of the equity stake is currently in progress and is consistent with Vale's strategy to maximize value for shareholders.
ThyssenKrupp-CSA – Siderúrgica do Atlântico Ltda. <sup>I</sup>	Steel plates	26.87% of the joint venture's share capital as of December 2009	It is part of Vale's long-term strategy to promote Brazil's steel development, adding value to the mineral and generating wealth and development for the country.
Consórcio Machadinho <sup>II</sup>	Electricity generation	8.29% stake	Use of water resources to generate electricity.
Consórcios BM-ES-27 e BM-S-48 <sup>III</sup>	Oil and gas exploration	BM-ES-27: 17.5%; BM-S-48: 12.5%	Offshore oil and gas exploration activities that cause exposure to environmental risks.
MRS Logística S.A. <sup>IV</sup>	Railway transportation	Direct and indirect interest (46.8% of the voting capital and 47.6% of total capital)	Traffic through urban communities.

<sup>I</sup> Although Vale had a 26.87% stake in the company, it was classified in this category because, through a shareholders' agreement, Vale is not a member of TKCSA's sustainability committees.

<sup>II</sup> In 2013 Valesul sold its participation in Consortium Machadinho to Vale S.A.

<sup>III</sup> Oil and gas activities were considered by consortium as a function of the different equity stakes and influence of Vale in these assets.

<sup>IV</sup> Vale has waived its rights to vote and veto regarding the MRS' shares, in accordance with The National Transportation Agency (ANTT in Portuguese) Resolution No. 1,394, of April 11, 2006.

Continue on next page >



The following table shows how Vale’s main companies (in their official legal names), are classified in terms of sustainability in this report.

Sustainability Report Scope (2013)

Company	Performance indicators	Disclosures on Management approach (DMA)	Issues and dilemmas
Iron ore and pellets	<div><div>– Vale S.A.<sup>I</sup></div><div>– Companhia Ítalo-Brasileira de Pelotização (Itabasco)<sup>II</sup></div><div>– Companhia Coreano-Brasileira de Pelotização (Kobrasco)<sup>V</sup></div><div>– Companhia Nipo-Brasileira de Pelotização (Nibrasco)<sup>V</sup></div><div>– Companhia Hispano-Brasileira de Pelotização (Hispanobras)<sup>V</sup></div><div>– Vale Oman Pelletizing Company LLC</div><div>– Mineração Corumbaense Reunida (MCR)</div><div>– Vale BSGR Limited (Projeto Simandou)<sup>III</sup></div></div>	<div><div>– Samarco Mineração S.A.</div><div>– Zhuhai YPM Pellet Co. Ltd.</div><div>– Anyang Yu Vale Yongtong Pellet Co. Ltd.</div></div>	—
Manganese and ferroalloys	<div><div>– Vale Manganês S.A.</div><div>– Vale Mina do Azul S.A.</div></div>	—	—
Copper	<div><div>– Vale S.A.</div><div>– Vale Canada Limited</div><div>– Sociedad Contractual Minera Tres Valles<sup>IV</sup></div></div>	—	—
Logistics	<div><div>– Vale S.A.<sup>VI</sup></div><div>– Ferrovia Centro-Atlântica S.A. (FCA)<sup>V</sup></div><div>– Ferrovia Norte Sul S.A.<sup>VII</sup></div><div>– Companhia Portuária Baía de Sepetiba (CPBS)</div><div>– Seamar Shipping</div><div>– Transbarge Navegación (TBN)</div><div>– Mineração Corumbaense Reunida (Porto Gregório Curvo)</div><div>– Vale Logística Argentina S.A. (Porto San Nicolás)</div><div>– Corredor Logístico Integrado de Nacala (CLIN) (Projeto Nacala Ferrovia e Porto)</div><div>– PT Vale Indonesia Tbk (Balintang Special Port e Porto Especial Harapan Tanjung Mangkasa)</div></div>	<div><div>– Log-in Logística Intermodal S.A.<sup>IV</sup></div><div>– Consórcio de Rebocadores da Barra dos Coqueiros</div><div>– Consórcio de Rebocadores da Baía de São Marcos</div></div>	– MRS Logística S.A. <sup>VI</sup>



Company	Performance indicators	Disclosures on Management approach (DMA)	Issues and dilemmas
Fertilizantes	<ul style="list-style-type: none"> <li>– Companhia Minera Miski Mayo S.A.C</li> <li>– Vale Fertilizantes S.A.<sup>VI</sup></li> <li>– Potasio Río Colorado S.A.<sup>III</sup></li> </ul>	—	—
Steel	—	– Califórnia Steel Industries (CSI)	– ThyssenKrupp Companhia Siderúrgica do Atlântico <sup>VIII</sup>
Aluminum	—	<ul style="list-style-type: none"> <li>– Mineração Rio do Norte S.A. (MRN) (Bauxita)</li> <li>– Norsk Hydro ASA (Hydro)<sup>IV</sup></li> <li>– Mineração Paragominas S.A.</li> </ul>	—
Coal	<ul style="list-style-type: none"> <li>– Vale Moçambique S.A. (Moatize)</li> <li>– Vale Australia Holds Pty Ltd.</li> </ul>	<ul style="list-style-type: none"> <li>– Shandong Yankuang Int. Coking Co. Ltd.</li> <li>– Henan Longyu Energy Resources Co. Ltd.</li> <li>– Vale Australia (Isaac Plains)</li> </ul>	—
Energy	– Biopalma da Amazônia S.A.	<ul style="list-style-type: none"> <li>– Vale Soluções em Energia S.A. (VSE)<sup>IX</sup></li> <li>– Consórcios de energia: Igarapava, Porto Estrela, Candonga, Capim Branco, Funil, Aimorés, Estreito (Consórcio Estreito Energia - Ceste), Geração Santa Isabel (Gesai)</li> <li>– Empresas do Projeto Eólica Santo Inácio (Central Eólica Garrote Ltda., Central Eólica Santo Inácio IV Ltda., Central Eólica Santo Inácio III Ltda., Vale Norte Energia Participações S.A. e Central Eólica São Raimundo Ltda.)</li> <li>– Empresas dos Consórcios Óleo e Gás (Consórcio BM-PAMA-10, Consórcio BM-PAMA-11, Consórcio BM-PAMA-12, Consórcio BT-PN-2, Consórcio BT-PN-3, Consórcio SF-T-81)</li> </ul>	<ul style="list-style-type: none"> <li>– Consórcio Machadinho<sup>X</sup></li> <li>– Norte Energia S.A. (UHE Belo Monte)<sup>XI</sup></li> <li>– Consórcios BM-ES- 27 e BM-S-48<sup>XII</sup></li> </ul>
Forestry production	– Vale Florestar S.A. <sup>XIII</sup>	—	—
Nickel	<ul style="list-style-type: none"> <li>– Vale S.A. (Onça Puma)</li> <li>– Vale Canada Limited</li> <li>– Vale Newfoundland &amp; Labrador Ltd.</li> <li>– Vale Europe Limited (Clydach Refinery e Acton Refinery)</li> <li>– PT Vale Indonesia Tbk</li> <li>– Vale Nouvelle-Calédonie S.A.S.</li> <li>– Vale Nickel (Dalian) Co. Ltd.</li> <li>– Vale Japan Limited</li> <li>– Vale Taiwan Limited</li> </ul>	– Korea Nickel Corporation	—

**I** Including operations of Minerações Brasileiras Reunidas S.A. (MBR), Minas da Serra Geral S.A. (MSG) and Baovale Mineração S.A. (Baovale).

**II** Assets operated by Vale.

**III** Project with interrupted activities in 2013.

**IV** Companies sold in the end of 2013, but that maintained performance reports.

**V** Includes operations of the Carajás Railway (EFC) and Vitória-Minas Railway (EFVM).

**VI** Vale has waived its rights to vote and veto regarding the MRS' shares, in accordance with the National Transportation Agency (ANTT) Resolution No. 1,394, of April 11, 2006.

**VII** Vale Fertilizantes S.A. includes the performance of different companies and since 2013 also Vale Potássio Nordeste S.A. (before considered apart).

**VIII** Although Vale had a 26.87% stake in the company, it was classified in this category because, through a shareholders' agreement, Vale is not a member of TKCSA's sustainability committees.

**IX** Although Vale has the majority of votes in equity accounted entities, they are not consolidated due to the veto right held by non-controlling shareholders in the shareholders' agreement.

**X** In 2013, Valesul sold its participation in Consortium Machadinho to Vale S.A.

**XI** Vale entered into agreements with CEMIG Generation and Transmission S.A. (CEMIG GT) for the sale of 49% of its 9% stake of Norte Energia S.A., in December 2013 and this is still in progress.

**XII** Oil and gas activities were made available by the consortium as a function of different equity stakes and Vale's influence over these assets.

**XIII** Company belonging to FIP (Equity Investment Fund) Vale Florestar, whose partners are Vale S.A., Petros (Fundo Petrobras de Seguridade Social), Funcef (Fundação dos Economistas Federais) and BNDES (Banco Nacional de Desenvolvimento Econômico e Social).



## [2.01] Communication channels with Stakeholders [PI4.14, PI4.15, PI4.16]

Target audience	Communication, consultation and dialogue tools	Target audience	Communication, consultation and dialogue tools
General public	<ul style="list-style-type: none"> <li>– Vale's Sustainability Report</li> <li>– Ombudsman Channel (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Fale Conosco (Talk to Us) (available at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Vale websites (Global, Brazil, Canada, Australia, Indonesia, Japan, China and New Caledonia)</li> <li>– Reputation survey in Operating Areas and Larger Brazilian Capitals<sup>I</sup></li> <li>– Communication Campaigns</li> <li>– Social Medias (Facebook, Youtube, Twitter, LinkedIn and Instagram)</li> </ul>	Communities	<ul style="list-style-type: none"> <li>– Socioeconomic diagnoses</li> <li>– Meetings for prior consultation</li> <li>– Interviews</li> <li>– Focus group</li> <li>– Visits to units</li> <li>– Meetings with Leader Program</li> <li>– External disclosure — News</li> <li>– Alô Ferrovias (Railways hotline) — channel service for users of passenger trains Vitória-Minas Railway (EFVM) and Carajás Railway (EFC) — 0800 285 7000</li> <li>– Reporting Channel (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Social dialogue meetings</li> <li>– Direct contact with the communities relations department staff (in person and via telephone)</li> <li>– Fale Conosco (Talk to Us) (available at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Social Medias (Facebook, Youtube, Twitter, LinkedIn and Instagram)</li> </ul>
Shareholders, debenture holders and investors	<ul style="list-style-type: none"> <li>– Form 20-F reports, press releases, fact sheets, announcements and minutes of General Shareholders' Meetings, quarterly financial reports and reference forms</li> <li>– Webcast and conference calls</li> <li>– Visits to Vale operations</li> <li>– Meetings with investors</li> <li>– Email: <a href="mailto:rio@vale.com">rio@vale.com</a></li> <li>– Telephone of Investor Relations Department: 55-21-3814-4540</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> </ul>		
Customers	<ul style="list-style-type: none"> <li>– Campaigns</li> <li>– Special events</li> <li>– Visits and meetings at Vale</li> <li>– Satisfaction surveys</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Fale Conosco (Talk to Us)</li> </ul>	Government and civil society	<ul style="list-style-type: none"> <li>– Participation in associations and entities</li> <li>– Meetings for prior consultation</li> <li>– Interviews</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Visits and meetings at Vale</li> <li>– Participation in conferences, forums and debates</li> </ul>
Employees	<ul style="list-style-type: none"> <li>– Internal publications</li> <li>– Vale Brazil Intranet (Brazil, Canada, and Global)</li> <li>– Global Employee Survey<sup>II</sup></li> <li>– Special events, internal campaigns and direct communications</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Fale Conosco (Talk to Us) (available at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Social Medias (Facebook, Youtube, Twitter, LinkedIn and Instagram)</li> </ul>	Press	<ul style="list-style-type: none"> <li>– Press Room in <a href="http://www.vale.com">www.vale.com</a></li> <li>– Advisors phones and contact emails (available in Press Room)</li> <li>– Webcast</li> <li>– In person press conferences</li> <li>– Conference calls</li> <li>– Face to face interviews</li> <li>– Visits to Vale operations</li> <li>– Visits to newsrooms</li> <li>– Debates</li> <li>– Press releases and notes</li> <li>– Networking lunches</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> </ul>
Suppliers	<ul style="list-style-type: none"> <li>– Visits and meetings at Vale</li> <li>– Exchange programs</li> <li>– Structured meetings and Collaborative Workshops</li> <li>– Canal de Ouvidoria (Reporting Channel) (described at <a href="http://www.vale.com">www.vale.com</a>)</li> <li>– Ariba Portal</li> <li>– Conference calls</li> <li>– Telephone and emails</li> </ul>		

<sup>I</sup> Quantitative study conducted annually by the VoxPopuli Institute in Brazil.

<sup>II</sup> Quantitative study conducted by the Human Resources Department with all Vale employees worldwide.



## [2.02] Governance [PI4.1, PI4.2, PI4.3, PI4.4, PI4.5, PI4.6, PI4.7, PI4.8, PI4.9, PI4.10]

### Board of Directors

The Board sets general guidelines and policies for Vale's business, reviews plans and projects proposed by its Executive Officers, and monitors their implementation. It is composed of 11 members and alternate members. These are elected at the general shareholders' meetings or appointed by the Board of Directors pursuant to Article 11, §10, of the Bylaws<sup>1</sup>, for a term of two years. In December 2012, the Board comprised nine directors appointed by the controlling shareholders, one independent member not associated with the controlling group and one member elected by the company's employees.

Through annual General Meetings, and Extraordinary Meetings (whenever called by the Board of Directors) minority shareholders express their opinion on matters on the agenda.

Non-controlling shareholders holding common shares that represent at least 15% of total voting capital, and preferred shares representing at least 10% of share capital, have the right to appoint one member and one alternate member to the Board of Directors.

In this event, neither the holders of common shares nor holders of preferred shares meet the limits, then they may join their shares and once the percentage reaches 10% of total capital they may jointly appoint a member and an alternate member to the Board of Directors<sup>2</sup>.

Members of the Board of Directors receive fixed-sum remuneration. The total annual sum for director's and officer's compensation is determined at the shareholder's Ordinary General Meeting, taking into account the respective responsibilities, time dedicated to work, skills, professional reputation and prevailing market values.

The Board of Directors is not subject to a formal self-assessment process. The members have recognized reputations in the areas of finance and capital markets, corporate governance, mining activities, minerals marketing and sustainability. The Chairman of the Board, Mr. Dan Antonio Marinho Conrado, and other members of the Board of Directors hold no chief executive officer position at the company.

The internal audit is directly subordinated to the Board of Directors, which has the authority to appoint and dismiss the person responsible for the audit management.

### Permanent Fiscal Council

The council consists of three to five independent members (and the same number of alternate members), under Brazilian corporate law. It monitors Vale's management activities and reviews the company's financial statements, reporting its findings to the shareholders.

<sup>1</sup> If a vacancy arises for a member or alternate member of the Board of Directors, a substitute may be appointed by the other members, to serve until the following General Meeting, when his/her election will be decided.

<sup>2</sup> Mr. José Mauro Mettrau Carneiro da Cunha was elected as a nominee of Valepar S.A., at the ordinary general meeting of April 17, 2013. The holders of Vale's common shares, individually or together, excluding the controlling shareholder, did not reach the necessary quorum, and holders of preferred shares, also excluding the controlling shareholder, did not nominate a candidate to represent themselves on the Board of Directors.

Continues on next page >





It also performs the role of Audit Committee according to the terms of the Sarbanes-Oxley Act and the rules that regulate the listing of securities on the Hong Kong Stock Exchange (HKSE). One member and one alternate member of the Fiscal Council were reappointed by the holders of preferred shares at the Ordinary General Meeting of 2013. None of the members of the Fiscal Council are a member of the Board of Directors or an executive officer, respecting the independence criteria determined by Brazilian legislation.

### **Advisory Committees**

To support the Board of Directors in conducting its activities, Vale has five advisory committees: Executive Development; Strategic; Finance; Accounting and Governance; and Sustainability. These committees are forums for discussion and their members share different views, allowing greater maturity and alignment of proposals before being submitted to the Board of Directors. The aim is to contribute to the fluidity of decision-making processes and the quality of decisions.

### **Executive Board**

This body implements the business strategy determined by the Board of Directors, prepares plans and projects, and is responsible for the company's operational and financial performance.

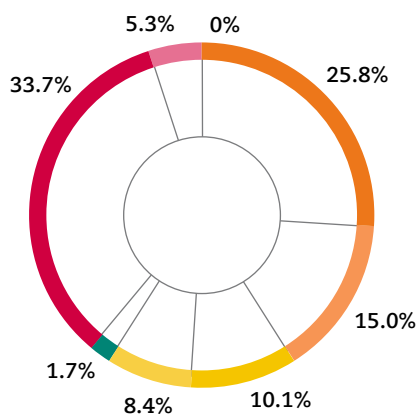
The members are appointed by the Chief Executive Officer and approved by the Board of Directors. In addition to fixed-sum remuneration, the executive officers and other company executives receive bonuses and incentive payments insofar as they meet individual and collective goals to meet the strategic results of the company, related to financial, technical/operational and sustainability indicators. These targets include health and safety and other aspects.



## [2.03] Shareholding structure<sup>I</sup>

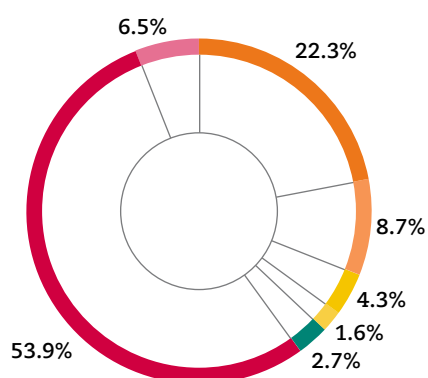
(January 2014)

### Total shares



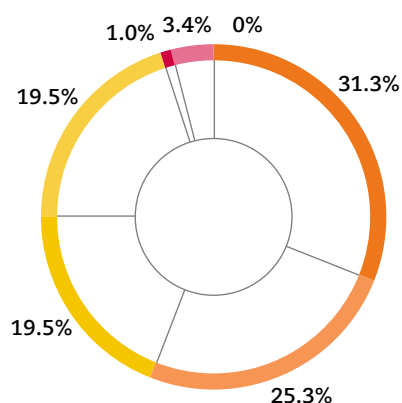
<b>Valepar</b>	33.7%
<b>Federal Government</b>	3.4%
BNDESPar	5.3%
National Treasury	0.0%
<b>Free-float<sup>II</sup></b>	95.5%
Non-Brazilian Investors	56.6%
Brazilian Investors	39.0%
Nyse ADR	25.8%
Institutional	10.1%
Bovespa	15.0%
Retail	8.4%
FMP — FGTS	1.7%

### Ordinary shares



<b>Valepar</b>	53.9%
<b>Federal Government</b>	6.5%
BNDESPar	6.5%
National Treasury	0.0%
<b>Free-float<sup>II</sup></b>	39.6%
Non-Brazilian Investors	31.0%
Brazilian Investors	8.6%
Nyse ADR	22.3%
Institutional	4.3%
Bovespa	8.7%
Retail	1.6%
FMP — FGTS	2.7%

### Preferred shares



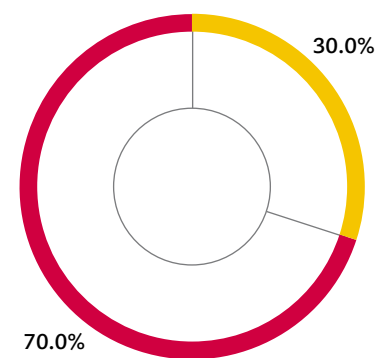
<b>Valepar</b>	1.0%
<b>Federal Government</b>	3.4%
BNDESPar	3.4%
National Treasury	0.0%
<b>Free-float<sup>II</sup></b>	95.5%
Non-Brazilian Investors	56.6%
Brazilian Investors	39.0%
Nyse ADR	31.3%
Institutional	19.5%
Bovespa	25.3%
Retail	19.5%
FMP — FGTS	0.0%

<sup>I</sup> Excluding treasury shares. The custodian bank for the shares of the company is Banco Bradesco S.A. Valepar is Vale's controlling shareholder. Valepar is a special purpose company organized in compliance with the Brazilian law, established with the sole purpose of having a stake in Vale. The controlling holders of Valepar's shares are: Litel Participações S.A., Eletron S.A., Bradespar S.A., Mitsui & Co. Ltd and BNDESPar. For more information about Vale's shareholding structure and Valepar, see the Form 20-F, Investor section, in [www.vale.com](http://www.vale.com).

<sup>II</sup> Free-float: shares available for negotiation over the total outstanding shares (total shares less Vale's treasury shares).

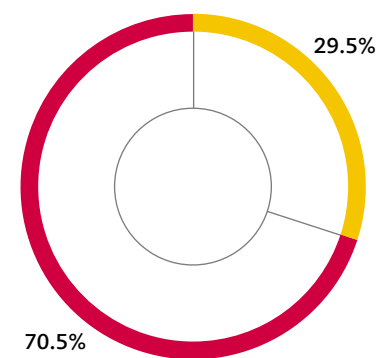
[2.04] Social and environmental expenditures [EC8, EN30]

Environmental expenditures



Brazil	70.0%
Other locations	30.0%

Social expenditures



Brazil	70.5%
Other locations	29.5%

Investments in infrastructure [EC8]	2011	2012	2013
Type			
Support for public services <sup>I</sup>	49%	10%	7%
Implementation of building work	51%	90%	93%
Area			
Commercial engagement (shared infrastructure) <sup>II</sup>	35%	8%	12%
Pro Bono services <sup>III</sup>	0%	0%	0%
Materials/Services <sup>IV</sup>	64%	92%	88%

<sup>I</sup> Support for public services, implemented by paying for services, such as the cost of hiring nurses and teachers, or making paving work and building schools and hospitals.

<sup>II</sup> Activity that generates public benefits, but which primarily provides an economic or investment return to the company.

<sup>III</sup> Pro bono work to benefit the public, such as the allocation of people with specific functions to activities during the time scheduled for the work, using company resources.

<sup>IV</sup> Investment in infrastructure to provide services or to deliver products.



## [2.05] Ethics [SO2, SO3, SO4]

Assessment for corruption risks is based on normative documents that include instructions and procedures governing our Institutional Corporate Safety Policy. In 2012, we implemented a program to prevent anti-competitive acts, training managers in Brazil and abroad. In all the countries where the company operates Vale is also implementing a program in compliance with the Foreign Corrupt Practices Act (FCPA) — anti-corruption legislation in the U.S.

### Business units undergoing risk assessment of corruption in 2013

- Biopalma
- Southeast Ferrous (minas/plants: Alegria, Timbopeba and Cauê, Conceição, Água limpa, Brucutu; mines: Fábrica Nova, Periquito)
- Vargem Grande Project
- North Ferrous (Carajás: mines N4W, N4E, N5W, N5E, N5E-N)
- South Ferrous (mine: Capão Xavier, Mar Azul; mine/plant: Pico, Fábrica, Córrego do Feijão; plant: Mutuca)
- Centre-West Ferrous
- Mineração Corumbaense Reunida (MCR)
- Carajás Railway
- Ponta da Madeira Maritime Terminal
- Port of Tubarão
- Vale Fertilizantes (Araxá mining and chemical complex, Cajati mining and chemical complex, Catalão mining and chemical complex, Cubatão industrial complex, Uberaba industrial complex)
- Salobo I Project
- Copper Operations (Sossego mine/plant)
- Moatize (Mozambique)
- Moatize Expansion (Mozambique)
- Nacala Project (Mozambique)
- Onça Puma
- CPBS Companhia Portuária Baía de Sepetiba (Port of Sepetiba Bay)
- CLN Capacitação Logística Norte
- Vale Manganese (ferro-alloy plant Simões Filho)
- Transbarga Navegação
- Pelletizing — Itabirito, Tubarão, plants, Vargem Grande
- Project S11D
- Vale Potássio Nordeste (Taquari Vassouras)



## [2.06] Integrated risk management [PI1.2]

Our Corporate Risk Management Policy requires consolidated measurement and monitoring of risks, in order to guarantee that total risk levels remain aligned with the principles defined by the Board of Directors and the Executive Board.

The Risk Management Executive Committee is responsible for supporting the Executive Board in risk analysis and issuing risk assessments, as well as supervising and reviewing the principles and instruments for managing corporate risk.

The main risks and their respective controls and action plans are analyzed and monitored quarterly by the Executive Risk Committee.

At Vale, the procedures for risk management are guided by the ISO 31000 standard and are divided into two major components:

- management of risks associated with business goals, a broad, multidisciplinary approach known as Enterprise Risk Management (ERM).
- management of risks associated with processes or tasks, with employment of more specific techniques for risk analysis, to identify, in detail, potential risk situations.

In all cases, risk management should be based on information that periodically and systematically portrays risks and allows, through effective controls, them to be minimized when possible, or at least kept stable.

The company's approach to risk management is divided into four dimensions:

**Market** — assessing the impact of the volatility of risk factors such as interest rates, exchange rates and commodity prices, on cash flow;

**Credit** — reviews the possibility of default of obligations undertaken by counterparties (customers, financial institutions and suppliers, among others) with the company;

**Operational** — includes the evaluation of the risk of potential losses resulting from failures or shortcomings in internal processes, people, systems and/or external events. Events may occur in operations, projects and corporate processes and may result in damage to people, the environment, property, society and the company's reputation;

Continues on next page >



**Projects** — focused on the integrated analysis of the risks of capital projects, identifying, quantifying and in special managing the impact of risks on the investment, the length and security of the project, as well as assessing risks that could compromise the operational performance of new facilities. Processes are conducted in an integrated manner by clearly defining roles and responsibilities.

**Precautionary principle** [PI4.11]

The development and implementation of Vale's Global Sustainability Policy relies on the application of the Precautionary Principle when conducting risk management feasibility studies, seeking to address the issues relevant to all stakeholders, as well as business aspects. This occurs through the prior identification, analysis and minimization of corporate risks, including, but not limited to, financial, health and safety risks for all employees, contractors, neighbouring communities, identified in the areas of influence of environmental studies, operations and the environment.

## [2.07] Environmental compliance [EN28]

Vale was summoned in several civil lawsuits together with the National Mineral Production Department (DNPM in Portuguese) and the Minas Gerais State Environment Foundation (FEAM). These lawsuits were filed by federal government prosecutors without hearing the company or being aware of its corporate dam control programs. All of these lawsuits were resolved through legal agreements signed by the parties, and most of them have already been approved in court.

### Cases reported before 2013

The Chico Mendes Institute for Conservation (ICMBio) filed notice of infraction due to a fire that occurred in Carajás National Forest, claiming that the company Salobo Metais S.A. was responsible for it. The company filed a defence and is awaiting a decision from the environmental agency. It is worth mentioning that a technical statement was provided by an independent company, which found that the fire did not originate from a short circuit or any other cause related to the Salobo transmission line.

The Maranhão Human Rights Society leads a group that – led a public civil lawsuit, questioning the environmental licensing procedure for work to expand the Carajás Railway (EFC). There are currently no legal restrictions for the development of this work.

A fourth occurrence refers to the levying of a fine for a delay in fulfilling the obligations of a Conduct Adjustment Agreement (TAC in Portuguese), executed as a result of a public civil lawsuit involving the construction of an effluent treatment plant at Vale's Cajati site in São Paulo. During this process, the effluent treatment plant was already finished and already has a provisional operating license.

With regard to atmospheric emissions in Oman, the Vale Oman Pelletizing Company LLC, together with other defendants, was sued in court by a group of local residents who questioned particulate controls at the pelletizing plant. Vale is awaiting a definition for the realization of a technical appraisal.

In Espírito Santo, a conciliation hearing was held in 2012 to address a collective lawsuit brought by the Ubu Fishermen's Association (Apup in Portuguese), which claimed alleged environmental damage and interference with fishing from drilling in the sea. No agreement was reached and the process remains at the instruction stage.

Continues on next page >





Urucum Mineração S.A. presented its defence in a public civil lawsuit before the Court of Corumbá, in the state of Mato Grosso do Sul, calling for the rehabilitation of the Urucum Stream and rectification of other environmental damage. The lawsuit was suspended while environmental studies are conducted and evaluated by the Brazilian environmental regulator (Ibama in Portuguese) and the National Mineral Research Department (DNPM in Portuguese) to allow the continuation of the process.

Due to the acquisition of Fertilizantes assets, Vale became involved in a number of lawsuits. The first is related to alleged pollution in the unit of Uberaba, Minas Gerais; the second relates to the restoration of the Serra do Mar Park; the third questions the environmental licensing of the Anitápolis Project in Santa Catarina; and the fourth is investigating alleged irregular disposal of solid waste at the Ulianópolis unit in Pará. Vale is also conducting its defence in a series of lawsuits for damages in the community of Barreiro in Araxá, Minas Gerais.

Regarding the administrative fine imposed by the municipality of Guapimirim in Rio de Janeiro, concerning a railway accident involving the Centro-Atlântica Railway (FCA), controlled by Vale, in the municipality of Itaboraí, the final sentence was issued in 2012, cancelling the fine. Two other environmental fines imposed by the State Environment Institute (Inea) have been suspended pending the fulfillment of a conduct adjustment agreement.

Among significant lawsuits, there are also two involving the operations of Vale's iron ore mines in Itabira, Minas Gerais, with alleged environmental and social damage. There are also four cases associated with the licensing of the MBR Capão Xavier Mine in Belo Horizonte, also in Minas Gerais. In Vitória, Espírito Santo, a lawsuit claiming alleged atmospheric pollution is still ongoing. In the lawsuit involving railway ties on the Carajás Railway, Vale received an infraction notice from IBAMA regarding proof of their purchase. Vale presented its defence and subsequently brought an administrative appeal at CONAMA, currently awaiting judgment.

Vale regrets the need to address such issues in court, but trusts that the results will be most appropriate for the parties involved.



## [2.08] Legal compliance [508]

### Civil

Vale is cited in 69 lawsuits of no defined economic value, challenging the legality of the company's privatization process, which took place in 1997. All actions are awaiting the final judicial decision. Vale does not believe that such actions will affect the result of the privatization process or produce any negative effect for the company.

### Regulatory

In 2012, the lawsuit aimed at nullifying the legal authorization that allows Vale and other companies to operate at the coal and steel products terminals at Praia Mole, in the Brazilian state of Espírito Santo, obtained an initial decision favourable to Vale, which was confirmed at the Federal Regional Court of the 2nd Region. The final decision is pending confirmation due to special and extraordinary appeals.

### Tax

In 18 lawsuits and 6 administrative proceedings, Vale is contesting the incidence of corporate income tax and social contributions on profits earned by affiliates and subsidiaries abroad.

The company is also contesting the collection of tax on the sales of goods and services (ICMS in Portuguese) allegedly due in the state of Minas Gerais. Vale disputes the calculation of the tax base for inter-state transfers of iron ore, through administrative proceedings filed in 2012. Due to legislative changes that significantly reduced the amounts assessed, Vale decided to settle the amounts levied by the State of Minas Gerais, through 24 monthly instalments, and withdraw from administrative discussions. In 2013 US\$104 million were paid as ICMS/MG under the aforementioned instalments, and in 2014 approximately US\$102 million are expected to be paid.

It should be noted that in 2012, the State of Pará filed three notices of violation, similar to the case presented in Minas Gerais. With the defences presented Vale received an unfavourable ruling at the administrative level and currently values are challenged in court.

We are also contesting undue demands for CFEM (Financial Compensation for Mineral Exploration) in 135 administrative proceedings and 52 lawsuits. In 2012, we changed the likelihood of losing this case concerning the deduction of transportation costs from the CFEM calculation base to probable, and for this reason we decided to make the payment, including fines.

In December 2011, the Brazilian states of Minas Gerais and Pará introduced new taxes on mineral production (Mineral Resource Inspection Charge, or TFRM in Portuguese). In 2012, these states implemented changes in legislation that resulted in a reduction in the amounts

Continues on next page >



payable. Vale decided to pay the TRFM due in 2012, including fines. It is worth mentioning that the Brazilian Association of Industry (National Confederation of Industry or CNI in Portuguese) is at the moment contesting in the Supreme Court the constitutionality of the TRFM imposed by the states of Minas Gerais and Pará. If the claim by the CNI is successful, the company believes that the TRFM could be eliminated.

For more information on the cases reported above, see Vale's Form 20-F, at [www.vale.com](http://www.vale.com) in the Investors section.

### **Labour**

In Brazil, there are ongoing legal discussions regarding the collection of the Guarantee Fund for Length of Service (FGTS in Portuguese) claimed by the federal government, charged on certain portions of the payroll for the period 1999 to 2003.

There are also ongoing legal discussions on fatal accidents arising from labour activities; work conditions (rest periods/temperatures) in the potash mine Taquari/Vassouras (Sergipe, Brazil); outsourcing of drilling, blasting and loading activities; and tailings dam monitoring at mines in Minas Gerais, questioned by the Justice Ministry's Labour Branch; and travel time in Carajás, discussed in a public civil proceeding filed by the Justice Ministry's Labour Branch. In the latter case, a decision has been reached and is being implemented.

In another case in Australia, Integra Coal Operations and Glennies Creek Coal Management have been prosecuted over the fatality of an employee at the Integra mine in 2009. A coronial inquest was conducted in November 2012, in which no evidence against Integra Coal Operations and Glennies Creek Coal Management was found. For three weeks, from July to August 2013, trials were conducted. Following the outcome of the investigation, an application was submitted to the Public Prosecution Service, requesting that the charges against the companies be dropped. However this request was rejected. If the dispute concerning the validity of charges is successful, the case will be closed. If it is not, the trial will continue, most likely until the second half of 2014.

## [2.09] Anti-competitive behaviour [507]

Pending administrative cases involving logistics operations allege anti-competitive behaviour. One of these involves Companhia Portuária Baía de Sepetiba (CPBS), a Vale subsidiary, for an alleged refusal to ship third-party iron ore. Vale understands that in this case the allegations are groundless.

The other case involves railway concessions granted directly to Vale (Vitória-Minas and Carajás railways) and to its subsidiary FCA, for alleged abusive price increases for users. This case was also filed by unanimity by Brazil's Council for Economic Defence (CADE in Portuguese).

## 12.10 Institutional partnerships [PI4.12, PI4.13]

### International Council on Mining and Metals (ICMM)

We have been a member of the ICMM since 2006 and our actions are aligned with this entity's 10 sustainability principles, as well as the commitment to reporting performance relating to these principles in line with the Global Reporting Initiative (GRI) guidelines. Therefore, since the 2009 Sustainability Report, external assurance by independent audit firms has been performed<sup>3</sup>.

We participate in regular ICMM meetings aimed at the continuous improvement of our sustainability management. Since October 2010, we participate on a working group dedicated to enhance the prevention of accidents and diseases. The initiative discusses indicators of health and safety, seeking alignment between companies in the mining sector.

We also contribute to discussions on climate change to formulate principles and sector's initiatives. In 2013, the ICMM held three international workshops on Mining, Competitiveness and Climate Policy. We supported IBRAM's Workshop in Brazil with the participation of representatives of the Brazilian government when the ICMM released three publications: "Adapting to climate change: implications for the mining and metals", which was coordinated by us, "Implications of carbon pricing for the competitiveness of the mining and metals industry" and "Options for reuse of revenue generated from carbon pricing".

We also participated in the Biodiversity Committee and the Social and Economic development program, initiatives adhering to the principles of the ICMM.

### United Nations Global Compact

Since 2007, we have been signatories and have based our actions on ten core principles proposed by the United Nations Global Compact (UN), making a commitment to the International Labour Organisation (ILO)'s Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the UN Convention against Corruption<sup>4</sup>.

Since 2010, at the invitation of the UN, Vale has been a member of the Global Compact LEAD platform. This platform brings together leading companies in sustainability matters that were already engaged in the Global Compact initiative. As part of this cooperation, since 2011 we have participated in programs related to issues such as sustainable energy and engagement with indigenous populations.

In 2013, we actively participated in two new groups:

---

<sup>3</sup> The remissive index in this report presents a correlation of Vale's performance in relation to the respective principles of the ICMM.

<sup>4</sup> The index presents a correlation between Vale's practices and performance and the Global Compact's respective principles.

Continues on next page >



**Post-2015 Development Agenda** — The group submitted a draft to the UN Secretary-General with the aim of contributing to the definition of the Post-2015 Development Agenda (Sustainable Development Goals) to include the business perspective.

**Shaping the Future of Reporting** — It aimed to foster greater alignment between the major initiatives in this field, focusing mainly on the structure of Integrated Reporting. In addition to providing an opportunity for early engagement in the matter, membership in this group also provided an opportunity to contribute to the final format of the document.

Vale also participates in the Global Compact's Brazilian Network, acting in the Brazilian Global Compact Committee (CBPG), and the Environmental Taskforce.

### **World Economic Forum**

In 2012, Vale became a formal member of the World Economic Forum (WEF), promoting, in different levels of the Forum, an strategic agenda on global challenges faced by the private sector that directly influence the sector, in particular the mining industry.

We acknowledge our duty of transparency and participation in the global dialogue to share best practices and knowledge one medium and long-term challenges. As an industry member, we actively participate in the Industrial Group on Mining and Metals and the WEF Responsible Mineral Development Initiative (RMDI). We were invited to participate in two new RMDI advisory groups that debate the role of mining in a sustainable world in 2050 and the new models of infrastructure investment in the mining and metals sector.

The entity contributes to the Strategic Infrastructure Initiative for Africa, with the aim of developing a methodology to prioritize projects with contributions to economic growth and social development. In addition to the WEF, the initiative has the support of infrastructure companies, the African Development Bank, the African Union Commission, the Program for Infrastructure Development in Africa (PIDA), research institutions and global or regional agents.

Vale also collaborates in the area of anti-corruption and transparency of the WEF, participating as a member of the Global Agenda Council (GAC).

### **World Business Council for Sustainable Development**

We are a member of the World Business Council for Sustainable Development (WBCSD), an institution founded at the 1992 Rio Earth Summit to promote discussions on sustainability issues among companies and guarantee them a participating role in the debates.

Currently, Vale is co-president of the new WBCSD project "Action 2020" which aims to show ways for companies to exercise their role in the challenge for a sustainable planet, with suggestions on public policies and business solutions to achieve this goal. During 2013, our main contribution was in the working groups on climate change, ecosystems, talents and jobs, and basic needs and rights. We also interacted with the Brazilian Business Council for Sustainable Development (CEBDS in Portuguese), the representative of the WBCSD in Brazil.

### **Vale Columbia Center on Sustainable International Investment (VCC)**

We are the founder and principal sponsor of Vale Columbia Center on Sustainable International Investment (VCC), a partnership between the Earth Institute and the School of Law at Columbia University, in the United States. VCC seeks to advance in sustainable development through partnerships with investors, governments and academia, reaffirming the essential role played by responsible investors. The VCC acts as an "incubator" of ideas, models and projects that serve for decision making.

Continues on next page >



### **Sustainable Development Solutions Network (SDSN)**

Founded in August 2012, by the Secretary-General of the United Nations, the Sustainable Development Solutions Network (SDSN) mobilizes technical and scientific expertise of the academia, the civil society and the private sector supporting the resolution of problems of sustainable development on local, national and global scales. Vale is part of both the Executive Committee, as well as the Leadership Committee and participates in the discussions of the thematic group on “Good Governance of Extractive Resources”.





## 12.111 Participation in organizations and associations

### Global

- International Council on Mining and Metals (ICMM)
- Centre National de Recherche Technologique Nickel et Son Environnement (CNRT Nickel)
- International Chamber of Commerce (ICC)
- Global Business Coalition on HIV/Aids, Tuberculosis and Malaria (GBC)
- International Emission Trading Association (Ieta)
- United Nations Global Compact (Global Compact)
- Business and Industry Advisory Committee to the OECD (Biac)
- Reputation Institute
- The Nickel Institute
- World Business Council for Sustainable Development (WBCSD)
- Business for Social Responsibility (BSR)
- World Economic Forum (WEF)
- Sustainability 50
- Sustainable Development Solutions Network (SDSN)
- Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)

### Regional

- Brazil-Canada CEOs Forum
- Brazil-USA CEOs Forum
- European-Ferro Alloys Association (Euroalliages)
- European Association of Metals (Eurometaux)
- European Steel Association (Eurofer)
- Latin American Institute of Iron and Steel (Ilafa)

### National

- Brazilian Association of Science (ABC)
- Brazilian Association of Infrastructure and Base Industries (Abdib)
- Brazilian Port Terminals Association (ABTP)
- Brazilian Foreign Trade Association (AEB)
- Brazilian Studies Center for International Relations (Cebri)
- National Confederation of Industry (CNI)
- Brazilian Business Council for Sustainable Development (CEBDS)
- Brazil-China Business Council (CEBC)
- Brazilian Mining Institute (Ibram)
- The Mining Association of Canada (MAC)
- Brazilian Railway Transport Association (ANTF)
- Ethos Institute for Business and Social Responsibility
- Brazilian Foundation for Sustainable Development (FBDS)
- Minerals Council of Australia<sup>3</sup> (MCA)
- Australian Coal Association<sup>3</sup> (ACA)
- Australian Coal Association Research Program (ACARP)<sup>5</sup>

---

<sup>3</sup> National Institutions in their respective countries.

## 12.12] Recognitions and awards [PI2.10]

- Listed on the Corporate Sustainability Index (Índice de Sustentabilidade Empresarial, or ISE) of the São Paulo Stock Exchange (Bovespa) for the fourth consecutive year, for the year 2014.
- Highest transparency score in the evaluation of a Carbon Disclosure Project (CDP) questionnaire taken by Latin American companies.
- Listed in the Global 100 ranking as one of the 50 more sustainable companies in the world, according to the study produced by the Canadian company Corporate Knights.
- One of the 61 most sustainable companies in Brazil, according to Sustainability Exame Guide 2013.
- Green Seal, Socio-environmental Chico Mendes Award, granted by the International Institute of Research and Socio-environmental Responsibility Chico Mendes.
- One of the 20 companies with the best environmental practices in Brazil, according to the Época Green Company Award.
- Brazil Environmental Award (PBA in Portuguese), awarded by the American Chamber of Commerce of Rio de Janeiro in the category Conservation and Ecosystem Management.
- First on the list of 100 largest Brazilian mining companies, according to the ranking of the magazine “Brasil Mineral”.
- First place in the mining, steel and metallurgy research ranking of “The 100 companies that have the best reputation in Brazil” conducted by “Exame” magazine. In the same research, we reached the third place in responsibility and corporate governance, and the sixth place in the ranking of dream companies for Brazilian executives. President Murilo Ferreira was in 16th position on the list of executives with best reputation in Brazil.
- First on the list of most admired companies in the mining industry, according to “DCI Journal”.
- Second place as the most desired companies, awarded by the newspaper “Valor” and the consulting firm Aon Hewitt.
- Third in the ranking of Dream Company by the magazine “Você S/A”
- Executive Value Award, awarded to President Murilo Ferreira by the newspaper “Valor Econômico” in the Mining category for the second consecutive time.
- The executive director of Human Resources, Health & Safety, Sustainability and Energy, Vania Somavilla, is on the list of the prize Você RH – as HR Professional of the year in the category Mining.
- The British organization Women In Mining (WIM) included in the global list pointing the hundred most inspiring women in mining: the executive director of Human Resources, Health & Safety, Sustainability and Energy, Vania Somavilla, the manager of Technical Services Mine Plant and the Sudbury operations in Canada, Samantha Esply, and the director of Health and Safety, Jennifer Hooper.
- Herity International, international certifier of quality in management of cultural heritage

Continues on next page >



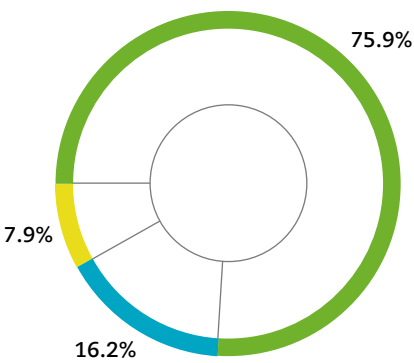
recognized Vale Museum (ES), an initiative of Vale Foundation, as a space of excellence in contemporary art.

- Neide Castanha Award granted by the Brazilian Presidency Human Rights Department, in the category Social Responsibility.
- Sport Corporate Friend Award, granted by the Sports Ministry. Second place in the national category Best Friend of Sport, third place in the category Dedication and Sports Incentive, and first place in the category Best Friend of Sport in Espírito Santo.
- Transparency leader in carbon management, integrating the Climate Disclosure Leadership Index (CDLI) for the fourth time.
- Awarded with the Gold seal of the Brazilian GHG Protocol Program for the fourth consecutive year for its Inventory of Greenhouse Gases (GHG) Emissions.
- Silver medal of the Shingo Awards for Operational Excellence, considered the “Nobel Prize of the Industry” by the U.S. magazine Business Week. The recognition was granted to Clydach refinery in the UK.
- Vale’s operations in Canada were awarded with the Mining Association of Canada (MAC) for the social performance as part of the Towards Sustainable Mining (TSM) initiative. Manitoba, Voisey’s bay, Port Colborne and Sudbury operations were recognized for the initiatives: awareness campaigns for communities and indigenous peoples, tailings management, planning of crisis and energy management, and GHG emissions.
- Award Winner of Social Service, Asia-Pacific Enterprise Leadership Awards (Apela) 2013 organized by the Asia-Pacific Economic Cooperation (Apec), for its approach to social responsibility and social investments in Malaysia.
- Environment Award in the category Air Quality awarded by the Federation of Industries of the Espírito Santo (Findes).
- Listed among the 20 companies featured in the 2013 edition of Best Innovator -The Most Innovative Companies in Brazil, a study published in the magazine “Época Negócios”.
- Best position among the eight Brazilian companies in the ranking published in November by the European Committee, showing the companies that have invested in research and development. Vale was in the 98th position among the two thousand listed companies.
- Only Latin American company in the top 20 of Make Award (Most Admired Knowledge Enterprises), of the American institution The Know Network.
- One of the eight Brazilian companies ranking among the 500 largest companies in the world by Fortune magazine, in the 210 position in 2013.
- 1st place in the mining sector ranking with the 1,000 largest companies in Brazil, conducted by the newspaper Valor Econômico.
- Troféu Transparência 2013 (Transparency Award) awarded by the National Association of Executives in Finance, Management and Accounting (Anefac). The award is given to companies with the best practices of transparency in accounting information, with regard to the quality of the management report and consistency with the data disclosed, among other factors



### [3.01] Vale's people - key figures [LA1]

#### Employees by functional category<sup>1</sup>



Operational technicians	75.9%
Specialists	16.2%
Leadership	7.9%

<sup>1</sup> Supervisors, managers and directors are considered in the Leadership category.

[3.02] Integrated health strategy [LA8]

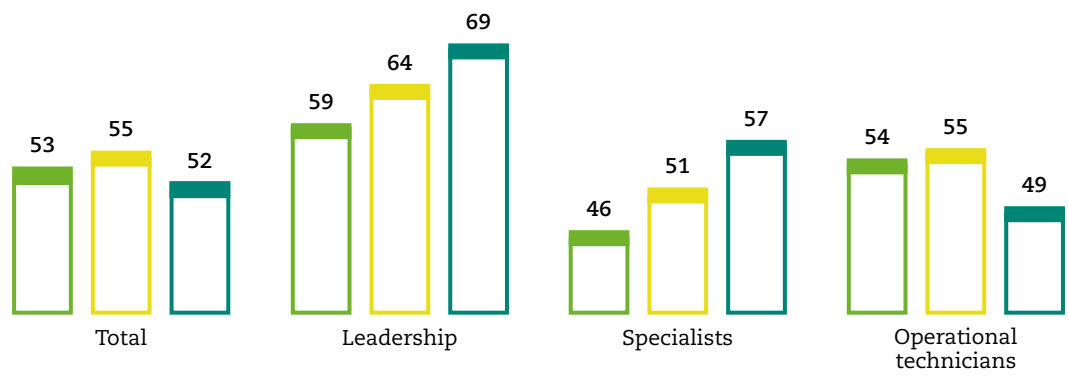
Health and safety actions aimed at employees, family members and communities

Target group	Education/training	Advice	Risk prevention /control	Medical treatment
Employees	Workshops for managers and employees on substance abuse and drug addiction; lectures and training on gender equity; cancer and diabetes prevention campaigns; HIV/AIDS transmission prevention campaigns; support groups for people with diabetes, hypertension and cardiovascular risks; lectures about quality of life and health promotion. Training on malaria prevention; hearing loss due to noise; and various issues related to ergonomics.	Employee Assistance Program offers guidance on many issues, including legal, financial and interpersonal subjects, and advice on the use of medicines, psychosocial disorders and other diseases. Pre-trip counselling to employees sent to international operations.	Primary, secondary and tertiary controls of malaria; inspections to control dengue and yellow fever; actions to promote health (such as prevention and treatment of drug addiction and fatigue, and improvements to quality of life) and ergonomics; routine vaccinations for influenza, HPV and those recommended for each travel destination.	Outpatient, first aid and assistance care.
Families	Cancer, diabetes, HIV/AIDS and malaria prevention campaigns; support groups for people with diabetes, people with hypertension and cardiovascular risk; workshops on substance abuse and drug addiction.	Legal, financial, psychosocial advice and on various health subjects; monitoring of social assistance to families of employees with psychiatric illnesses and drug addictions.	Various vaccinations; inspections to prevent dengue, yellow fever and malaria.	Assistance Care.
Communities	Malaria, dengue and yellow fever prevention campaigns, Employee and Family Assistance Program, aimed at assisting employees and their family in drugs issues, household budget, relationship with children, etc.; HIV/ AIDS and other STDs prevention campaigns.	–	Conducting awareness raising and continuing education for healthy eating habits; identifying individuals susceptible to chronic fatigue due to psycho-affective motives and sleeping disorder; programs to establish a practice to identify, assess, control, prevent and minimize hazards and risks of processes and travel-related activities and their consequences for people's health and safety.	–

### [3.03] Continuing education and training initiatives [HR8, LA10]

#### Training hours<sup>I</sup>

(annual average)



	2011	2012	2013
Total	53	55	52
Leadership	59	64	69
Specialists	46	51	57
Operational technicians	54	55	49

<sup>I</sup> Own employees covered by this indicator (LA10) correspond to 98% (2011), 93% (2012) and 93% (2013) of the total reported employees (LA1).

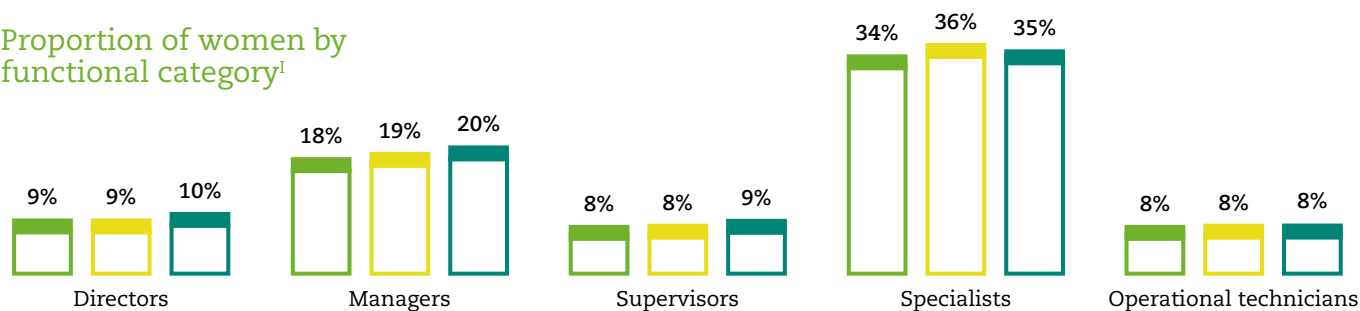
Since 2008, we provide human rights training for professionals in the area of Corporate Security. In 2013, more than 4,000 contractors and 217 own employees completed this training in 9 countries, among them Brazil, Mozambique, Malawi, China, Indonesia and Oman. This represents 81% of the company's global security workforce.

One of the Human Rights Policy guidelines is to update corporate security professionals on the topic, offering a refresher course every two years.

## [3.04] Women in the workforce [LA13, LA14]

Top management - the Executive Board, Board of Directors and Fiscal Council<sup>1</sup> - consists of 38 people - 37 men and one woman. Eight of the members are in the 40 to 50 age bracket, while 30 are over 50 years of age.

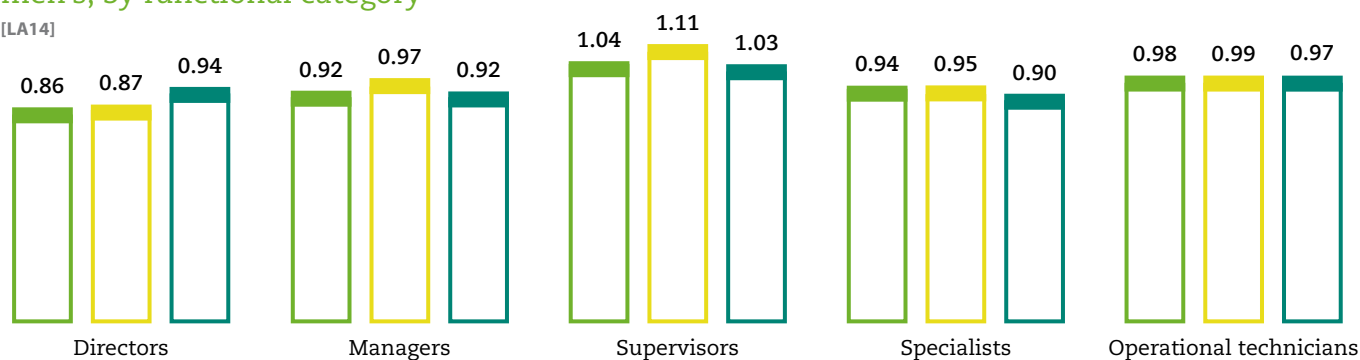
### Proportion of women by functional category<sup>1</sup>



	2011	2012	2013
<b>Directors</b>	9%	9%	10%
<b>Managers</b>	18%	19%	20%
<b>Supervisors</b>	8%	8%	9%
<b>Specialists</b>	34%	36%	35%
<b>Operational technicians</b>	8%	8%	8%

### Proportion of women's salary to men's, by functional category<sup>1</sup>

[LA14]



	2011	2012	2013
<b>Directors</b>	0.86	0.87	0.94
<b>Managers</b>	0.92	0.97	0.92
<b>Supervisors</b>	1.04	1.11	1.03
<b>Specialists</b>	0.94	0.95	0.90
<b>Operational technicians</b>	0.98	0.99	0.97

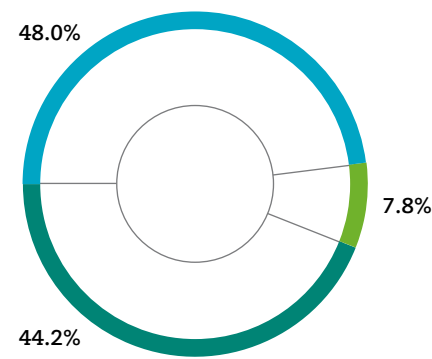
<sup>1</sup> Position in 2013.

Own employees covered by this indicator correspond to 98% (2011), 96% (2012) and 98% (2013).

Continues on next page >

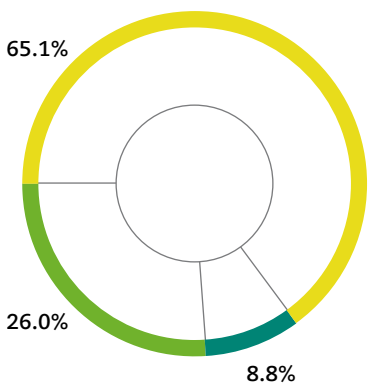


Distribution of women by functional category<sup>1</sup>



Leadership	7.8%
Specialists	44.2%
Operational technicians	48.0%

Employees by age<sup>1</sup>



Under 30 years	26.0%
Between 30 and 50 years	65.1%
More than 50 years	8.8%

<sup>1</sup> Own employees covered by this indicator (LA13) correspond to 99% (2011), 99% (2012) and 100% (2013) of total reported employees. (LA1)

### [3.05] Benefits [LA3]

All our employees receive medical insurance and life insurance . Benefits such as personal accident insurance, private pensions, transportation allowances, education and training, meals at work and/or food assistance and the Employee Assistance Program<sup>2</sup> - Apoiar - are offered to most employees.

In Brazil, fixed-term contractors receive the same benefits as employees with indefinite contract. In Canada there are contingent and temporary work contracts. For these workers, benefits vary by location.

<sup>2</sup> The Apoiar ("Support") program offers free and confidential psychological support, and financial and legal assistance to all employees and their families.



## 13.06 Pension plans [EC3]

In Brazil, Vale's pension foundation — Fundação Vale do Rio Doce de Seguridade Social (Valia) — is responsible for managing the company's complementary pension plans. It is a non-profit closed entity with administrative and financial autonomy. In areas outside Brazil, Vale operates according to the laws of each country, and plans are administered individually.

As stated in the Human Resources Standard, the funds that are Vale's responsibility are governed by a Global Pension Funds Committee. This committee must gain the approval of Vale's Executive Board for any decisions about the establishment or winding up of pension plans, as well as any changes to their design, contributions policy or governance structure. The committee also supervises the company's pension plans and establishes global principles and guidelines for managing the plans, as well as their performance.

Most participants in Valia are members of variable contribution<sup>3</sup> plans with a defined benefit component (payable specifically in cases of death and disability retirement) and defined contributions (for programmable benefits). In the case of defined benefits, the value is determined in advance through actuarial assessments regularly updated to ensure they can be provided. For defined contributions, the value is continually adjusted to the resources maintained on behalf of the members<sup>4</sup>.

The defined contribution component of the variable contribution plans aims to ensure that the plan remains financially sustainable over time. The defined benefit component is designed to avoid a significant decrease in income in the case of retirement due to disability or the death of the family wage earner. For more information, visit [www.valia.com.br](http://www.valia.com.br) (available in Portuguese).

Valia administers the complementary pension plans of the companies within the scope of this report, such as Vale S.A., Urucum Mineração, Vale Manganês, FCA, CPBS<sup>5</sup>. Vale's fertilizer companies joined Valia in 2011 and also sponsor a defined benefit plan that is administered by Petros, and other variable contribution plan in Bungeprev, which is in the process of transferring management to Valia. This is to be completed in 2014.

Vale Canada sponsors pension plans that use both the defined benefit and defined contribution models, mainly for employees in Canada, the UK and Indonesia. All defined benefit plans are closed to new employees, who only benefit from defined contribution pension plans.

In 2013, the value of additional pension benefits supplied by non-registered plans, where the liabilities are directly met by the company's general resources<sup>6</sup>, was around US\$87 million. More information about pension plans can be found in the 20-F Form, in the Investors section of [www.vale.com](http://www.vale.com).

<sup>3</sup> This nomenclature follows Brazilian legislation.

<sup>4</sup> Net result of investments, with values transferred by members and benefits paid by the plan.

<sup>5</sup> Other companies that are not included in the scope of this report are also covered by Valia.

<sup>6</sup> In these cases, the employee does not take part in paying towards the funds.

Continues on next page >



## Plans offered by Valia in Brazil (2013)

Plan	Plan Type	Participants (thousand) <sup>I</sup>	Coverage
Vale Mais Plan and ValiaPrev <sup>II</sup>	Variable contribution <sup>III</sup>	89.9	Exceeding 100% <sup>IV</sup>
Defined Benefit Plan <sup>V</sup>	Defined benefit	16.6	
Complementary bonus <sup>VI</sup>	Defined benefit	1.9	Exceeding 100%
Total	—	106.5 <sup>VII</sup>	—

## Plans offered outside Brazil (2013)<sup>VIII</sup>

Country	Operation	Plan Type	Participants (thousand) <sup>I</sup>	Percentage of liabilities covered by assets
Canada	Newfoundland& Labrador	Defined contribution	0.2	NA
Canada	Ontario and Manitoba	Defined benefit	20.2	Between 91% and 93% <sup>IX</sup>
Canada	Ontario and Manitoba	Defined contribution	1.8	NA
Indonesia	PT International Nickel Indonesia	Defined benefit	0.1	NA
Indonesia	PT International Nickel Indonesia	Defined contribution	3.0	100%
UK	Clydach and ActonRefineries	Defined benefit	1.5	83%
UK	Clydach and Acton Refineries	Defined contribution	< 0.1	NA
Australia	Carborough Downs and Integra	Defined contribution	0.8	NA
Total	—	—	27.5	—

<sup>I</sup> Includes active and assisted employees (retirees and pensioners).

<sup>II</sup> Employees contribute, on average, with 4% of the base salary (35% of the plans' cost) to pay the planned pension.

<sup>III</sup> Defined contribution scheme with a defined benefit component.

<sup>IV</sup> This level of coverage refers to the defined benefit amount paid by variable contribution plans and the defined benefit plan.

<sup>V</sup> The Defined Benefit Plan was closed to new members on April 30, 2000, when the Vale Mais Plan was implemented.

<sup>VI</sup> Participants in this plan are retirees in the defined benefit plan who left the company as part of the retirement incentive plan. This plan is closed to new members.

<sup>VII</sup> Not including recipients of the complementary allowance that is included in the Defined Benefit Plan.

<sup>VIII</sup> For these plans, in general employees do not pay towards the cost of the plan.

<sup>IX</sup> The degree of coverage refers to data from the accounting valuation of December 31, 2013.

<sup>VIII</sup> In these cases, the employee does not take part in paying towards the funds.

**NA** not applicable



## [3.07] Turnover [LA2]

	Turnover <sup>1</sup>			No. of employees (Total)	No. of employees who left the company
By gender	2011	2012	2013		
General	4.7%	5.1%	6.6%	83,286	5,466
Men	4.7%	5.0%	6.3%	72,472	4,547
Women	5.0%	5.9%	8.5%	10,814	919

	Turnover <sup>1</sup>			No. of employees (Total)	No. of employees who left the company
By age bracket	2011	2012	2013		
Under 30	4.5%	4.4%	5.4%	21,693	1,176
Between 30 and 50 years	4.0%	4.8%	2.6%	54,237	1,409
Acima de 50 anos	10.7%	10.1%	39.2%	7,356	2,881

	Turnover <sup>1</sup>			No. of employees (Total)	No. of employees who left the company
By region	2011	2012	2013		
Brazil	3.9%	4.7%	5.9%	66,165	3,892
Canada	7.3%	6.5%	6.2%	6,645	413
Indonesia	6.8%	5.5%	4.2%	3,208	135
Mozambique	8.0%	6.7%	11.5%	2,226	257
New Caledonia	11.9%	2.1%	9.6%	1,355	130
Australia	19.1%	26.4%	20.3%	952	193
Others	5.2%	4.4%	16.3%	2,735	446

<sup>1</sup> Employees covered by this indicator (LA2) correspond to 98% (2011), 99% (2012) and 100% (2013) of the total reported employees (LA1).



## [3.08] Retirement [LA11]

We also encourage pre-retirement financial planning through the private pension Valia and provide guidelines with expert advisors.

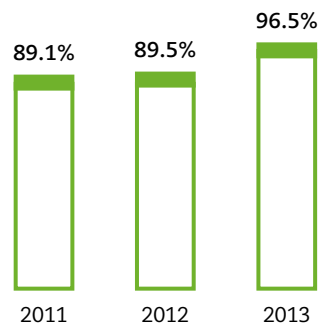
In 2013, we conducted in Vitória (ES) the Program Novo Tempo preparing for retirement. Divided into four modules, 50 leaders and 90 employees participated in the program. Similar practices were developed in Switzerland and Indonesia.



### [3.09] Health and safety committees [LA6]

Health and safety committees, known in Brazil as Internal Accident Prevention Committees (CIPAs in Portuguese), are composed of representatives who are elected by employees and appointed by the company at each unit (including mines, factories, plants, offices, storage areas and laboratories), in accordance with the regulations of the Ministry of Work (NR5).

#### Workforce representation through formal health and safety committees<sup>1</sup>



<sup>1</sup> Some units had less than 100% of employees represented by a committee. This was due to factors such as the following: fewer employees at the unit than the minimum number established in law for establishing up a committee, a committee had not yet been created at a new project; and new employees at a site had just been hired.



[3.10] Social and economic studies [501]

Programs and practices per phases of the project	License/Deployment	Operation	Closing
Environmental, social and economic impact assessment	○	○	△
Management of social, environmental and economic impact	○	○	△
Mine closure plan	△	○	△
Development of suppliers	○	○	△
Professional qualification (employees and communities)	○	○	△
Community relations (local and traditional)	○	○	△
Valorization of cultural heritage	○	○	△
Social Programs	○	○	△

Reference	
○	Intense occurrence
△	Moderate occurrence



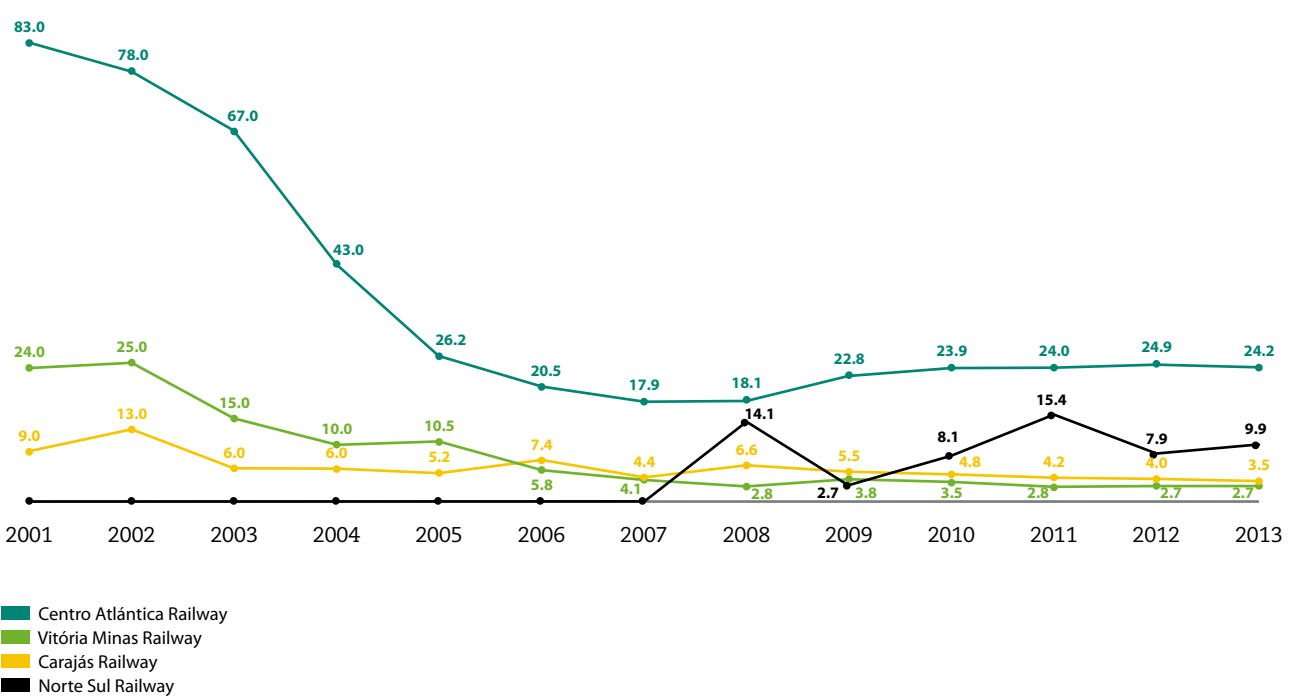
# [3.11] Railway incidents

The tracks run through ten states, crossing about 400 municipalities and passing through communities that are growing along the railways. Consequently, Vale pays close attention in this area in order to monitor the risk of incidents.

Vale is committed to reducing the number of incidents occurring on its railways and maintains several initiatives to mitigate impacts, such as identifying critical stretches of environmental risk, weather monitoring, expanding the number of simulators and training to drive trains. Other initiatives are failure blocking systems, standardization of operations, periodic track and rolling stock maintenance, educational, awareness campaigns in communities influenced by railways and modernization and expansion of signalling systems. In addition to having dedicated teams to manage, monitor, track and implement preventive actions to all incidents.

## Incidents

Per million train/km (Mtkm)



## [3.12] Involuntary relocation [MM9]

Involuntary relocation				Number of households relocated			
Name of Implementation / Expansion Project	Place	Country	State	Compensation (not assisted)	Assisted compensation	Relocated without compensation	Relocated with compensation
Modernization Project BH - Sabará	Neighbourhood General Carneiro	Brazil	MG	8	7	0	0
	Neighbourhood Nações Unidas	Brazil	MG	22	20	0	0
S11D Logistics	São Félix	Brazil	PA	0	1	0	0
Operational Unit Onça Puma	Settlement Project Campos Altos and Tucumã	Brazil	PA	18	34	0	20
Project Greenfield Section 8 and Port	Mossuriland Nacala-a-Velha	Mozambique	Nampula	7	0	0	39
Total				55	62	0	59

In 2013, the process of involuntary relocation of 27 families with assisted compensation for the Modernization Project BH - Sabará (MG).

In July 2013, the North Logistics Training (CLN) S11D project, including the Railway Station of southeastern Pará and North Logistics Training (CLN 150 Mtpa) for expansion of Carajás Railway, completed negotiations with the National Institute of Colonization and Agrarian Reform (INCRA in Portuguese) and the Landless Workers Movement (MST in Portuguese) about people that are occupying São Luiz Farm in the municipality of Canaã dos Carajás, State of Pará. The documentation for the formalization of the case is also being provided. For 2014, there will be resettlement of eight families from the settlement Onalício Barros, in the municipality of Parauapebas in Pará.

In the municipality of Itabira, in Minas Gerais, in the neighbourhood Vila Paciência, negotiations and voluntary acquisitions continued in 2013 and there was no households' displacement. It is expected that this negotiation process will continue in 2014.

In Mozambique, in the region of Mossuril and Nacala-a-Velha in Nampula province, out of 39 families, 24 have already been compensated and are awaiting assisted self-building in temporary homes, and 15 families from the Napazo community were compensated and await assisted self-building of their houses. Other seven families were also relocated by means of compensation without assistance. In Moatize, there were no new settlements in 2013.

To implement the CLN S11D project, a single family that occupied the right of way zone of the Carajás Railway, in Maraba, Pará was relocated. Other 44 families in the same situation entered into the removal process throughout 2014. The necessary measures to assist other 150 families that occupy the area around the railway will also be evaluated with the community and public authorities.

In the surroundings of Onça Puma 72 families were relocated. After negotiations between Vale and the mapped families, 20 of them were resettled under the Resettlement with Compensation modality at the União Settlement, in the municipality of Ourilândia North, in Pará. Other 34 families already received their compensation under the Assisted Compensation modality. 18 families were relocated under the Compensation Without Assistance.

In 2014, Vale will support the productive recovery and social monitoring of families that are in the form of Assisted Compensation. Negotiations with families that still have to be removed in Onça Puma will continue throughout the year.



## [3.13] Artisanal and small-scale mining [MM8]

Artisanal and small-scale mining practice is especially widespread in gold and diamond extraction activities. However, we have also identified incidents in other mineral extraction activities, such as copper, cobalt, sand and clay, either inside mining companies operations or adjacent to them.

When the activity is illegal, artisanal mining may pose risks to the health and safety of the community or damage the environment.. In these cases, we resort to the public local power to take appropriate action.

When activity is legal, we foster good relations and health and safety training for employees regarding prevention of risks violations of human rights and inclusion of the issue in assessing risks and impacts from operational activities.

To avoid incidents, Vale considers fundamental preventive actions and continuous monitoring of internal or adjacent areas to its operations. In 2013, no new occurrences of artisanal mining and/or small-scale mining were identified. This practice was previously identified in Brazil (Mariana/MG) and Indonesia<sup>7</sup>.

Since 2007, Vale supports the program of transfer of mining rights at Quarry Santa Efigênia together with the Santa Efigênia Quarry Cooperative Workers in Mariana (MG), in partnership with the Federal University of Ouro Preto (UFOP in Portuguese). The program includes technical support for the Cooperative in obtaining licensing, technology transfer and structuring of the business plan.

In 2013, the main results of the program were: obtaining the Preliminary and Installation License issued by the Environmental Superintendent's Office (Supram in Portuguese), granting of license and protocol registry by relevant bodies for evidence of compliance with requirements in order to obtain the Authorisation for Operation. Vale maintains a monitoring program in Mariana (MG) to inhibit the practice of illegal mining. When an illegal action is reported, the company notifies the Civil Police, who is responsible to take appropriate action.

In 2012, Vale Indonesia, under the terms of the renegotiation process of the Labour Contract in 2012-2013, engaged with local and national governments to create a strategy to stop the transfer of mining licenses (IUP) and prevent future disruptions. In 2013, the company initiated a lawsuit against artisanal and small scale miners located in Vale's concession areas.

---

<sup>7</sup> Chile is not included in the scope of the report.



## [3.14] Resettlement in Mozambique [MM9]

### Infrastructure

- 625 homes were repaired in Cateme (85% of local total) and 18 in the neighbourhood of 25 de Setembro (10% of local total).
- Monetary compensation paid to 532 residents of the total local of the 760 planned until December 31.
- Engage the Cateme community in weekly cleaning the neighbourhood, involving schools, health centers and market. In 25 de Setembro the process is in the consolidation phase.
- Construction of elevated tank with a total capacity of 500m<sup>3</sup>, connected to a network of 17 fountains.
- Construction of the local market in Cateme.

### Health

- Construction of a health center in 25 de Setembro and a Night Clinic.

### Agriculture

- Installation of 22 irrigation system kits to improve the production and commercialization of vegetables.
- Supported 200 families in planting crops, including sesame and peas.
- Support of 50 families with donation of 150 animals for traction (100 males and 50 females) and 30 bulls in Cateme.
- Construction of two dams along the river Mualadzi to develop local agriculture.

### Employment and income generation

- Monthly agricultural fairs of local agricultural products in Cateme and Vila de Moatize.
- Professional training of approximately 90 students and 20 teachers from schools in Moatize in basic courses in carpentry, basic electricity and construction.
- Training in Pedagogy for 120 elementary school teachers from Moatize.
- Training in Sewing and Women Empowerment for 80 young people in the district of Moatize.
- Training of Female Household employees Home for 200 young people and adults in Moatize district.
- Development of the chicken value chain, with a total of 58 aviaries built in Cateme by the end of 2013. This benefited families in Cateme and 25 de Setembro, by forming producers and providing technical support.

Continues on next page >



### Communities

- Campaign on Safety and Accident Prevention for road, railway and construction sites between the months of August and October, conducted in schools, markets and other locations.
- Radio program “Coal and Development” in local language (Nyungwe) on Radio Mozambique.
- Opening of Vale for visitation for different society sectors could to know the company, bring their concerns and get responses.
- Introduction of the figure of the Community Agent in communities, strengthening dialogue and ensuring fidelity in the communicative process.
- Social Sport Program involving 400 children between 9 and 14 years old in the continuous practice of sports activities in 10 district schools as well as courses for soccer referees and coaches.
- Donation of 18,050 fruit tree seedlings to plant in homes, schools and communities surrounding Cateme.
- Installation of community radio in Cateme.



## 14.01 Endangered Species [EN15]

Number and classification of species in the Red List of the International Union for Conservation of Nature (IUCN) registered in Vale's areas of operations across the world

Thematic Group	Low Risk	Near Threatened	Vulnerable	Endangered	Critically Endangered	Extinct <sup>I</sup>	Total
<b>Plants</b>	<b>19</b>	—	<b>26</b>	<b>15</b>	<b>6</b>	—	<b>66</b>
<b>Fungi</b>	—	—	—	—	<b>1</b>	—	<b>1</b>
<b>Fauna</b>	<b>4</b>	<b>64</b>	<b>35</b>	<b>23</b>	<b>7</b>	<b>1</b>	<b>134</b>
Amphibians	—	2	2	1	1	—	6
Arthropods	—	—	1	—	—	—	1
Birds	—	44	12	14	1	1	72
Mammals	—	18	14	7	4	—	43
Molluscs	1	—	—	—	—	—	1
Fish	—	—	1	—	—	—	1
Reptiles	3	—	5	1	1	—	—
<b>Total</b>	<b>23</b>	<b>64</b>	<b>61</b>	<b>38</b>	<b>14</b>	<b>1</b>	<b>201</b>

Number of species on official national lists of endangered species registered in Vale's areas of operations across the world<sup>II</sup>

Thematic Group	Special Attention	Low Risk	Vulnerable	Endangered	Critically Endangered	Extinct <sup>I</sup>	Partial total
<b>Plants</b>	<b>1</b>	<b>2</b>	<b>18</b>	<b>29</b>	<b>1</b>	—	<b>51</b>
<b>Fungi</b>	<b>1</b>	—	—	<b>1</b>	—	—	<b>2</b>
<b>Fauna</b>	<b>19</b>	—	<b>76</b>	<b>77</b>	<b>6</b>	<b>1</b>	<b>179</b>
Amphibians	2	—	—	3	1	—	6
Arthropods	2	—	1	8	—	—	11
Birds	8	—	38	46	2	1	95
Mammals	2	—	32	9	2	—	45
Molluscs	—	—	—	2	—	—	2
Fish	3	—	1	6	1	—	11
Reptiles	2	—	4	3	—	—	9
<b>Total</b>	<b>21</b>	<b>2</b>	<b>94</b>	<b>107</b>	<b>7</b>	<b>1</b>	<b>232</b>

<sup>I</sup> Species with historical records in the region of Vale's operational units in Canada.

<sup>II</sup> Species listed on endangered species lists defined by the Ministry of Environment of Brazil were considered.





## [4.02] Areas protected by Vale or that the company helps protect [EN13]

Protected area	Location	Biome	Property	Area (km²)
Carajás National Forest	Brazil (PA)	Amazon Rainforest <sup>IV</sup>	Partnership ICMBio <sup>I</sup>	4,119.50
National Forest Tapirapé-Aquiri	Brazil (PA)	Amazon Rainforest	Partnership ICMBio <sup>I</sup>	1,900.00
National Forest Itacaiúnas	Brazil (PA)	Amazon Rainforest	Partnership ICMBio <sup>I</sup>	1,414.00
Tapirapé Biological Reserve	Brazil (PA)	Amazon Rainforest	Partnership ICMBio <sup>I</sup>	1,030.00
Environmental Protected Area Igarapé do Gelado	Brazil (PA)	Amazon Rainforest	Partnership ICMBio <sup>I</sup>	216
Botanical Park São Luís	Brazil (MA)	Amazon Rainforest	Owned	1.1
Tubarão Botanical Park	Brazil (ES)	Atlantic Forest <sup>V</sup>	Owned	0.3
Vale Natural Reserve	Brazil (ES)	Atlantic Forest	Owned	227.1
Sooretama Biological Reserve	Brazil (ES)	Atlantic Forest	Partnership ICMBio <sup>I</sup>	240
12 Private Reserves of Natural Patrimony (PRNP) at the Iron Quadrangle of Minas Gerais	Brazil (MG)	Atlantic Forest	Owned	70.4
2 Private Reserves of Natural Patrimony (PRNP) associated to Fertilizers operations	Brazil (MG)	Cerrado <sup>V</sup>	Owned	1.6
32 State Conservation Units located in the Iron Quadrangle	Brazil (MG)	Atlantic Forest and Cerrado	Partnership Semad/IEF <sup>II</sup>	3,090.80
Protection areas four small hydropower (SHPs)	Brazil (MG)	Atlantic Forest	Owned	3.3
Ilha Grande State Park	Brazil (RJ)	Atlantic Forest	Partnership Inea <sup>III</sup>	120.5
Nature Reserve ForêtNord	New Caledonia	Forest and Maquis Shrubland <sup>VI</sup>	Partnership with New Caledonia Government	2.7
Pic du Grand Kaori Reserve	New Caledonia	Forest and Maquis Shrubland	Partnership with New Caledonia Government	3.1
<b>Total</b>				<b>12,440.4</b>

<sup>I</sup> Data source: Partnership with Chico Mendes Institute for Biodiversity Conservation (ICMBio) – ([www.icmbio.gov.br/brasil](http://www.icmbio.gov.br/brasil)) – Ministry of Environment. Areas of conservation are under review by the Brazilian Government, and the values shown may change.

<sup>II</sup> Data source: State Department of Environment and Sustainable Development (Semad), State Forestry Institute (IEF), Government of Minas Gerais.

<sup>III</sup> Data source: State Environmental Institute (Inea), Government of Rio de Janeiro.

<sup>V</sup> The Atlantic Forest and Cerrado biomes are classified as hotspots.

<sup>VI</sup> Type of natural vegetation in the hotspot called New Caledonia.

<sup>IV</sup> The Amazon biome is classified as wilderness area.

[4.03] Area impacted and being restored [EN13, MM1]

Area impacted and area being restored (permanently and temporarily) by Vale in the period 2011-2013 (in km²)

Year	Impacted Area	Area being restored <sup>I</sup>		
		Permanent	Temporary	Total
2011	17.2	7.3	17.9	25.2
2012	22.9	7.2	5.6	12.8
2013	18.4	10.8	7.1	17.8
Total	58.5	25.3	30.6	55.8

Considering only the activities of mineral extraction or production, in 2013 Vale designated 8.1 km² for permanent restoration with an impacted area of 11 km², resulting in a closing balance of 599.4 km².

Opening and closing balance for mineral extraction or production activities (in km²)

Year	Impacted areas (opening balance) <sup>II</sup>	Impacted areas in the reference year	Areas undergoing permanent restoration in the reference year <sup>III</sup>	Impacted areas (closing balance) <sup>IV</sup>
2011	584.7	15.1	7.2	592.6
2012	588.8 <sup>V</sup>	14.8	7.1	596.5
2013	596.5	11.0	8.1	599.4

I The restoration of degraded areas is a gradual process demanding medium and long term action. The term “undergoing restoration” denotes areas in which the activities have been initiated and are in progress (initial restoration of certain ecosystem functions and gradual increase in species, with the aim of returning the vegetation to a state of stability). “Undergoing permanent restoration” corresponds to areas that will no longer be affected by the company’s activities, while “undergoing temporary restoration” covers areas that may be used again in operational activities.

II Annual opening balance represents the total amount of land to be restored by the company at the beginning of the reference year.

III Areas undergoing temporary restoration are not computed. Only areas in the process of permanent restoration are considered.

IV Represents the total amount of land to be recovered by the company at the end of the reference year.

V Difference between the opening balance in 2012 and the closing balance in 2011 due to disinvestment in Cadam unit.



## [4.04] Research and Development

We seek to implement best practice in environmental restoration. For this purpose, we develop Research and Development (R&D) projects, often in partnership with educational and research institutions. The studies are focused on cost reduction, selection of plant species for potential use in environmental restoration, improvements to techniques applied, and development of indicators to show the quality of environmental restoration. We also seek greater knowledge of species ecology, in order to transform it into a positive legacy for the scientific communities and collaborate in the adoption of practices in use.

To disseminate our actions and best practices, we also support events and initiatives by universities and research institutions. In 2013, we sponsored three events focusing on the recovery of degraded areas, all with participation of Vale employees: Brazil forum of degraded areas, 1st Seminar on Environmental Monitoring on Recovery Programs of Degraded Areas and the 64th National Congress of Botany.

To disseminate the results of these studies, in October 2013 we conducted the workshop R&D on Recovery of Degraded Areas and Rocky Lands. The event helped promote cooperation between research groups funded by Vale, our partner institutions and experts, as well as to identify the complementarities between the different ongoing research projects, mapping opportunities and potential areas for future collaboration. There was special focus on the integration of Vale's employees with researchers from several universities and research institutions. The intention is that every year there are similar events, focused on bringing real application R&D projects closer to company operations.

In 2013, we also advanced in the initiative on the work forum started in 2012. Renamed as RAD Working Group, the forum promoted four board meetings throughout the year, covering topics on four guiding pillars: integration areas, knowledge application, joint performance and market perception. Work developed by the group has already rendered concrete results, such as the development of a company strategy on the use of topsoil (superficial soil layer rich in organic matter) This work, which has already had its first stage completed, seeks to analyze the reality of the company areas with the goal of enabling greater use of material taken from suppression areas.



## [4.05] Conflicts over land use [MM6, MM7]

However, despite the active management of the subject we were involved in cases of conflicts over land use., with 50 cases of invasions to Vale's property in the following Brazilian states: Espírito Santo, Maranhão, Minas Gerais, Pará, Mato Grosso do Sul and Rio de Janeiro. Most cases are related to conflicts on the side of Vitória-Minas and Carajas Railway and include occupations, irregular boundaries, installing fences for family farming and building homes or small commercial buildings. Legally, maintaining the integrity of railways easement is Vale's responsibility for security reasons.

In many cases it is possible to manage conflicts through dialogue between the parties. However, in some cases it may eventually be necessary to conduct the proceedings in court. In these situations, we seek reconciliation and respect for the rights of those involved. We prioritize agreements that support for productive projects and regional development.



## [4.06] Mine Closure [MM10]

Decommissioning actions are being conducted in Vale's operational units in Brazil, such as the elaboration of the conceptual projects for the geotechnical structures of industrial and civil facilities of the Córrego do Meio mine in Sabara and Águas Claras mine, stopped since 2002, both in Minas Gerais.

At Vale, an internal procedure regulates the creation of a fund for the release of resources for asset demobilization. Each mine is evaluated and the estimated amount needed for its decommissioning is determined. This value is deducted from company income to create a fund. This procedure has been conducted annually since 2003, and at the end of 2013, the fund total provisions was of US\$1.38 billion.

Part of this amount started to be used for some structures that have reached their project limits: US\$27.7 million for two rock piles and demobilization of a crushing plant at Carajás (PA), US\$9.1 million for the recovery of Pico do Itabirito (MG), and US\$2.6 million for closing projects, among them Córrego do Meio mine (Minas Gerais). For 2014, it is expected to use another US\$2.2 million for closure of pits that reached their final configuration, in Corumbá (MS), and US\$5.0 million for the start of works at mine Córrego do Meio.

The use of funds is monitored by the Environment Department and subject to external audits to ensure proper use of reserve.



## [4.07] Mining waste [MM3]

Vale dams are constructed and operated following strict safety standards and audited periodically to monitor and reduce all potential risks, including structural failures. The geochemical characteristics of mineral waste are also analyzed in order to identify risks related to the potential to generate acid drainage.

Based in the National Dam Safety Brazilian Policy, Vale presented in 2013 the stability statements and regular inspection reports of tailings dams. According to this Law, 98% of our tailings dams in Brazil are classified as “Low Risk”, indicating excellent levels of safety management.

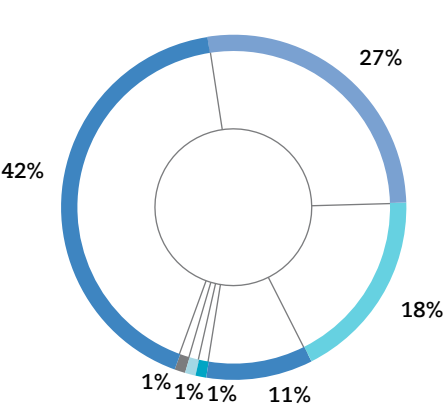
The work includes conducting technical safety audit every three years. In 2013, dams in Minas Gerais were audited and the results indicate a significant and progressive improvement of safety levels compared to previous years. In addition to the periodic inspections and audits regulated by the National Dam Safety Policy, the management process is assessed periodically through specific audits in compliance international standards technically and scientifically recognized - applied when there are no specific regulations - associated to control requirements specified in the Sarbanes-Oxley Act.



[4.08] Non-mineral waste [EN22]

Generation of non-hazardous waste

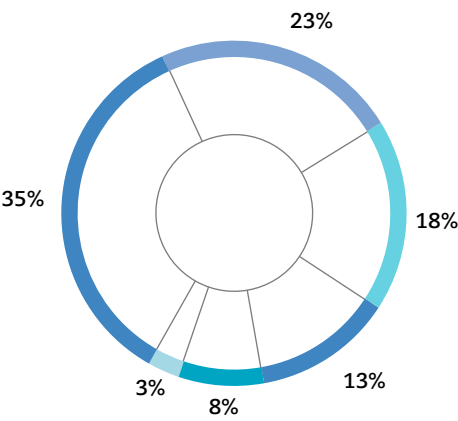
Total of 977 thousand tons



Nickel	42%
Potash, nitrogen, phosphate	27%
Iron Ore	18%
Logistics	11%
Coal	1%
Copper	1%
Manganese	1%

Generation of hazardous waste

Total of 29 thousand tons



Iron Ore	35%
Nickel	23%
Logistics	18%
Potash, nitrogen, phosphate	13%
Coal	8%
Copper	3%
Manganese	0%



## [4.09] Spills [EN23]

Location	Spilled Material	Spilled Volume	Unit	Description of Impact	Measures taken	Final Plan
Betim, Campos Altos, Contagem, Sabará (MG)	Bran and soy bean	1,850.0	Ton	Impact on soil	Waste collection and revegetation	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> (preventive and corrective); update operators training on mapped aspect.
	Corn	200.0	Ton			
Candeias (MG)	Limestone	100.0	Ton	Impact on soil	Waste collection and revegetation	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> (preventive and corrective).
Divinópolis (MG)	Diesel Oil	8.0	m <sup>3</sup>	Impact on soil, and Brejosa Area	Waste collection and revegetation	Develop and test improvements in the control of railway speed <sup>I</sup> (preventive and corrective).
	Soy	600.0	Ton			
Candeias, Santa Juliana, Uberaba (MG)	Diesel Oil	18.2	m <sup>3</sup>	Impact on soil and water course	Waste collection and revegetation	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> (preventive and corrective).
Itumirim (MG)	Clinker (raw material for cement)	300.0	Ton	Impact on soil	Waste collection and revegetation	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> (preventive and corrective); review applicability of operations inspection processes.
Buritcupu (MA)	Diesel Oil	194.5	m <sup>3</sup>	Impact on soil	77 research wells, 06 pumping wells and a remediation system were installed in the affected area	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> ; review applicability of operations inspection processes.
Contendas do Sincorá (BA)	Quicklime	60.0	Ton	Impact on soil	Waste collection	Evaluate the need to expand the frequency inspection with ultrasound equipment in the area.
Simões Filho, Alagoinhas (BA)	Diesel Oil	8.5	m <sup>3</sup>	Impact on soil	Waste collection	Implementation of Rolling Stock and Permanent Road Maintenance <sup>I</sup> (preventive and corrective); review applicability of operations inspection processes, conduct environmental education campaigns with the community.
Aguaí (SP)	Diesel oil	3.0	m <sup>3</sup>	Impact on soil	Waste collection	Evaluate efficiency of automatic coupler on fuel train; update operator training in the mapped aspect

<sup>I</sup> Locomotives, wagons and on track machines.



[4.10] Air Emissions [EN20]

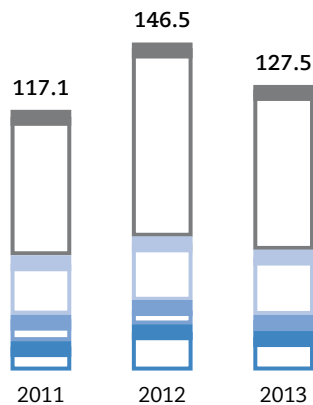
Nitrogen oxides (NOx)

Combustion processes are the main responsible for emissions of nitrogen oxides (NOx), and the quantity of these gases is directly related to the volume of fuel consumed. Thus, emissions are calculated from emissions factors specific to the type of fuel and the equipment in which it is used. The NOx quantities for some emission sources were obtained through direct monitoring of exhaust gases discharged into the atmosphere.

Total emissions of nitrogen oxides in 2013 were 127.5 thousand metric tons, down 13% compared with the previous year. The reduction of almost 30% of shipping oil consumption and the shutdown of three pelletizing plants at the end of 2012 contributed to reduction of Vale's NOx emissions.

Emissions of nitrogen oxides (NOx) [EN20]

In thousand tons



Business unit	2011	2012	2013
Logistics	65.6	86.1	73.9
Iron (mine)	26.4	29.1	28.7
Nickel	12.1	10.2	7.3
Others	13.0	21.1	17.6
Total	117.1	146.5	127.5

Other businesses	2011	2012	2013
Fertilizer	5.4	8.1	7.0
Copper	2.4	2.9	2.8
Pelletizing	2.4	4.0	2.3
Coal	1.8	5.2	4.4
Manganese	0.7	0.7	0.8
Others	0.3	0.2	0.4
Aluminum	—	—	—
Total	13.0	21.1	17.6

Continues on next page >

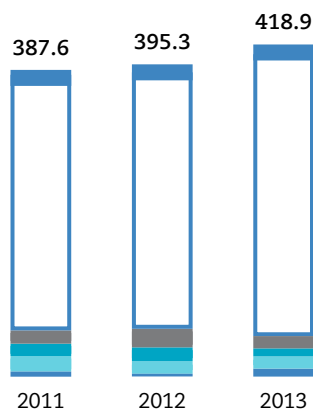
Sulphur oxides (SOx)

Emissions of sulphur oxides (SOx) are derived from burning fuels as well as some production processes. Emissions from burning fuels are calculated from the quantities consumed and the sulphur content. To calculate emissions from industrial processes, it is assumed that all of the sulphur added to processes and not present in the products or waste is released into the atmosphere in the form of SOx. In some processes, exhaust gases were directly monitored to determine the amount emitted.

In 2013, total emissions of sulphur oxide rose by 6% to 418,900 metric tons compared to the previous year. The increase in SOx emissions in the Nickel area is justified by an increase in production. The sale of the fertilizers unit in Araucária (PR) and the standstill of three pelletizing units reduced the SOx emissions for this business unit.

Emissions of sulfur oxide (SOx) [EN20]

In thousand tons



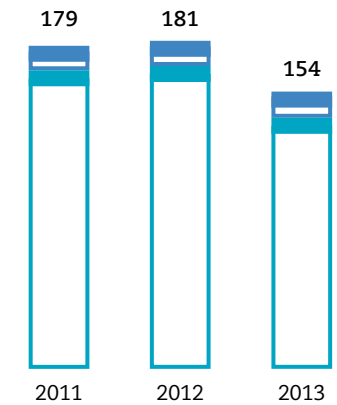
Business unit	2011	2012	2013
Nickel	329.6	335.4	370.8
Logistics	16.3	24.1	27.6
Pelletizing	17.2	16.1	11.1
Fertilizers	18.5	18.0	7.2
Other businesses <sup>1</sup>	6.0	1.8	2.2
Total	387.6	395.3	418.9

<sup>1</sup> Emissions of Manganese, Iron (mine), Copper, Coal, Biopalma and Vale Florestar.

[4.11] Power [EN3, EN4]

Consolidated direct energy consumption [EN3]

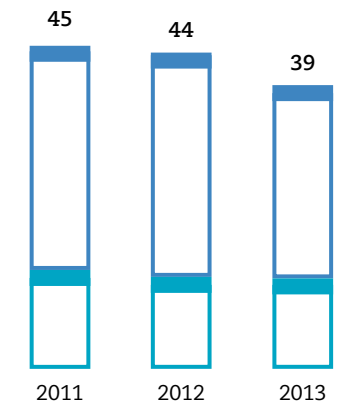
In thousands TJ/year



	2011	2012	2013
Renewable	13	13	14
Non-renewable	166	168	140
Total	179	181	154

Consolidated indirect energy consumption [EN4]

In thousands TJ/year



	2011	2012	2013
Renewable	31	31	27
Non-renewable	14	13	13
Total	45	44	39

## [4.12] Carbon reduction and capture projects [EN18]

Vale developed a project that resulted in a reduction of 100,000 tCO<sub>2</sub>e at Integra Underground coal mine in Australia. The project is similar to the one developed in the same country at Carborough Downs to drain and burn coal mine methane. In addition, there were new initiatives at Voisey's Bay, in Clydach, at Minas Centrais Complex, in Mariana, Carajás, and at Integra Underground. Most projects are related to the reduction in the specific consumption of the equipment used in the operation, exchange for more efficient models, reduction of the iron ore Average Distance Transported and maintenance activities improvements. The result was fuel economy and reduction of approximately 20,000 tCO<sub>2</sub>e of GHG.



[4.13] Risk management [PI1.2, EC2]

Risks and opportunities associated with climate change

	Regulatory risks	Physical risks	Opportunities
Revenue	<p>Imposing regulations such as emission limits or carbon tax, can lead to decreased economic activity in general, reducing the demand for our product.</p> <p>Changes in consumption patterns. The imposition of regulations may result in the adoption, by our customers, of new technologies that in the long run promote the substitution of more carbon intensive products for others less intensive, which may lead to reduced demand of our products.</p>	<p>Physical changes that prevent production continuity. We operate several plants that have intensive energy use. Increased drought periods and less rainfall could affect power generation and decrease production levels<sup>1</sup>.</p> <p>Changes in rainfall may negatively impact our logistics services, both in the supply of inputs, as in the flow of raw materials.</p>	<p>Changes in consumer attitudes. Customers are more demanding, companies must be prepared to meet the demands on GHG emissions from production processes and product issue.</p>
Investment	<p>Not applicable.</p>	<p>Investments in adapting operating or logistics structures. Physical changes may require new investments to adapt our assets to the new climatic scenario.</p>	<p>Research and development for sustainable projects. Investment can lead to technological innovations, best practices and reduction of company costs.</p>
Cost	<p>Increase of production costs in general. Regulatory impositions that increase existing costs or add new costs. Investment in new technologies for industrial processes, monitoring systems and emissions abatement or new infrastructure to adapt to new regulations.</p> <p>Increased transportation costs, including duty. Initiatives that increase the existing cost of transportation or add new costs on logistics.</p>	<p>Limited resources. Climate change may impact on the availability of natural resources necessary for our operations.</p> <p>Insurance cost. Our insurance against typical risks in our business may not provide adequate coverage. Insurance against some risks may not be available at a reasonable cost or at all.</p>	<p>Cost reduction by implementing energy efficiency projects that result in reductions of GHG emissions.</p>

<sup>1</sup> In the long term, this risk would also affect the cost.



[4.14] Energy efficiency [EN5, EN7]

Energy efficiency initiatives

Energy conservation projects	Description	Unit	Expected results		
			Useful life [years]	Annual Economy	Annual Economy [US\$ million]
Supply train	Optimization of the supply of diesel in the mines, avoiding displacement of trucks to the gas supply.	Abóboras / Tamanduá	5	1.5 million litres	1.09
Improved cyclone system of the moist processing plant	Reducing the energy consumption in the fine circuit through replacement of parts and equipment.	Mutuca	5	1.1 GWh	0.15
Reduction of boiler blowdown – unit of fabrication of nitric acid	Automatization of the boiler drain valves..	Cubatão / (CCB)	10	3.5 GWh	0.18
Reduce losses through thermic insulation	Tank-manufacturing unit of pearly ammonia nitrate.	Cubatão / (CCB)	10	1.2 GWh	0.34
Conversion of semi-mobile screen	Replacement of diesel engine with an electric motor in the Mobile Screening System.	Alegria	10	0.2 million litres	0.09
Elimination of loads losses and leaks in distribution networks using compressed air	Replacement of pipe for compressed air distribution aluminum piping.	Capitão do Mato	5	0.9 GWh	0.07
Replacement of gears and adaptation of the compressor.	Reduction of working pressure according to plant demand. It will provide an increased flow of 510 m³/h and the shutdown of a compressor.	Capitão do Mato	5	0.3 GWh	0.02
Total					1.93



[4.15] Effluents

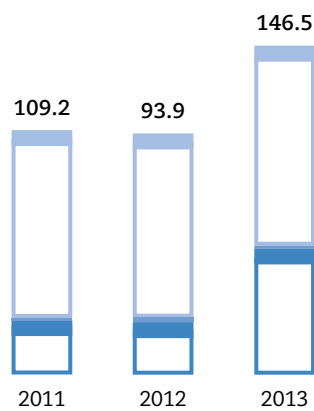
**Effluents** [EN21]

In 2013, the volume of industrial effluents generated was 146.5 million cubic metres - 56% higher than the volume generated in 2012 (93.9 million m<sup>3</sup>). Some of the relevant factors for this increase, compared to 2012, were the revision of the report scope in the Sudbury unit in Canada and the greater influence of rainwater and meltwater on systems, in which the segregation of these contributions is not feasible.

Although the indicator considers only industrial effluents, there has also been progress in relation to sanitary wastewater. An example is the new effluents treatment plant (ETE in Portuguese) at Mutuca mine. It uses the MBBR (moving bed bioreactor) system, which differs from conventional biological treatments using bio-medias - plastic elements to adhere to the microbial flora.

**Total discharge of liquid effluents generated by type<sup>I</sup>** [EN21]

In million m<sup>3</sup>



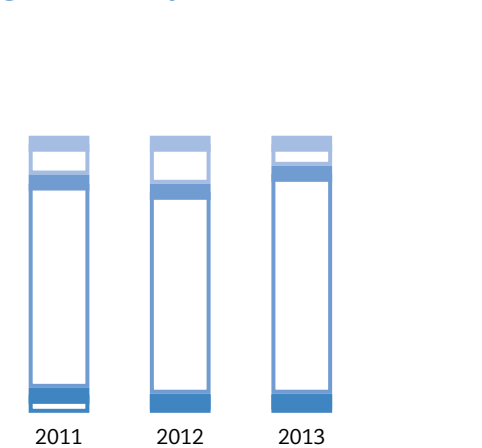
	2011	2012	2013
Industrial liquid effluents	84.1	72.2	89.4
Only liquid effluents	0.7	0.5	0.9
Liquid effluents without need for treatment <sup>I</sup>	24.4	21.2	56.3
Total	109.2	93.9	146.5

<sup>I</sup> In general, data is obtained by direct measurement, except in certain operations for which estimates are analyzed according to their water balances. Vale has been working on continuous improvement of measurement procedures. Data on effluents generated by PT International Nickel Indonesia and Thompson, units of nickel operation in Canada, were not reported in 2013, as the need to alter the data collection methodology used by these units was identified.

<sup>II</sup> "Liquid effluents without need for treatment" refers to water used in cooling and other processes that do not alter its qualitative characteristics to the extent that it requires treatment before disposal.

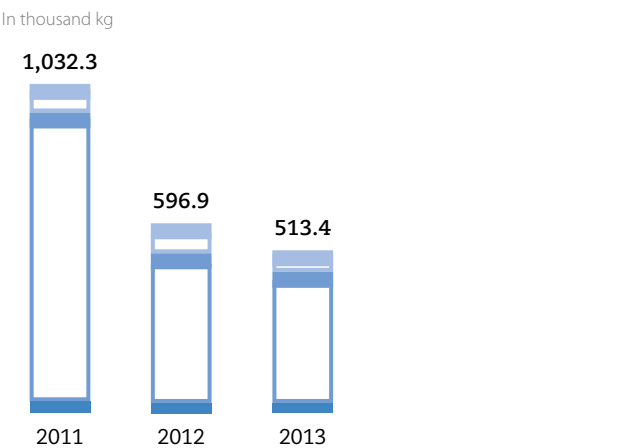


Total discharge of liquid effluents generated by destination<sup>I</sup> [EN21]



	2011	2012	2013
Ocean	14%	17%	11%
Rivers, reservoirs and tailing ponds	77%	76%	82%
Others <sup>II</sup>	9%	7%	7%

Total discharge of total suspended solids by destination<sup>I</sup> [EN21]



	2011	2012	2013
Ocean	90.4	96.3	70.9
Rivers, reservoirs and tailing ponds	903.2	468.7	412.9
Others <sup>II</sup>	38.7	32.0	29.7
Total	1,032.3	596.9	513.4

<sup>I</sup> In general, data is obtained by direct measurement, except in certain operations for which estimates analyzed according to their water balances are conducted. Vale has been working on continuous improvement of measurement procedures.

<sup>II</sup> Lakes, lagoons, wetlands, disposal in the ground and disposal to third parties.

[5.01] Consumption of materials [EN1, EN2]

Our strategic purchasing model aims to create competitive advantage through innovation, cost optimization and supply guarantees. This model focuses on actions supporting our operations and prioritizes the values of corporate sustainability, health and safety in procurement strategies. It also seeks innovations for continuous improvement in energy efficiency, increasing recycling and reducing consumption of natural resources and renewable sources.

In 2013, the highest growth in the amount of materials consumed by Vale was in railway tracks and explosives. In the case of railway tracks, it was due to the expansion of the Carajás Railway. In the case of explosive, there was a significant increase in demand in Carajás due to the start of operations of Plant II, as part of the project +40 Mtpa and new mining of other sites in the complex. Moreover, Salobo project was increasing the production process, and therefore it was already expected to increase the demand for materials such as explosive and off-road tires.

Payment of fines, complementary tax invoices and additional demurrage<sup>1</sup> charges were not included in the data.

Rates for the use of recycled products were reported by Vale's main suppliers. They vary between 0% and 6%, except for mill balls where the figure is 35.9%<sup>2</sup>.

Materials used

Material category	Measuring unit	2011	2012	2013
Ammonium nitrate <sup>1</sup>	Thousand metric tons	0.2	79.9	71.1
Conveyor belts	Thousand meters	490.7	249.4	277.7
Railway ties	Million units	1.2	0.8	1.0
Explosives	Thousand metric tons	18.5	41.1	88.4
Lubricant oil	Million litres	29.0	29.6	27.2
Off-highway tires	Thousand units	2.4	3.5	6.3
Railway tracks	Thousand ton	21.4	71.1	148.5
Mill balls	Thousand metric tons	42.9	36.0	37.6

<sup>1</sup> Demurrage refers to a delay in unloading a ship that ends up staying more than the period normally allowed in a port or when a company importing a container takes longer to unload a container than the period allowed.

<sup>2</sup> The percentage of materials reused was reported by the main supplier of mill balls.

<sup>1</sup> The figure for 2012 was revised, because purchases of ammonium nitrate supplied by Vale Fertilizantes were included. The figure for 2011 does not include Vale Fertilizantes.



## [5.02] Customers [PR2, PR5, PR9, EN24, MM11]

As Vale's businesses are conducted primarily with other businesses, the company assesses its products performance holding customer satisfaction surveys and technical visits. We maintain close contact with customers through communication channels and we have procedures for collection, process, evaluation and response in cases of complaints or any other specific demands. We also provide technical assistance, conference calls and a call center. Other customer support initiatives, in particular at the post-sale stage, include Technical Cooperation Agreements (TCAs), technical visits and specialized consulting assignments.

Specific commercial areas per businesses such as Marketing, Research, Planning and Development are responsible for the interactions with customers. To meet the specific needs and characteristics of each market segment, mechanisms, methodology, frequency and approach of these practices vary across business areas. In the case of Vale Fertilizantes, products may be evaluated at any time through the company's website.

The area of Iron Ore Marketing, through specific questionnaire sent by the technical managers of each market, assesses the performance of Vale in terms of the quality of our products, considering chemical, physical and metallurgical aspects. Another item assessed is the technical assistance offered under the point of view of quality and time of technical solutions developed.

In the passengers transport segment in Brazil, users are provided with call center for complaints, suggestions, questions and information, in addition to forms aboard the train for spontaneous recording of opinion. The results of these mechanisms improved with satisfaction surveys made by an independent company. These evaluations allowed actions to improve infrastructure and purchase equipment.

In 2013, there were no reported cases of non-compliance or penalties related to Vale's product sponsorship, advertising and promotion, and there were no problems concerning the provision and use of products and services.

### Transportation of hazardous products [EN24]

Vale keeps responsible practices throughout its production process, including the transportation of hazardous materials, which is preceded by an assessment to identify significant risks and propose preventive and mitigation actions necessary to keep them at manageable levels. Occurrences are registered and subjected to an extensive causes evaluating process to establish corrective actions and provide a reassessment of the procedures in use.

This process is applied to inputs, raw materials and final products and takes into account applicable legal requirements, as well as authorizations and permits necessary for the transportation service. Analyzes are performed whenever a new input or raw material is purchased or a new transport mode is deployed.

We review the Chemical Product Management Regulation, integrating environmental, health and safety requirements for the Brazilian operations, considering the premises of the United Nations Globally Harmonised System (GHS).

Continues on next page >



Cross-border transportation of hazardous products, regulated by the Brazilian Convention on the Control of Cross-border Transportation and Disposal of Hazardous Wastes, is not a practice adopted by Vale, thus all waste disposal is performed within the country of origin, in compliance with specific internal and legal requirements.

#### **Life Cycle Analysis (LCA)** [MM11]

Some of Vale's operations have programs that provide management of risks, safety, health and the environment throughout the life cycle of their products, according to the intended uses and the expected effectiveness of their materials and products. These programs consider the various stages of design, production, distribution and use, and constantly seek to reduce potential indirect impacts on human health and the environment.

In 2013, we completed studies of Life Cycle Analysis, started in 2010, for all pelletizing in Brazil. During this year, we focused our actions on Pelletizing Plant in Minas Gerais, and throughout its life cycle until the port of the main customers in Europe and Asia.

With the completion of studies for Brazil, we can compare the results obtained in the processes to identify internal best practices, which may become a reference for environmental issues assessed and be extended to other units, as well as adding value to pellet, raising its competitiveness in the medium and long term. The goal is to work in an expanding environmental management strategy beyond the borders of Vale, positively influencing our supply chain.

Vale's Base Metals area participated in a nickel life cycle analysis, focusing on pellets produced in Sudbury and Clydach. The impact categories evaluated were: energy consumption, GHG emission, acidification, eutrophication and formation of photo-oxidizing agent. The aim of the work is to provide information and comparison conditions on main suppliers to major customers, in addition to more specific actions for internal management of significant environmental aspects.

[6.01] Index of indicators

Detail of non-reported information

Index	Explanation
<b>Disclosure on Management Approach: Products and services</b>	
EN26 Initiatives to mitigate environmental impacts of products and services and the extent of these impacts reduction	
EN27 Restored products and packaging	
<b>Disclosure on Management Approach: Marketing communications</b>	
PR6 Programs for adherence to laws, standards and voluntary codes related to marketing communications, including advertising, promotion and sponsorship.	
<b>Disclosure on Management Approach: Customer privacy</b>	
PR8 Complaints regarding breaches of customer privacy and losses of customer data	Non material according to the analysis of materiality and also depending on the nature of the business
<b>Disclosure on Management Approach: Labelling of products and services</b>	
PR3 Labelling of products and services	
PR4 Non-compliance with labelling codes and regulations	
PR1 Stages of the life cycle of products and services in which health and safety impacts are assessed for improvement, and the percentage of products and services subject to such procedures	
EN6 Initiatives to provide products and services with low energy consumption, or that use renewable energy from renewable resources, and reductions in energy necessity, as a result of these initiatives	
EN19 Emission of substances that destroy the ozone layer	Vale's ODS emission represents less than 0.1% of its total emissions and therefore are not considered significant

Continues on next page >



Breakdown of partial indicators

Index	Explanation
<b>EC5</b> Standard entry level wage compared to local minimum wage	Vale complies with the minimum wage in each location. Vale does not disclose salary values as this information is confidential
<b>EN5</b> Energy saved due to conservation and efficiency improvements	Exact number of reduction in electricity in the year is not available, only information related to initiatives aimed at energy efficiency and reduction estimates
<b>EN7</b> Initiatives to reduce indirect energy consumption and reductions achieved	Exact number of reduction in indirect electricity is not available, only percentages. Information related to initiatives aimed at such reduction is also included
<b>EN9</b> Water sources affected by withdrawal of water	Extraction of water from natural sources at Vale's operations occur in accordance with the relevant legal requirements designed to ensure the preservation of water resources
<b>EN25</b> Identification, size, protection status, and biodiversity rate of water bodies and habitats affected by the discharges of water and runoff	Vale operating units dispose their effluents, which are not reused in the operations, in accordance with applicable legal requirements and other requirements of local environmental agencies. The level of current monitoring programs and environmental impact studies developed during the stages of project and licensing guarantee knowledge of local biodiversity and their systems of controls, as well as the characteristics of the effluents that will be generated and the consequent identification of technologies needed for their treatment and release in receiving water bodies
<b>PR2</b> Non-compliance with regulations and codes of impacts of products and services on health and safety	The number of cases of non-compliance for the whole chain is not reported. Information related to the correct supply and use of products and services is answered by indicator PR9



## Independent assurance statement – Bureau Veritas certification



### Introduction

Bureau Veritas Certification Brazil (Bureau Veritas) was hired by Vale S.A. (Vale), to conduct an independent assessment of its Sustainability Report (hereinafter referred to as the Report), encompassing assessment of the content, quality, and boundaries of same with regard to the year 2013. Additionally, the assurance was to assess the adherence of the Report, systems, policies and procedures of Vale with regard to the policies of the International Council on Mining & Metals (ICMM).

The information published in the Report is the sole responsibility of Vale's management. Our responsibility was to provide independent verification, in accordance with the scope of work defined below.

### Scope of work

A limited level of assurance (ISAE 3000<sup>1</sup>) was provided and conducted according to the Guidelines and Principles<sup>2</sup> of the Global Reporting Initiative GRI-G3 (2006). The Assurance scope included the GRI Mining and Metal Sector Supplement, 2010, referred to as Version 3.0/MMSS, Final Version.

Evaluation of the quality of the Report, as well as adherence of internal systems and processes against the International Council on Mining & Metals (ICMM) Assurance Procedure (December 2010, Applying the ICMM Assurance Procedure).

The main objective of a Limited assurance is to assess the ability of the organization to prepare a Report that adheres to the Principles of the GRI and does not prioritize the assessment of internal control mechanisms.

Excluded from the scope of this work was any assessment of information relating to:

- Activities outside the defined assessment period;
- Statements of position (expressions of opinion, beliefs, goals, or future intentions) on the part of Vale;
- Economic and financial information contained in this Report which has been taken from financial statements verified by independent financial auditors.

### Methodology

The Assurance covered the following activities:

- Interviews with the personnel responsible for material issues and Report content;
- Analysis of documentary evidence provided by Vale in relation to the reporting period (2013);
- Review of adherence against ICMM Sustainable Development Framework and other aspects related to risks and opportunities described in the ICMM Assurance Procedure;

---

<sup>1</sup> ISAE 3000: International Standard on Assurance Engagements and the GRI G3 guidelines

<sup>2</sup> Materiality, Stakeholder Inclusiveness, Sustainability Context, Completeness, Balance, Comparability, Accuracy, Periodicity, Clarity, and Reliability.



- Verification of performance data relating to the principles that ensure the quality of the information, pursuant to the GRI Version 3.0/MMSS;
- Review of Vale's internal systems for data aggregation;
- Visits to the following sites: Global Head Office (Rio de Janeiro/RJ), Industrial Complex of Cubatão (CCB and Phosphate CUB) and Piaçaguera (CPG), Vale Manganês (Ferro-alloy Ouro Preto) and Paraopeba Complex<sup>3</sup>;
- Desk review of Vale's stakeholder engagement activities.

#### **Our findings on the report and assurance process**

- Vale elaborated the Report pursuant to the model of GRI version 3.0/MMSS, embracing the GRI Principles and the Mining & Metal Sector Supplement, final Version 2010;
- We verified the application of the Protocol of Limits of the GRI (2005) to determine the scope of the Report and the nature of the reported information (Operational data/ Management Performance/ Description of the Strategy and Dilemmas) that represents those companies in which Vale has an interest. It is considered that the report is easily comparable by readers with previous versions;
- The materiality test used as the basis for the Report was performed in 2011. Vale made an internal assessment of priorities, updating the list of material issues to produce 12 issues of greatest significance, making it possible to prepare a balanced Report;
- Data published to meet GRI indicators EN3, EN4, EN15, EN16, EN17 and EN19 are part of the Inventory of greenhouse gas (GHG) emissions, that has been compiled based on ISO 14064-1/07 and the Brazilian Program - GHG Protocol and certified by Bureau Veritas through a separate independent assurance process;
- The Report demonstrates the intention of Vale to implement the process of assessing suppliers over the matter of human rights in an incremental manner, by means of a pilot project;
- In the course of our verification the inconsistencies identified in the Report regarding one or more principles of the GRI 3.0/MMSS were satisfactorily revised;
- Vale has published data or justified its absence regarding the applicable core indicators of GRI Version 3.0/MMSS, rightfully self declaring GRI application level A+.

#### **Findings against the International Council on Mining & Metals (ICMM policies)**

- During the documentary review relating to the deployment and implementation of the ten ICMM Principles, sufficient information was evidenced to support Vale's adherence to its Brazilian Policies and procedures;
- Concerning the management of risks and opportunities associated with Sustainable Development, Vale published its monitoring methodology comprehending, among others, quarterly review of risks and related control measures and action plans;
- The information regarding Vale's risks and material opportunities associated with the Sustainable Development are reported in line with the structure of the Report. The Report presents sufficient quantitative and qualitative data to demonstrate the performance of Vale throughout the reporting period;
- Regarding the implementation of policies and procedures aimed at the sustainable development in the overseas Vale operating units, commitment and effort to simplify the systems and methods of work were evidenced, with the objective of gaining greater efficiency in the reporting process.

#### **Opportunities of improvement for the next reporting cycle**

- Should Vale decide to adopt the new G4 version of the GRI, a new Materiality test should be considered that focuses on stakeholder groups that are significant to the business and that will bring a balanced view. The revised GRI G4 framework presents a sound basis to meet the opportunities and challenges regarding the Principle of Materiality;
- Vale should continue its implementation of policies and procedures related to the ICMM in the overseas operating units, setting out clear and executable commitments and targets;
- Vale should present the results of the implementation of the Sustainability Module in the Report, which is being developed (in pilot application) by Vale in its analysis of suppliers risks.

---

<sup>3</sup> Comprises the following units: Mar Azul mine, Capão Xavier mine, Jangada mine, Córrego do Feijão (mine and mill), Mutuca mill and Óleos D'água terminal.





## Conclusion

As a result of our Assurance nothing has come to our attention that would indicate that:

- The information presented in the Report is not balanced, consistent and reliable;
- Vale has not established appropriate systems for the collection, aggregation and analysis of quantitative and qualitative data used in the Report;
- The policies, systems and processes adopted by Vale do not meet the guiding Principles of the ICMM;
- Vale does not maintain risk management processes that address risks and opportunities related to the Sustainable Development;
- The self-declaration of level of application A+, pursuant to the criteria of GRI G3/SSMM, shall not be trustworthy.

## Declaration of independence and impartiality

Bureau Veritas Certification is an independent professional services firm specializing in Quality, Health, Safety, Social and Environmental Management, with more than 180 years' experience in independent assessment.

No member of the assessment team has any commercial links with Vale. We performed this assessment independently and understand that there was no conflict of interest.

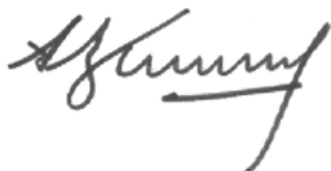
Bureau Veritas has implemented a Code of Ethics throughout its business, in order to preserve high ethical standards among its staff in the performing of their activities.

At the end of the assessment, a detailed report was drawn up, showing all the topics verified, any deviations found, corrective action taken and opportunities for improvement. This Report ensures the traceability of the process and is kept as a Bureau Veritas management system record.

## Contact

Bureau Veritas Certification is available for further clarification on [www.bureauveritascertification.com.br/faleconosco.asp](http://www.bureauveritascertification.com.br/faleconosco.asp) or by telephone (55 11) 2655-9000.

São Paulo, Brazil, April 2014.



Alexander Vervuurt  
Lead Auditor; Assurance Sustainability Reports (ASR)  
Bureau Veritas Certification – Brazil





## Statement GRI Application Level Check

GRI hereby states that **Vale S.A.** has presented its report "2013 Sustainability Report" to GRI's Report Services which have concluded that the report fulfills the requirement of Application Level A+.

GRI Application Levels communicate the extent to which the content of the G3 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3 Guidelines. For methodology, see [www.globalreporting.org/SiteCollectionDocuments/ALC-Methodology.pdf](http://www.globalreporting.org/SiteCollectionDocuments/ALC-Methodology.pdf)

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

Amsterdam, 4 April 2014

A handwritten signature in dark ink, appearing to read "Ásthildur Hjaltadóttir".

Ásthildur Hjaltadóttir  
Director Services  
Global Reporting Initiative



The "+" has been added to this Application Level because Vale S.A. has submitted (part of) this report for external assurance. GRI accepts the reporter's own criteria for choosing the relevant assurance provider.

*The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Guidelines set out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. [www.globalreporting.org](http://www.globalreporting.org)*

**Disclaimer:** Where the relevant sustainability reporting includes external links, including to audio visual material, this statement only concerns material submitted to GRI at the time of the Check on 28 March 2014. GRI explicitly excludes the statement being applied to any later changes to such material.

# Credits

## **General coordination**

Environment Department

## **Editorial support**

Communications Department

## **Operational support**

Accenture

CSC Computer Sciences Brasil S.A.

## **External assurance**

Bureau Veritas Certification

## **Consultancy and technical analysis**

Política e Planejamento Ambiental (PPA)

## **Editorial coordination, design and graphic production**

Report Sustentabilidade

## **Cover and chapter openings**

Imaginatto Design

## **Translation**

Mariana Rêgo

## **Printing and finishing**

Stilgraf

Print run: 500 copies

Paper: couchématte 90g/m<sup>2</sup> (foldout), couchématte 115g/m<sup>2</sup> (inside) and duosedign 300g/m<sup>2</sup> (cover)

*Trying to minimize the environmental impact of this publication, all the inks used in the printing were made from vegetable oils and the lamination of the cover is biodegradable.*

## **Typefaces**

**PMN Caecilia**

Peter Matthias Noordzij, 1990

**Myriad PRO**

Robert Slimbach and Carol Twombly, 1992

