



# Financial Statements

December 31, 2015

IFRS

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## Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of  
Vale S.A.  
Rio de Janeiro – RJ

We have audited the accompanying consolidated balance sheet of Vale S.A. and subsidiaries (“Vale” or “the Company”) as of December 31, 2015 and 2014, and the related consolidated statements of income, comprehensive income, stockholders’ equity and cash flows for the years then ended. We also have audited Vale’s internal control over financial reporting as of December 31, 2015, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Vale’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on Vale’s internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.



Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Vale S.A. and subsidiaries as of December 31, 2015 and 2014, and the results of its operations and its cash flows for the years then ended, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, Vale maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

/s/ KPMG Auditores Independentes

KPMG Auditores Independentes

Rio de Janeiro, Brazil

February 24, 2016

## Consolidated Income Statement

In millions of United States dollars, except as otherwise stated

		Year ended December 31		
	Notes	2015	2014	2013
<b>Continuing operations</b>				
Net operating revenue	3(c)	25,609	37,539	46,767
Cost of goods sold and services rendered	26(a)	(20,513)	(25,064)	(24,245)
<b>Gross profit</b>		<b>5,096</b>	<b>12,475</b>	<b>22,522</b>
<b>Operating expenses</b>				
Selling and administrative expenses	26(b)	(652)	(1,099)	(1,302)
Research and evaluation expenses		(477)	(734)	(801)
Pre operating and operational stoppage		(1,027)	(1,088)	(1,859)
Other operating expenses, net	26(c)	(206)	(1,057)	(984)
		<b>(2,362)</b>	<b>(3,978)</b>	<b>(4,946)</b>
Impairment of non-current assets and onerous contracts	15	(8,926)	(1,152)	(2,298)
Results on measurement or sale of non-current assets	5-6	61	(167)	(215)
<b>Operating income (loss)</b>		<b>(6,131)</b>	<b>7,178</b>	<b>15,063</b>
Financial income	27	7,850	3,770	2,699
Financial expenses	27	(18,651)	(9,839)	(11,031)
Equity results in associates and joint ventures	11	(439)	505	469
Results on sale or disposal of investments in associates and joint ventures	5-6	97	(30)	41
Impairment of investments in associates and joint ventures	15	(446)	(31)	-
<b>Net income (loss) before income taxes</b>		<b>(17,720)</b>	<b>1,553</b>	<b>7,241</b>
<b>Income taxes</b>				
	20			
Current tax		(389)	(1,051)	(7,786)
Deferred tax		5,489	(149)	953
		<b>5,100</b>	<b>(1,200)</b>	<b>(6,833)</b>
<b>Net income (loss) from continuing operations</b>		<b>(12,620)</b>	<b>353</b>	<b>408</b>
Loss attributable to noncontrolling interests	12	(491)	(304)	(178)
<b>Net income (loss) from continuing operations attributable to Vale's stockholders</b>		<b>(12,129)</b>	<b>657</b>	<b>586</b>
<b>Discontinued operations</b>				
Loss from discontinued operations		-	-	(2)
<b>Loss from discontinued operations attributable to Vale's stockholders</b>		<b>-</b>	<b>-</b>	<b>(2)</b>
<b>Net income (loss)</b>		<b>(12,620)</b>	<b>353</b>	<b>406</b>
Loss attributable to noncontrolling interests		(491)	(304)	(178)
<b>Net income (loss) attributable to Vale's stockholders</b>		<b>(12,129)</b>	<b>657</b>	<b>584</b>
<b>Earnings per share attributable to Vale's stockholders:</b>				
<b>Basic and diluted earnings per share:</b>				
	25(d)			
Preferred share (US\$)		(2.35)	0.13	0.11
Common share (US\$)		(2.35)	0.13	0.11

The accompanying notes are an integral part of these financial statements.

## Consolidated Statement of Comprehensive Income

In millions of United States dollars

	Year ended December 31		
	2015	2014	2013
<b>Net income (loss)</b>	<b>(12,620)</b>	<b>353</b>	<b>406</b>
<b>Other comprehensive income</b>			
<b>Items that will not be reclassified subsequently to net income</b>			
Cumulative translation adjustments	(18,128)	(7,436)	(9,830)
<b>Retirement benefit obligations</b>			
Gross balance for the year	66	(279)	914
Effect of taxes	3	85	(284)
Equity results from associates and joint ventures, net taxes	-	2	-
	<b>69</b>	<b>(192)</b>	<b>630</b>
<b>Total items that will not be reclassified subsequently to net income</b>	<b>(18,059)</b>	<b>(7,628)</b>	<b>(9,200)</b>
<b>Items that may be reclassified subsequently to net income</b>			
<b>Cumulative translation adjustments</b>			
Gross balance for the year	9,340	3,407	2,822
Effect of taxes	904	-	-
Transfer of realized results to net income	-	-	435
	<b>10,244</b>	<b>3,407</b>	<b>3,257</b>
<b>Available-for-sale financial instruments</b>			
Gross balance for the year	1	(4)	193
Transfer of realized results to net income, net of taxes	-	4	(194)
	<b>1</b>	<b>-</b>	<b>(1)</b>
<b>Cash flow hedge</b>			
Gross balance for the year	828	(290)	(23)
Effect of taxes	(7)	(3)	12
Equity results from associates and joint ventures, net taxes	(5)	(1)	-
Transfer of realized results to net income, net of taxes	(369)	(122)	(40)
	<b>447</b>	<b>(416)</b>	<b>(51)</b>
<b>Total of items that may be reclassified subsequently to net income</b>	<b>10,692</b>	<b>2,991</b>	<b>3,205</b>
<b>Total comprehensive income</b>	<b>(19,987)</b>	<b>(4,284)</b>	<b>(5,589)</b>
Comprehensive income attributable to noncontrolling interests	(543)	(330)	(175)
<b>Comprehensive income attributable to Vale's stockholders</b>	<b>(19,444)</b>	<b>(3,954)</b>	<b>(5,414)</b>
	<b>(19,987)</b>	<b>(4,284)</b>	<b>(5,589)</b>

The accompanying notes are an integral part of these financial statements.

## Consolidated Statement of Cash Flow

In millions of United States dollars

	Year ended December 31		
	2015	2014	2013
<b>Cash flow from continuing operating activities:</b>			
Net income (loss) from continuing operations	(12,620)	353	408
<b>Adjustments for:</b>			
Equity results from associates and joint ventures	439	(505)	(469)
Results on measurement or sale of non-current assets	(61)	167	215
Results on sale or disposal of investments in associates and joint ventures	(97)	30	(41)
Results on disposal of property, plant and equipment and intangibles	(152)	91	(146)
Impairment of non-current assets and onerous contracts	9,372	1,183	2,298
Depreciation, amortization and depletion	4,029	4,288	4,150
Deferred income taxes	(5,489)	149	(953)
Foreign exchange and indexation, net	6,879	1,270	724
Unrealized derivative loss (gain), net	1,714	1,155	791
Participative stockholders' debentures	(965)	315	381
Others	189	347	303
<b>Changes in assets and liabilities:</b>			
Accounts receivable	1,671	2,546	608
Inventories	(304)	(535)	346
Suppliers and contractors	740	1,013	(124)
Payroll and related charges	(603)	(77)	59
Income taxes (includes settlement program)	(99)	604	5,424
Net other taxes assets and liabilities	(258)	(292)	44
Deferred revenue - Gold stream (note 28)	532	-	1,319
Net other assets and liabilities	(426)	705	(795)
<b>Net cash provided by continuing operating activities</b>	<b>4,491</b>	<b>12,807</b>	<b>14,542</b>
Net cash provided by discontinued operating activities	-	-	250
<b>Net cash provided by operating activities</b>	<b>4,491</b>	<b>12,807</b>	<b>14,792</b>
<b>Cash flow from continuing investing activities:</b>			
Financial investments redeemed (invested)	308	(148)	357
Loans and advances received (granted)	(65)	364	(17)
Guarantees and deposits received (granted)	(17)	59	(147)
Additions to investments	(66)	(244)	(378)
Acquisition of subsidiary (note 6(f))	(90)	-	-
Additions to property, plant and equipment and intangible (note 3(b))	(8,371)	(11,813)	(13,105)
Dividends and interest on capital received from associates and joint ventures (note 11)	318	568	834
Proceeds from disposal of assets and investments	1,456	1,246	2,030
Proceeds from gold stream transaction (note 28)	368	-	581
<b>Net cash used in continuing investing activities</b>	<b>(6,159)</b>	<b>(9,968)</b>	<b>(9,845)</b>
Net cash provided by discontinued investing activities	-	-	(763)
<b>Net cash used in investing activities</b>	<b>(6,159)</b>	<b>(9,968)</b>	<b>(10,608)</b>
<b>Cash flow from continuing financing activities:</b>			
<b>Loans and borrowings</b>			
Additions	4,995	2,341	3,310
Repayments	(2,826)	(1,936)	(3,347)
<b>Transactions with stockholders:</b>			
Dividends and interest on capital paid to Vale's stockholders (note 25(e))	(1,500)	(4,200)	(4,500)
Dividends and interest on capital paid to noncontrolling interest	(15)	(66)	(20)
Transactions with noncontrolling stockholders (i)	1,049	-	-
<b>Net cash provided (used) by continuing financing activities</b>	<b>1,703</b>	<b>(3,861)</b>	<b>(4,557)</b>
Net cash provided by discontinued financing activities	-	-	87
<b>Net cash provided (used) in financing activities</b>	<b>1,703</b>	<b>(3,861)</b>	<b>(4,470)</b>
Increase (decrease) in cash and cash equivalents	35	(1,022)	(286)
Cash and cash equivalents in the beginning of the year	3,974	5,321	5,832
Effect of exchange rate changes on cash and cash equivalents	(418)	(325)	(225)
<b>Cash and cash equivalents at end of the year</b>	<b>3,591</b>	<b>3,974</b>	<b>5,321</b>
<b>Cash paid for (ii):</b>			
Interest on loans and borrowings	(1,462)	(1,560)	(1,535)
Derivatives received (paid), net	(1,202)	(179)	(242)
Income taxes	(527)	(504)	(2,405)
Income taxes - Settlement program	(384)	(494)	(2,594)
<b>Non-cash transactions:</b>			
Additions to property, plant and equipment - capitalized loans and borrowing costs	761	588	235
Additions to property, plant and equipment - costs of assets retirement obligations	219	842	190

(i) Comprises reduction of participation in MBR (note 6(a)) and other transactions.

(ii) Amounts paid are classified as cash flows from operating activities.

The accompanying notes are an integral part of these financial statements.

## Consolidated Balance Sheet

In millions of United States dollars

	Notes	December 31, 2015	December 31, 2014
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	7	3,591	3,974
Financial investments		28	148
Derivative financial instruments	24	121	166
Accounts receivable	8	1,476	3,275
Inventories	9	3,528	4,501
Prepaid income taxes		900	1,581
Recoverable taxes	10	1,404	1,700
Related parties	30	70	579
Others		311	670
		<b>11,429</b>	<b>16,594</b>
Assets held for sale	5	4,044	3,640
		<b>15,473</b>	<b>20,234</b>
<b>Non-current assets</b>			
Derivative financial instruments	24	93	87
Loans		188	229
Prepaid income taxes		471	478
Recoverable taxes	10	501	401
Deferred income taxes	20	7,904	3,976
Judicial deposits	18(c)	882	1,269
Related parties	30	1	35
Others		613	705
		<b>10,653</b>	<b>7,180</b>
Investments in associates and joint ventures	11	2,940	4,133
Intangibles	13	5,324	6,820
Property, plant and equipment	14	54,102	78,122
		<b>73,019</b>	<b>96,255</b>
<b>Total assets</b>		<b>88,492</b>	<b>116,489</b>



## Consolidated Balance Sheet

In millions of United States dollars

(continued)

	Notes	December 31, 2015	December 31, 2014
<b>Liabilities</b>			
<b>Current liabilities</b>			
Suppliers and contractors		3,365	4,354
Payroll and related charges		375	1,163
Derivative financial instruments	24	2,076	1,416
Loans and borrowings	16	2,506	1,419
Related parties	30	475	306
Income taxes - Settlement program	19	345	457
Taxes payable		250	550
Provision for income taxes		241	353
Employee postretirement obligations	21(a)	68	67
Asset retirement obligations	17	89	136
Others		648	405
		<b>10,438</b>	<b>10,626</b>
Liabilities associated with assets held for sale	5	107	111
		<b>10,545</b>	<b>10,737</b>
<b>Non-current liabilities</b>			
Derivative financial instruments	24	1,429	1,610
Loans and borrowings	16	26,347	27,388
Related parties	30	213	109
Employee postretirement obligations	21(a)	1,750	2,236
Provisions for litigation	18(a)	822	1,282
Income taxes - Settlement program	19	4,085	5,863
Deferred income taxes	20	1,670	3,341
Asset retirement obligations	17	2,385	3,233
Participative stockholders' debentures	29(b)	342	1,726
Redeemable noncontrolling interest		-	243
Deferred revenue - Gold stream	28	1,749	1,323
Others		1,451	1,077
		<b>42,243</b>	<b>49,431</b>
<b>Total liabilities</b>		<b>52,788</b>	<b>60,168</b>
<b>Stockholders' equity</b>			
Equity attributable to Vale's stockholders	25	33,589	55,122
Equity attributable to noncontrolling interests	12	2,115	1,199
<b>Total stockholders' equity</b>		<b>35,704</b>	<b>56,321</b>
<b>Total liabilities and stockholders' equity</b>		<b>88,492</b>	<b>116,489</b>

The accompanying notes are an integral part of these financial statements.

## Consolidated Statement of Changes in Equity

In millions of United States dollars

	Share capital	Results on conversion of shares	Results from operation with noncontrolling interest	Profit reserves	Treasury stocks	Unrealized fair value gain (losses)	Cumulative translation adjustments	Retained earnings	Equity attributable to Vale's stockholders	Equity attributable to noncontrolling interests	Total stockholder's equity
<b>Balance at December 31, 2012</b>	<b>60,578</b>	<b>(152)</b>	<b>(400)</b>	<b>38,389</b>	<b>(4,477)</b>	<b>(2,044)</b>	<b>(18,663)</b>	<b>8</b>	<b>73,239</b>	<b>1,588</b>	<b>74,827</b>
<b>Net income (loss)</b>	-	-	-	-	-	-	-	<b>584</b>	<b>584</b>	<b>(178)</b>	<b>406</b>
<b>Other comprehensive income:</b>											
Retirement benefit obligations	-	-	-	-	-	630	-	-	630	-	630
Cash flow hedge	-	-	-	-	-	(51)	-	-	(51)	-	(51)
Available-for-sale financial instruments	-	-	-	-	-	(1)	-	-	(1)	-	(1)
Translation adjustments	-	-	-	(4,901)	-	264	(1,925)	(14)	(6,576)	3	(6,573)
<b>Transactions with stockholders:</b>											
Dividends and interest on capital of Vale's stockholders	-	-	-	-	-	-	-	(4,500)	(4,500)	-	(4,500)
Dividends of noncontrolling interest	-	-	-	-	-	-	-	-	-	(91)	(91)
Redeemable noncontrolling interest	-	-	-	-	-	-	-	-	-	211	211
Capitalization of noncontrolling interest advances	-	-	-	-	-	-	-	-	-	78	78
Realization of reserves	-	-	-	(3,936)	-	-	-	3,936	-	-	-
Appropriation to undistributed retained earnings	-	-	-	14	-	-	-	(14)	-	-	-
<b>Balance at December 31, 2013</b>	<b>60,578</b>	<b>(152)</b>	<b>(400)</b>	<b>29,566</b>	<b>(4,477)</b>	<b>(1,202)</b>	<b>(20,588)</b>	<b>-</b>	<b>63,325</b>	<b>1,611</b>	<b>64,936</b>
<b>Net income (loss)</b>	-	-	-	-	-	-	-	<b>657</b>	<b>657</b>	<b>(304)</b>	<b>353</b>
<b>Other comprehensive income:</b>											
Retirement benefit obligations	-	-	-	-	-	(192)	-	-	(192)	-	(192)
Cash flow hedge	-	-	-	-	-	(416)	-	-	(416)	-	(416)
Translation adjustments	-	-	-	(2,237)	-	97	(2,098)	235	(4,003)	(26)	(4,029)
<b>Transactions with stockholders:</b>											
Dividends and interest on capital of Vale's stockholders	-	-	-	-	-	-	-	(4,200)	(4,200)	-	(4,200)
Dividends of noncontrolling interest	-	-	-	-	-	-	-	-	-	(8)	(8)
Acquisitions and disposal of participation of noncontrolling interest	-	-	(49)	-	-	-	-	-	(49)	(201)	(250)
Capitalization of noncontrolling interest advances	-	-	-	-	-	-	-	-	-	127	127
Capitalization of reserves	1,036	-	-	(1,036)	-	-	-	-	-	-	-
Cancellation of treasury stock	-	-	-	(3,000)	3,000	-	-	-	-	-	-
Realization of reserves	-	-	-	(3,387)	-	-	-	3,387	-	-	-
Appropriation to undistributed retained earnings	-	-	-	79	-	-	-	(79)	-	-	-
<b>Balance at December 31, 2014</b>	<b>61,614</b>	<b>(152)</b>	<b>(449)</b>	<b>19,985</b>	<b>(1,477)</b>	<b>(1,713)</b>	<b>(22,686)</b>	<b>-</b>	<b>55,122</b>	<b>1,199</b>	<b>56,321</b>
<b>Loss</b>	-	-	-	-	-	-	-	<b>(12,129)</b>	<b>(12,129)</b>	<b>(491)</b>	<b>(12,620)</b>
<b>Other comprehensive income:</b>											
Retirement benefit obligations	-	-	-	-	-	70	-	-	70	(1)	69
Cash flow hedge	-	-	-	-	-	447	-	-	447	-	447
Available-for-sale financial instruments	-	-	-	-	-	1	-	-	1	-	1
Translation adjustments	-	-	-	(5,371)	-	203	(2,665)	-	(7,833)	(51)	(7,884)
<b>Transactions with stockholders:</b>											
Dividends and interest on capital of Vale's stockholders	-	-	-	(1,500)	-	-	-	-	(1,500)	-	(1,500)
Dividends of noncontrolling interest	-	-	-	-	-	-	-	-	-	(32)	(32)
Acquisitions and disposal of participation of noncontrolling interest	-	-	(253)	-	-	-	(336)	-	(589)	1,455	866
Capitalization of noncontrolling interest advances	-	-	-	-	-	-	-	-	-	36	36
Appropriation to undistributed retained earnings	-	-	-	(12,129)	-	-	-	12,129	-	-	-
<b>Balance at December 31, 2015</b>	<b>61,614</b>	<b>(152)</b>	<b>(702)</b>	<b>985</b>	<b>(1,477)</b>	<b>(992)</b>	<b>(25,687)</b>	<b>-</b>	<b>33,589</b>	<b>2,115</b>	<b>35,704</b>

The accompanying notes are an integral part of these financial statements.

## Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

### 1. Corporate information

Vale S.A. (the “Parent Company”) is a public company headquartered at 700, Avenida das Américas, Rio de Janeiro, Brazil with securities traded on the stock exchanges of São Paulo - BM&F BOVESPA (Vale3 and Vale5), New York - NYSE (VALE and VALE.P), Paris - NYSE Euronext (Vale3 and Vale5) and Hong Kong - HKEx (codes 6210 and 6230).

Vale and its direct and indirect subsidiaries (“Vale”, “Group” or “Company”) are producers of iron ore and iron ore pellets, key raw materials for steelmaking, and producers of nickel, which is used to produce stainless steel and metal alloys employed in the production of several products. The Group also produces copper, metallurgical and thermal coal, potash, phosphates and other fertilizer nutrients, manganese ore, ferroalloys, platinum group metals, gold, silver and cobalt. The information by segment is presented in notes 3 and 31(d).

### 2. Basis for preparation of the financial statements

#### a) Statement of compliance

The consolidated financial statements of the Company (“financial statements”) present the accounts of the Group as described in note 31(b), and have been prepared in accordance with the International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”).

#### b) Basis of presentation

The financial statements have been prepared under the historical cost convention as adjusted to reflect: (i) the fair value of financial instruments measured at fair value through income statement or available-for-sale financial instruments measured at fair value through the statement of comprehensive income; and (ii) impairment of assets.

Subsequent events were evaluated through February 24, 2016, which is the date the financial statements were approved by the Board of Directors.

#### c) Accounting standards issued but not yet effective

**IFRS 9 Financial instruments** - In July 2014 the IASB issued IFRS 9, which sets out the requirements for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. This Standard replaces IAS 39 Financial Instruments: Recognition and Measurement. The adoption will be required from January 1, 2018 and the Company does not expect significant impact from the adoption of this standard.

**IFRS 15 Revenue from contracts with customers** - In May 2014 the IASB issued IFRS 15, which sets out the requirements for revenue recognition that apply to all contracts with customer to depict the transfer of promised goods or services to the customer in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services, and replaces IAS 18 - revenue, IAS 11 - Construction contracts and the related interpretations. The adoption will be required from January 1, 2018 and the Company is currently analyzing the potential impact regarding this pronouncement on the financial statements.

**IFRS 16 Leases** - In January 2016 the IASB issued IFRS 16, which sets out the principles for the recognition, measurement, presentation and disclosure of leases. IFRS 16 replaces IAS 17 – Leases and the related interpretation. The adoption will be required from January 1, 2019 and the Company is currently analyzing the potential impact regarding this pronouncement on the financial statements.

#### d) Summary of main accounting practices and critical accounting estimates and judgments

The summary of main accounting practices and the critical accounting estimates and judgments are disclosed in note 31 and 32, respectively.

### 3. Information by business segment and by geographic area

The information presented to the Executive Board on the performance of each segment is derived from the accounting records, adjusted for reallocations between segments.

#### a) Operating income (loss) and adjusted EBITDA

Adjusted EBITDA is used by management to support the decision making process for segments. The definition of adjusted EBITDA for the Company is the operating income or loss adding dividends received from associates and joint ventures, and excluding the depreciation, depletion and amortization, impairment, onerous contracts and results on measurement or sales of non-current assets.

Year ended December 31, 2015											
	Income statement							Adjusted by			
	Net operating revenue	Costs	Expenses, net	Research and evaluation expenses	Pre operating and operational stoppage	Depreciation and others results	Operating income (loss)	Impairment of non-current assets and onerous contracts	Results on measurement or sale of non-current assets	Dividends received from associates and joint ventures	Adjusted EBITDA
<b>Ferrous minerals</b>											
Iron ore	12,330	(7,604)	(398)	(121)	(124)	(2,289)	1,794	914	132	22	4,105
Pellets	3,600	(2,121)	9	(4)	(24)	(385)	1,075	58	-	225	1,685
Ferroalloys and manganese	162	(175)	1	-	(19)	(23)	(54)	-	-	-	(31)
Others ferrous products and services	470	(341)	8	(3)	(2)	(97)	35	21	-	8	140
	<b>16,562</b>	<b>(10,241)</b>	<b>(380)</b>	<b>(128)</b>	<b>(169)</b>	<b>(2,794)</b>	<b>2,850</b>	<b>993</b>	<b>132</b>	<b>255</b>	<b>5,899</b>
<b>Coal</b>	<b>526</b>	<b>(839)</b>	<b>(140)</b>	<b>(22)</b>	<b>(61)</b>	<b>(3,230)</b>	<b>(3,766)</b>	<b>3,038</b>	<b>-</b>	<b>28</b>	<b>(508)</b>
<b>Base metals</b>											
Nickel and other products	4,693	(3,393)	(154)	(103)	(411)	(6,344)	(5,712)	4,696	-	-	632
Copper	1,470	(903)	(32)	(8)	(1)	(229)	297	36	-	-	526
Others base metals products	-	-	230	-	-	-	230	-	-	-	230
	<b>6,163</b>	<b>(4,296)</b>	<b>44</b>	<b>(111)</b>	<b>(412)</b>	<b>(6,573)</b>	<b>(5,185)</b>	<b>4,732</b>	<b>-</b>	<b>-</b>	<b>1,388</b>
<b>Fertilizers</b>											
Potash	132	(89)	3	(50)	(24)	(579)	(607)	548	-	-	(28)
Phosphates	1,733	(1,173)	(34)	(29)	(43)	133	587	(391)	-	-	454
Nitrogen	303	(207)	(6)	(3)	(3)	(21)	63	-	-	-	84
Others fertilizers products	57	-	-	-	-	-	57	-	-	-	57
	<b>2,225</b>	<b>(1,469)</b>	<b>(37)</b>	<b>(82)</b>	<b>(70)</b>	<b>(467)</b>	<b>100</b>	<b>157</b>	<b>-</b>	<b>-</b>	<b>567</b>
<b>Others</b>	<b>133</b>	<b>(139)</b>	<b>(160)</b>	<b>(134)</b>	<b>-</b>	<b>170</b>	<b>(130)</b>	<b>6</b>	<b>(193)</b>	<b>35</b>	<b>(265)</b>
<b>Total</b>	<b>25,609</b>	<b>(16,984)</b>	<b>(673)</b>	<b>(477)</b>	<b>(712)</b>	<b>(12,894)</b>	<b>(6,131)</b>	<b>8,926</b>	<b>(61)</b>	<b>318</b>	<b>7,081</b>

Year ended December 31, 2014

	Statement of income							Adjusted by				
	Net operating revenue	Costs	Expenses, net	Research and evaluation expenses	Pre operating and operational stoppage	Depreciation and others results	Operating income (loss)	Impairment of non-current assets and onerous contracts	Results on measurement or sale of non-current assets	Dividends received from associates and joint ventures	Depreciation, depletion and amortization	Adjusted EBITDA
<b>Ferrous minerals</b>												
Iron ore	19,301	(9,532)	(1,258)	(319)	(160)	(2,649)	5,383	1,135	-	44	1,514	8,076
Pellets	5,263	(2,705)	(21)	-	(38)	(274)	2,225	-	-	482	274	2,981
Ferroalloys and manganese	392	(261)	(13)	-	(23)	(32)	63	-	-	-	32	95
Others ferrous products and services	741	(565)	3	(10)	-	(110)	59	-	-	-	110	169
	<b>25,697</b>	<b>(13,063)</b>	<b>(1,289)</b>	<b>(329)</b>	<b>(221)</b>	<b>(3,065)</b>	<b>7,730</b>	<b>1,135</b>	<b>-</b>	<b>526</b>	<b>1,930</b>	<b>11,321</b>
<b>Coal</b>	<b>739</b>	<b>(1,071)</b>	<b>(309)</b>	<b>(18)</b>	<b>(38)</b>	<b>(463)</b>	<b>(1,160)</b>	<b>343</b>	<b>-</b>	<b>28</b>	<b>120</b>	<b>(669)</b>
<b>Base metals</b>												
Nickel and other products	6,241	(3,710)	101	(138)	(514)	(405)	1,575	(1,379)	167	-	1,617	1,980
Copper	1,451	(877)	(12)	(5)	(16)	(174)	367	-	-	-	174	541
	<b>7,692</b>	<b>(4,587)</b>	<b>89</b>	<b>(143)</b>	<b>(530)</b>	<b>(579)</b>	<b>1,942</b>	<b>(1,379)</b>	<b>167</b>	<b>-</b>	<b>1,791</b>	<b>2,521</b>
<b>Fertilizers</b>												
Potash	154	(133)	(15)	(19)	(22)	(26)	(61)	-	-	-	26	(35)
Phosphates	1,820	(1,514)	(70)	(46)	(56)	(1,398)	(1,264)	1,053	-	-	345	134
Nitrogen	349	(238)	(10)	(7)	(7)	(48)	39	-	-	-	48	87
Others fertilizers products	92	-	-	-	-	-	92	-	-	-	-	92
	<b>2,415</b>	<b>(1,885)</b>	<b>(95)</b>	<b>(72)</b>	<b>(85)</b>	<b>(1,472)</b>	<b>(1,194)</b>	<b>1,053</b>	<b>-</b>	<b>-</b>	<b>419</b>	<b>278</b>
<b>Others</b>	<b>996</b>	<b>(601)</b>	<b>(329)</b>	<b>(172)</b>	<b>(6)</b>	<b>(28)</b>	<b>(140)</b>	<b>-</b>	<b>-</b>	<b>14</b>	<b>28</b>	<b>(98)</b>
<b>Total</b>	<b>37,539</b>	<b>(21,207)</b>	<b>(1,933)</b>	<b>(734)</b>	<b>(880)</b>	<b>(5,607)</b>	<b>7,178</b>	<b>1,152</b>	<b>167</b>	<b>568</b>	<b>4,288</b>	<b>13,353</b>

Year ended December 31, 2013

	Statement of income							Adjusted by				
	Net operating revenue	Costs	Expenses, net	Research and evaluation expenses	Pre operating and operational stoppage	Depreciation and others results	Operating income (loss)	Impairment of non-current assets and onerous contracts	Results on measurement or sale of non-current assets	Dividends received from associates and joint ventures	Depreciation, depletion and amortization	Adjusted EBITDA
<b>Ferrous minerals</b>												
Iron ore	27,844	(9,067)	(1,261)	(314)	(244)	(1,393)	15,565	-	-	63	1,393	17,021
Pellets	6,000	(2,299)	(110)	(12)	(130)	(366)	3,083	182	-	652	184	4,101
Ferroalloys and manganese	523	(317)	(34)	-	(13)	(29)	130	-	-	-	29	159
Others ferrous products and services	425	(166)	3	-	-	(140)	122	-	-	-	140	262
	<b>34,792</b>	<b>(11,849)</b>	<b>(1,402)</b>	<b>(326)</b>	<b>(387)</b>	<b>(1,928)</b>	<b>18,900</b>	<b>182</b>	<b>-</b>	<b>715</b>	<b>1,746</b>	<b>21,543</b>
<b>Coal</b>	<b>1,010</b>	<b>(1,147)</b>	<b>(262)</b>	<b>(49)</b>	<b>(47)</b>	<b>(173)</b>	<b>(668)</b>	<b>-</b>	<b>-</b>	<b>40</b>	<b>173</b>	<b>(455)</b>
<b>Base metals</b>												
Nickel and other products	5,839	(3,657)	(123)	(173)	(753)	(1,592)	(459)	-	-	-	1,592	1,133
Copper	1,447	(1,008)	(122)	(45)	(10)	(389)	(127)	-	215	-	174	262
Others base metals products	-	-	244	-	-	-	244	-	-	-	-	244
	<b>7,286</b>	<b>(4,665)</b>	<b>(1)</b>	<b>(218)</b>	<b>(763)</b>	<b>(1,981)</b>	<b>(342)</b>	<b>-</b>	<b>215</b>	<b>-</b>	<b>1,766</b>	<b>1,639</b>
<b>Fertilizers</b>												
Potash	201	(127)	(29)	(16)	(394)	(2,160)	(2,525)	2,116	-	-	44	(365)
Phosphates	2,065	(1,681)	(146)	(30)	(29)	(312)	(133)	-	-	-	312	179
Nitrogen	469	(382)	(22)	(5)	(5)	(75)	(20)	-	-	-	75	55
Others fertilizers products	79	-	-	(2)	-	-	77	-	-	-	-	77
	<b>2,814</b>	<b>(2,190)</b>	<b>(197)</b>	<b>(53)</b>	<b>(428)</b>	<b>(2,547)</b>	<b>(2,601)</b>	<b>2,116</b>	<b>-</b>	<b>-</b>	<b>431</b>	<b>(54)</b>
<b>Others</b>	<b>865</b>	<b>(669)</b>	<b>(233)</b>	<b>(155)</b>	<b>-</b>	<b>(34)</b>	<b>(226)</b>	<b>-</b>		<b>79</b>	<b>34</b>	<b>(113)</b>
<b>Total of continued operations</b>	<b>46,767</b>	<b>(20,520)</b>	<b>(2,095)</b>	<b>(801)</b>	<b>(1,625)</b>	<b>(6,663)</b>	<b>15,063</b>	<b>2,298</b>	<b>215</b>	<b>834</b>	<b>4,150</b>	<b>22,560</b>
Discontinued operations	1,283	(1,078)	(72)	(14)	-	(367)	(248)	-	209	-	158	119
<b>Total</b>	<b>48,050</b>	<b>(21,598)</b>	<b>(2,167)</b>	<b>(815)</b>	<b>(1,625)</b>	<b>(7,030)</b>	<b>14,815</b>	<b>2,298</b>	<b>424</b>	<b>834</b>	<b>4,308</b>	<b>22,679</b>

## b) Assets by segment

Year ended December 31, 2015					
	Trade receivables	Product inventory	Investments in associates and joint ventures	Property, plant and equipment and intangible assets	Additions to property, plant and equipment and intangible
<b>Ferrous minerals</b>					
Iron ore	76	812	405	26,772	4,874
Pellets	715	159	296	1,079	39
Ferroalloys and manganese	52	63	-	140	13
Others ferrous products and services	77	2	778	211	15
	<b>920</b>	<b>1,036</b>	<b>1,479</b>	<b>28,202</b>	<b>4,941</b>
<b>Coal</b>	<b>44</b>	<b>53</b>	<b>306</b>	<b>1,812</b>	<b>1,539</b>
<b>Base metals</b>					
Nickel and other products	411	1,142	17	21,286	1,315
Copper	17	24	-	2,236	240
	<b>428</b>	<b>1,166</b>	<b>17</b>	<b>23,522</b>	<b>1,555</b>
<b>Fertilizers</b>					
Potash	-	13	-	146	-
Phosphates	101	272	-	3,720	257
Nitrogen	-	10	-	-	-
	<b>101</b>	<b>295</b>	<b>-</b>	<b>3,866</b>	<b>257</b>
<b>Others</b>	<b>41</b>	<b>3</b>	<b>1,138</b>	<b>2,024</b>	<b>79</b>
<b>Total</b>	<b>1,534</b>	<b>2,553</b>	<b>2,940</b>	<b>59,426</b>	<b>8,371</b>

Year ended December 31, 2014					
	Trade receivables	Product inventory	Investments in associates and joint ventures	Property, plant and equipment and intangible assets	Additions to property, plant and equipment and intangible
<b>Ferrous minerals</b>					
Iron ore	1,520	1,110	546	35,294	6,946
Pellets	434	187	593	1,617	214
Ferroalloys and manganese	151	69	-	262	56
Others ferrous products and services	68	-	1,109	305	39
	<b>2,173</b>	<b>1,366</b>	<b>2,248</b>	<b>37,478</b>	<b>7,255</b>
<b>Coal</b>	<b>122</b>	<b>155</b>	<b>355</b>	<b>4,429</b>	<b>2,099</b>
<b>Base metals</b>					
Nickel and other products	658	1,435	21	29,615	1,522
Copper	119	26	194	3,664	563
	<b>777</b>	<b>1,461</b>	<b>215</b>	<b>33,279</b>	<b>2,085</b>
<b>Fertilizers</b>					
Potash	-	12	-	156	-
Phosphates	136	309	-	5,509	36
Nitrogen	-	23	-	-	-
	<b>136</b>	<b>344</b>	<b>-</b>	<b>5,665</b>	<b>36</b>
<b>Others</b>	<b>154</b>	<b>4</b>	<b>1,315</b>	<b>4,091</b>	<b>338</b>
<b>Total</b>	<b>3,362</b>	<b>3,330</b>	<b>4,133</b>	<b>84,942</b>	<b>11,813</b>

### c) Results by segment and revenues by geographic area

Year ended December 31, 2015						
	Ferrous minerals	Coal	Base metals	Fertilizers	Others	Total
<b>Results</b>						
Net operating revenue	16,562	526	6,163	2,225	133	25,609
Cost and expenses	(10,918)	(1,062)	(4,775)	(1,658)	(433)	(18,846)
Impairment of non-current assets and onerous contracts	(993)	(3,038)	(4,732)	(157)	(6)	(8,926)
Results on measurement or sale of non-current assets	(132)	-	-	-	193	61
Depreciation, depletion and amortization	(1,669)	(192)	(1,841)	(310)	(17)	(4,029)
<b>Operating income (loss)</b>	<b>2,850</b>	<b>(3,766)</b>	<b>(5,185)</b>	<b>100</b>	<b>(130)</b>	<b>(6,131)</b>
Financial result	(10,482)	151	(333)	(147)	10	(10,801)
Results on sale or disposal of investments in associates and joint ventures	-	-	-	-	97	97
Impairment of investment in associates and joint ventures	(132)	-	(314)	-	-	(446)
Equity results in associates and joint ventures	26	(3)	(132)	-	(330)	(439)
Income taxes	5,007	(835)	1,087	(149)	(10)	5,100
<b>Loss</b>	<b>(2,731)</b>	<b>(4,453)</b>	<b>(4,877)</b>	<b>(196)</b>	<b>(363)</b>	<b>(12,620)</b>
Income (loss) attributable to noncontrolling interests	69	(254)	(295)	10	(21)	(491)
<b>Loss attributable to Vale's stockholders</b>	<b>(2,800)</b>	<b>(4,199)</b>	<b>(4,582)</b>	<b>(206)</b>	<b>(342)</b>	<b>(12,129)</b>

#### Sales classified by geographic area:

America, except United States and Brazil	359	18	1,122	65	-	1,564
United States of America	30	-	804	-	21	855
Europe	2,506	102	1,921	127	-	4,656
Middle East/Africa/Oceania	1,009	97	84	9	-	1,199
Japan	1,512	74	373	-	-	1,959
China	8,400	44	651	-	-	9,095
Asia, except Japan and China	1,081	169	990	74	-	2,314
Brazil	1,665	22	218	1,950	112	3,967
<b>Net operating revenue</b>	<b>16,562</b>	<b>526</b>	<b>6,163</b>	<b>2,225</b>	<b>133</b>	<b>25,609</b>

Year ended December 31, 2014						
	Ferrous minerals	Coal	Base metals	Fertilizers	Others	Total
<b>Results</b>						
Net operating revenue	25,697	739	7,692	2,415	996	37,539
Cost and expenses	(14,902)	(1,436)	(5,171)	(2,137)	(1,108)	(24,754)
Impairment of non-current assets and onerous contracts	(1,135)	(343)	1,379	(1,053)	-	(1,152)
Results on measurement or sales of non-current assets	-	-	(167)	-	-	(167)
Depreciation, depletion and amortization	(1,930)	(120)	(1,791)	(419)	(28)	(4,288)
<b>Operating income (loss)</b>	<b>7,730</b>	<b>(1,160)</b>	<b>1,942</b>	<b>(1,194)</b>	<b>(140)</b>	<b>7,178</b>
Financial result	(6,003)	194	(198)	(51)	(11)	(6,069)
Results on sale or disposal of investments in associates and joint ventures	-	-	-	-	(30)	(30)
Impairment of investment in associates and joint ventures	-	-	-	-	(31)	(31)
Equity results in associates and joint ventures	665	32	(35)	-	(157)	505
Income taxes	(1,451)	81	(145)	403	(88)	(1,200)
<b>Net income (loss)</b>	<b>941</b>	<b>(853)</b>	<b>1,564</b>	<b>(842)</b>	<b>(457)</b>	<b>353</b>
Income (loss) attributable to noncontrolling interests	59	(49)	(284)	4	(34)	(304)
<b>Income (loss) attributable to Vale's stockholders</b>	<b>882</b>	<b>(804)</b>	<b>1,848</b>	<b>(846)</b>	<b>(423)</b>	<b>657</b>

#### Sales classified by geographic area:

America, except United States and Brazil	652	3	1,373	39	21	2,088
United States of America	24	-	1,099	-	245	1,368
Europe	3,894	115	2,586	89	13	6,697
Middle East/Africa/Oceania	1,608	110	149	3	-	1,870
Japan	2,566	192	863	-	6	3,627
China	11,939	76	642	-	-	12,657
Asia, except Japan and China	2,189	235	828	53	-	3,305
Brazil	2,825	8	152	2,231	711	5,927
<b>Net operating revenue</b>	<b>25,697</b>	<b>739</b>	<b>7,692</b>	<b>2,415</b>	<b>996</b>	<b>37,539</b>



Year ended December 31, 2013								
	Ferrous minerals	Coal	Base metals	Fertilizers	Others	Total	Discontinued operations	Total
<b>Results</b>								
Net operating revenue	34,792	1,010	7,286	2,814	865	46,767	1,283	48,050
Cost and expenses	(13,964)	(1,505)	(5,647)	(2,868)	(1,057)	(25,041)	(1,164)	(26,205)
Impairment of non-current assets and onerous contracts	(182)	-	-	(2,116)	-	(2,298)	-	(2,298)
Results on measurement or sale of non-current assets	-	-	(215)	-	-	(215)	(209)	(424)
Depreciation, depletion and amortization	(1,746)	(173)	(1,766)	(431)	(34)	(4,150)	(158)	(4,308)
<b>Operating income (loss)</b>	<b>18,900</b>	<b>(668)</b>	<b>(342)</b>	<b>(2,601)</b>	<b>(226)</b>	<b>15,063</b>	<b>(248)</b>	<b>14,815</b>
Financial result	(8,559)	44	(50)	(18)	251	(8,332)	(2)	(8,334)
Results on sale or disposal of investments in associates and joint ventures	-	-	-	27	14	41	-	41
Equity results in associates and joint ventures	627	28	(26)	-	(160)	469	-	469
Income taxes	(7,200)	294	62	56	(45)	(6,833)	248	(6,585)
<b>Net income (loss)</b>	<b>3,768</b>	<b>(302)</b>	<b>(356)</b>	<b>(2,536)</b>	<b>(166)</b>	<b>408</b>	<b>(2)</b>	<b>406</b>
Income (loss) attributable to noncontrolling interests	(42)	(35)	(58)	13	(56)	(178)	-	(178)
<b>Income (loss) attributable to Vale's stockholders</b>	<b>3,810</b>	<b>(267)</b>	<b>(298)</b>	<b>(2,549)</b>	<b>(110)</b>	<b>586</b>	<b>(2)</b>	<b>584</b>
<b>Sales classified by geographic area:</b>								
America, except United States and Brazil	733	-	1,045	60	10	1,848	-	1,848
United States of America	30	-	1,070	-	212	1,312	-	1,312
Europe	5,917	79	2,647	120	-	8,763	-	8,763
Middle East/Africa/Oceania	1,844	137	93	17	7	2,098	-	2,098
Japan	3,113	304	618	-	-	4,035	-	4,035
China	17,913	157	851	-	-	18,921	-	18,921
Asia, except Japan and China	2,340	316	883	61	-	3,600	-	3,600
Brazil	2,902	17	79	2,556	636	6,190	1,283	7,473
<b>Net operating revenue</b>	<b>34,792</b>	<b>1,010</b>	<b>7,286</b>	<b>2,814</b>	<b>865</b>	<b>46,767</b>	<b>1,283</b>	<b>48,050</b>

#### d) Investment in associates and joint ventures, intangible and property, plant and equipment by geographic area

	December 31, 2015				December 31, 2014			
	Investments in associates and joint ventures	Intangible	Property, plant and equipment	Total	Investments in associates and joint ventures	Intangible	Property, plant and equipment	Total
Brazil	2,408	3,285	32,190	37,883	3,411	4,380	40,971	48,762
Canada	2	2,039	10,589	12,630	4	2,352	17,478	19,834
America, except Brazil and Canada	157	-	456	613	184	-	651	835
Europe	-	-	608	608	-	-	630	630
Asia	367	-	5,219	5,586	340	-	7,043	7,383
Australia	-	-	74	74	-	88	776	864
New Caledonia	-	-	3,521	3,521	-	-	4,140	4,140
Mozambique	-	-	442	442	-	-	5,376	5,376
Oman	-	-	1,003	1,003	-	-	1,057	1,057
Other regions	6	-	-	6	194	-	-	194
<b>Total</b>	<b>2,940</b>	<b>5,324</b>	<b>54,102</b>	<b>62,366</b>	<b>4,133</b>	<b>6,820</b>	<b>78,122</b>	<b>89,075</b>

#### 4. Relevant event – Dam failure at Samarco Mineração S.A. (“Samarco”)

On November 5, 2015, Samarco experienced the failure of an iron ore tailings dam (Fundão) in the state of Minas Gerais - Brazil, which affected communities and ecosystems, including the Rio Doce river.

Following the dam failure, the state government of Minas Gerais ordered the suspension of Samarco’s operations. Samarco has been working together with the authorities in order to meet the legal and social requirements to mitigate the environmental and social impacts of the event.

##### a) Accounting effects at the investment due to the dam failure

Samarco is a Brazilian entity jointly controlled by Vale and BHP Billiton Brasil Ltda. (“BHP”), in which each shareholder has a 50% ownership interest.

As a consequence of the dam failure, Samarco incurred expenses, wrote off assets and recognized provisions for remediation, which affected its balance sheet and income statement. Because Samarco is a joint venture, the effects of the dam failure are accounted for under equity method by Vale, in which the balance sheet and income statement impact is limited to Vale’s interest in Samarco’s capital as per the Brazilian Corporation Law. The dam failure had no effect on Vale’s cash flow for the year ended December 31, 2015.

The accounting impact of the investment in Samarco in Vale’s financial statements, including the effects of the dam failure, are as follows:

	Investments in associates and joint ventures	Accounts receivable	Related parties	Total
<b>Balance on December 31, 2014</b>	<b>200</b>	<b>24</b>	<b>310</b>	<b>534</b>
Equity results on income statement	(167)	-	-	(167)
Dividends received	-	-	(146)	(146)
Royalties declared	-	31	-	31
Royalties received	-	(12)	-	(12)
Transfers	125	(38)	(87)	-
Impairment (note 15)	(132)	-	-	(132)
Translation adjustment	(26)	(5)	(77)	(108)
<b>Balance on December 31, 2015</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Under Brazilian legislation and the terms of the joint venture agreement, Vale does not have an obligation to provide funding to Samarco. Additionally, Vale has not received any requests for financial assistance from Samarco. As a result, Vale’s investment in Samarco was reduced to zero and no liability was recognized in Vale’s financial statements. The accounting impact of any future request for funding will be determined when it occurs.

**b) Social and environmental remediation** - In 2015, Samarco recognized provisions for social and environmental remediation based on current available information. There is a high degree of uncertainty in these provisions since the impact of environmental and social economic assessment is at an early stage. Eventual unrecognized obligations, considered as contingent liabilities, and future possible exposures, including timing of payments cannot be reliably measured. The key assumptions used in the provision will be reviewed periodically considering the assessment of damage progress, which could results in a material change to the amount of Samarco’s provision in future reporting periods. In addition, the remediation activities have been submitted to the regulators and other government authorities and are still subject to their approval.

**c) Contingencies** - In December 2015, the Federal Government, the States of Minas Gerais and Espírito Santo and other entities jointly brought a public civil action against Samarco and its shareholders, Vale and BHP. The plaintiffs seek approximately R\$20.2 billion in damages and a number of measures to remediate alleged damages caused by the Fundão dam failure. Due to the preliminary stage of the proceedings, it is not possible to provide a range of possible outcomes or a reliable estimate of potential future exposure for Vale in relation to this claim. In addition, Samarco and its shareholders are named as a defendant in several other lawsuits brought by individuals, corporations and governmental entities seeking damages for personal injury, wrongful death, commercial or economic injury, breach of contract and violations of statutes. Because these pending lawsuits are at the very early stages, it is not possible to determine a range of outcomes or reliable estimates of the potential exposure at this time. Therefore, no provision has been recognized and no contingent liability has been quantified.

Vale S.A. and certain of its officers have been named as defendants in civil class action suits in federal court in New York brought by holders of Vale's securities under U.S. federal securities laws. The lawsuits allege that Vale made false and misleading statements or omitted to make disclosures concerning the risks and dangers of the operations of Samarco's Fundão dam and assert other causes of action against the defendants for the ownership in and supervision of the Fundão dam. The plaintiffs have not specified an amount of alleged damages in these actions. Vale has notified its insurers of the dam failure event and related civil complaints. Vale intends to defend these actions and mount a full defense against the allegations. The litigation is at a very early stage. Service has not been completed on all defendants, no lead plaintiff or lead plaintiffs' attorney has been named, and no schedule has been established for the filing of any responses, motions or answers. As a consequence of the preliminary nature of these suits, it is not possible to determine a range of outcomes or reliable estimates of the potential exposure at this time, and no provision has been recognized.

**d) Insurance** - Samarco is negotiating with insurers under its operational risk, general liability and engineering risk policies, but these negotiations are still at a preliminary stage. Any payment of insurance proceeds will depend on the coverage definitions under these policies and assessment of the amount of loss. In light of the uncertainties, no indemnification was recognized in Samarco's financial statements.

## 5. Assets held for sale

	December 31, 2015		December 31, 2014	
	Nacala	Energy	Nacala	Total
<b>Assets held for sale</b>				
Accounts receivable	3	-	8	8
Other current assets	134	-	157	157
Investments in associates and joint ventures	-	88	-	88
Intangible assets, net	21	-	-	-
Property, plant and equipment, net	3,886	477	2,910	3,387
<b>Total assets</b>	<b>4,044</b>	<b>565</b>	<b>3,075</b>	<b>3,640</b>
<b>Liabilities associated with assets held for sale</b>				
Suppliers and contractors	93	-	54	54
Other current liabilities	14	-	57	57
<b>Total liabilities</b>	<b>107</b>	<b>-</b>	<b>111</b>	<b>111</b>
<b>Net assets held for sale</b>	<b>3,937</b>	<b>565</b>	<b>2,964</b>	<b>3,529</b>

**a) Coal - Nacala logistic corridor ("Nacala")** - In December 2014, the Company signed an agreement with Mitsui & Co., Ltd. ("Mitsui") to sell 50% of its stake of 70% in the Nacala corridor. Nacala is a combination of railroad and port concessions under construction located in Mozambique and Malawi. After completion of the transaction, Vale will share control of Nacala with Mitsui and therefore will not consolidate the assets, liabilities and results of those entities. The assets and liabilities were classified as assets held for sale with no impact in the income statement. As at December 2015, completion of the transaction remains dependent upon certain conditions. The Company remains committed to its plan to sell its 50% interest.

**b) Other - Energy generation assets** - In December 2013, the Company signed agreements with CEMIG Geração e Transmissão S.A. ("CEMIG GT"), as follows:

(i) A new entity Aliança Norte Participações S.A., was incorporated and Vale contributed its 9% investment in Norte Energia S.A. ("Norte Energia"), which is the company in charge of construction and operation of the Belo Monte Hydroelectric facility. Vale committed to sell 49% and share control of the new entity to CEMIG GT. In the first quarter of 2015, after receiving all regulatory approvals and other customary precedent conditions the Company concluded the transaction and received cash proceeds of US\$97, recognizing a gain of US\$18 as result on sale or disposal of investment in associates and joint ventures (note 6).

(ii) A new entity Aliança Geração de Energia S.A. ("Aliança Geração") was incorporated and Vale committed to contribute its shares over several power generation assets which use to supply energy for the Company's operations. In exchange, CEMIG GT committed to contribute its stakes in some of its power generation assets. In the first quarter of 2015, after receiving all regulatory approvals and other customary precedent conditions, the exchange of assets was completed and Vale holds 55% and shares control of the new entity with CEMIG GT. A long term contract was signed between Vale and Aliança Geração for the energy supply. Due to the completion of this transaction, the Company (i) derecognized the assets held for sale related to this transaction; (ii) recognized as investment its share in the joint venture Aliança Geração; and (iii) recognized a gain of US\$193 as results on measurement or sales of non-current assets (note 6) based on the fair value of the assets transferred by CEMIG GT. This transaction has no cash proceeds or disbursements.

## 6. Acquisitions and divestitures

The effects of divestitures in the income statement are presented as follow:

	Year ended December 31		
	2015	2014	2013
<b>Results on measurement or sale of non-current assets</b>			
Shipping assets	(132)	-	-
Energy generation assets (note 5)	193	-	-
Mineral rights - CoW Indonesia (note 29(a))	-	(167)	-
Sociedad Contractual Minera Tres Valles	-	-	(215)
	<b>61</b>	<b>(167)</b>	<b>(215)</b>
<b>Results on sale or disposal of investments in associates and joint ventures</b>			
Shandong Yankuang International Coking Co., Ltd.	79	-	-
Energy generation assets (note 5)	18	-	-
Vale Florestar Fundo de Investimento em Participações	-	(30)	-
Log-in Logística Intermodal S.A.	-	-	14
Fosbrasil S.A.	-	-	27
	<b>97</b>	<b>(30)</b>	<b>41</b>
<b>Financial income</b>			
Norsk Hydro ASA	-	-	214
	<b>-</b>	<b>-</b>	<b>214</b>

### 2015

**a) Divestiture of participation in Minerações Brasileiras Reunidas S.A. ("MBR")** - The Company and Fundo de Investimento em Participações Multisetorial Plus II, whose shares are held by Banco Bradesco BBI S.A. (related party), completed the sale of class A preferred shares of MBR, representing 36.4% of its share capital. The Company received cash proceeds of R\$4 billion (US\$1,089) and will keep a stake of 62.5% of the total capital of MBR, maintaining its stake in ordinary capital at 98.3%. The participation and rights of the new shareholder were recognized as noncontrolling interest in stockholders' equity.

**b) Divestiture of shipping assets** - The Company completed the sale of 12 very large ore carriers with capacity of 400,000 tons each. The Company received cash proceeds of US\$1,316 and recognized a loss of US\$132 as results on measurement or sale of non-current assets.

**c) Integra and Isaac Plains mining complexes** - The Company signed agreements to sell its participation in the Integra and Isaac Plains mining complexes which were put into care and maintenance in 2014 (note 15). The transaction had no impact in cash flow.

**d) Divestiture of Shandong Yankuang International Coking Co., Ltd. ("Yankuang")** - The Company completed the sale of its participation in Yankuang, a producer of coking coal, methanol and other products. In this transaction, Vale recognized a gain of US\$79 as results on sale or disposal of investments in associates and joint ventures.

**e) Divestiture of VBG-Vale BSGR Limited ("VBG")** - VBG is the holding company which held the Simandou mining rights located in Guinea. In April 2014, the Government of Guinea revoked VBG mining rights, without any finding of wrongdoing by Vale. During 2014, as a result of the loss of the mining rights, Vale recognized full impairment of the assets related to VBG (note 15). During the first quarter of 2015, the Company sold its stake in VBG to its partner in the project and kept the right to any recoverable amount it may derive from the Simandou project. The transaction had no impact on cash or in the income statement.

**f) Acquisition of Facon Construção e Mineração S.A. ("Facon")** - The Company acquired all shares of Facon, a wholly owned subsidiary of Fagundes Construção e Mineração S.A. ("FCM"). FCM is a logistic service provider for Vale Fertilizantes S.A. The Facon business was carved out from FCM with assets and liabilities directly related to the fertilizer business being transferred to Vale Fertilizantes S.A. The purchase price allocation based on the fair value of acquired assets and liabilities was calculated based on studies performed by the Company. Subsequently, Facon was merged into Vale Fertilizantes S.A.

Purchase price	90
Book value of property, plant and equipment	77
Book value of other assets acquired and liabilities assumed, net	(69)
Adjustment to fair value of property, plant and equipment and mining rights	43
<b>Goodwill</b>	<b>39</b>

## 2014

**g) Divestiture of Vale Florestar Fundo de Investimento em Participações (“Vale Florestar”)** - The Company signed an agreement with a subsidiary of Suzano Papel e Celulose S.A. for the sale of its entire stake in Vale Florestar. A loss on this transaction of US\$30 was recorded as a result on sale or disposal of investments in associates and joint ventures in 2014.

## 2013

**h) Divestitures of Sociedad Contractual Minera Tres Valles (“Tres Valles”)** - The Company sold its total participation in Tres Valles for US\$25. On this transaction, Vale recognized a loss of US\$215 presented in the income statement as results on measurement or sale of non-current assets of the year ended as at December 31, 2013. The total loss includes an amount of US\$7 transferred from cumulative translation adjustments.

**i) Divestitures of Log-In Logística Intermodal S.A. (“Log-in”)** - Vale conducted an auction to sell its common shares of Log-in. All the shares were sold for US\$94 and a gain of US\$14 on this transaction was recorded in the income statement as result on sale or disposal of investments in associates and joint ventures for the year ended as at December 31, 2013.

**j) Divestitures of Fosbrasil S.A. (“Fosbrasil”)** - The Company entered into an agreement to sell its minority participation in the associate Fosbrasil, producer of purified phosphoric acid, for US\$45. On this transaction, Vale recognized a gain of US\$27 presented in the income statement as result on sale or disposal of investments in associates and joint ventures for the year ended as at December 31, 2013.

**k) Divestitures of Norsk Hydro ASA (“Hydro”)** - The Company sold its Hydro common shares for US\$1,811. As result of this operation, the Company recognized a gain of US\$214 in the income statement as financial income for the year ended as at December 31, 2013, as below:

<b>Balance on the date of sale</b>	<b>1,845</b>
Cumulative translation adjustment	(442)
Results on available for sale investment	194
	<b>1,597</b>
Amount received	1,811
<b>Gain on sale</b>	<b>214</b>

## 7. Cash and cash equivalents

	<b>December 31, 2015</b>	<b>December 31, 2014</b>
Cash and bank deposits	2,018	2,109
Short-term investments	1,573	1,865
	<b>3,591</b>	<b>3,974</b>

Cash and cash equivalents includes cash, immediately redeemable deposits and short-term investments with an insignificant risk of change in value. They are readily convertible to cash, part in R\$, indexed to the Brazilian Interbank Interest rate (“DI Rate” or “CDI”) and part denominated in US\$, mainly time deposits.

## 8. Accounts receivable

	<b>December 31, 2015</b>	<b>December 31, 2014</b>
Trade receivables	1,534	3,362
Provision for doubtful debts	(58)	(87)
	<b>1,476</b>	<b>3,275</b>
Trade receivables related to the steel sector - %	75.32%	77.79%
Reversal (provision) for doubtful debts recorded in the income statement	11	(36)
Trade receivables write-offs recorded in the income statement	(6)	(5)

Trade receivables by segments are presented in note 3(b). No individual customer represents over 10% of receivables or revenues.

## 9. Inventories

	December 31, 2015	December 31, 2014
Product inventory	2,553	3,330
Consumable inventory	975	1,171
<b>Total</b>	<b>3,528</b>	<b>4,501</b>

Product inventories by segments are presented in note 3(b).

As at December 31, 2015 product inventory is stated net of provisions for nickel, coal, phosphate, manganese and iron ore in the amount of US\$70 (US\$19 as at December 31, 2014), US\$423 (US\$285 as at December 31, 2014), US\$2 (US\$0 as at December 31, 2014), US\$4 (US\$0 as at December 31, 2014) and US\$19 (US\$0 as at December 31, 2014), respectively.

## 10. Recoverable taxes

Recoverable taxes are presented net of provisions for losses on tax credits.

	December 31, 2015	December 31, 2014
Value-added tax	755	1,057
Brazilian federal contributions	1,125	1,010
Others	25	34
<b>Total</b>	<b>1,905</b>	<b>2,101</b>
Current	1,404	1,700
Non-current	501	401
<b>Total</b>	<b>1,905</b>	<b>2,101</b>

## 11. Investments in associates and joint ventures

Changes in investments in associates and joint ventures are as follows:

	2015	2014	2013
<b>Balance at beginning of the year</b>	<b>4,133</b>	<b>3,584</b>	<b>6,384</b>
Acquisitions (i)	584	-	-
Additions	30	220	378
Capitalizations	249	-	-
Disposals (ii)	79	-	(98)
Translation adjustment	(1,211)	(536)	(582)
Equity results on income statement	(439)	505	469
Equity results on statement of comprehensive income and others	(6)	(2)	(204)
Dividends declared	(95)	(831)	(747)
Impairment (note 15)	(446)	(31)	-
Transfer to held for sale - Others (iii)	-	1,145	(2,016)
Others	62	79	-
<b>Balance at end of the year</b>	<b>2,940</b>	<b>4,133</b>	<b>3,584</b>

(i) Includes Aliança Geração transaction, see note 5.

(ii) Refers to Yankuang, see note 6, for the year ended December 31, 2015.

(iii) Refers to Vale Florestar and VLI for the year ended as at December 31, 2014 and Hydro for the year ended as at December 31, 2013.

## Investments in associates and joint ventures (continued)

			Investments in associates and joint ventures		Equity results in net income			Dividends received		
			As at December 31		Year ended December 31			Year ended December 31		
Associates and joint ventures	% ownership	% voting capital	2015	2014	2015	2014	2013	2015	2014	2013
Ferrous minerals										
Baovale Mineração S.A.	50.00	50.00	24	16	-	4	(7)	-	-	1
Companhia Coreano-Brasileira de Pelotização	50.00	50.00	62	86	25	30	18	19	16	22
Companhia Hispano-Brasileira de Pelotização (i)	50.89	51.00	57	80	14	24	1	16	11	10
Companhia Ítalo-Brasileira de Pelotização (i)	50.90	51.00	50	61	21	25	7	14	5	-
Companhia Nipo-Brasileira de Pelotização (i)	51.00	51.11	104	142	46	66	19	30	48	24
Minas da Serra Geral S.A. (v)	50.00	50.00	13	20	(2)	1	-	-	-	-
MRS Logística S.A.	48.16	46.75	368	510	43	76	101	22	44	63
Samarco Mineração S.A. (iv)	50.00	50.00	-	200	(167)	392	499	146	401	595
VLI S.A.	37.60	37.60	778	1,109	46	48	-	8	-	-
Zhuhai YPM Pellet Co.	25.00	25.00	23	24	-	-	-	-	-	-
Others			-	-	-	(1)	(11)	-	-	-
			1,479	2,248	26	665	627	255	525	715
Coal										
Henan Longyu Energy Resources Co., Ltd.	25.00	25.00	306	355	(3)	32	42	28	29	40
Base metals										
Korea Nickel Corp.	25.00	25.00	17	21	(3)	-	(2)	-	-	-
Teal Minerals Inc.	50.00	50.00	-	194	(129)	(35)	(24)	-	-	-
			17	215	(132)	(35)	(26)	-	-	-
Others										
Aliança Geração de Energia S.A. (i)	55.00	55.00	481	-	50	-	-	30	-	-
Aliança Norte Energia Participações S.A. (i)	51.00	51.00	81	-	1	-	-	-	-	-
California Steel Industries, Inc.	50.00	50.00	157	184	(27)	12	20	-	6	6
Companhia Siderúrgica do Pecém (ii)	50.00	50.00	225	725	(307)	(44)	(10)	-	-	-
Mineração Rio Grande do Norte S.A.	40.00	40.00	93	91	40	7	10	3	8	17
Norte Energia S.A. (ii) (iii)	-	-	-	91	-	(11)	(2)	-	-	-
Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd.	26.87	26.87	-	205	(80)	(60)	(158)	-	-	-
Others			101	19	(7)	(61)	(34)	2	-	56
			1,138	1,315	(330)	(157)	(174)	35	14	79
Total			2,940	4,133	(439)	505	469	318	568	834

(i) Although the Company held majority of the voting capital, the entities are accounted under equity method due to shareholders agreements.

(ii) Pre-operational stage.

(iii) The Company's interest in Norte Energia S.A. is indirectly owned by Aliança Norte Energia Participações S.A. (note 5).

(iv) Note 4.

(v) The Company offered US\$17 to acquire the additional 50% interest. The transaction is expected to be completed in 2016.

The information (100% basis) about relevant subsidiaries with noncontrolling interest (in which other investors have participation in the Group's activities), associates and joint-ventures are as follows:

	December 31, 2015						
	Assets		Liabilities		Stockholders' equity	Dividends paid	Net income (loss)
	Current	Non-current	Current	Non-current			
Subsidiaries that have noncontrolling interest							
Minerações Brasileiras Reunidas S.A.	743	2,912	188	155	3,312	116	250
Associates and joint ventures							
Aliança Geração de Energia S.A.	65	915	35	71	874	55	91
Companhia Siderúrgica do Pecém	265	3,057	528	2,344	450	-	(615)
Henan Longyu Energy Resources Co., Ltd.	883	529	108	80	1,224	112	(11)
MRS Logística S.A.	323	1,709	392	877	764	37	90
VLI S.A.	502	2,970	511	893	2,069	23	121

December 31, 2014							
	Assets		Liabilities		Stockholders' equity	Dividends paid	Net income (loss)
	Current	Non-current	Current	Non-current			
Subsidiaries that have noncontrolling interest							
Minerações Brasileiras Reunidas S.A.	433	2,544	245	404	2,328	-	150
Associates and joint ventures							
Henan Longyu Energy Resources Co., Ltd.	1,149	484	65	148	1,420	116	128
MRS Logística S.A.	305	2,397	415	1,215	1,072	61	160
VLI S.A.	733	3,383	643	523	2,950	-	128

## 12. Noncontrolling interest

	Stockholder's equity		Gain (loss) attributable to noncontrolling interest		
	Balance on		Year ended December 31		
	December 31, 2015	December 31, 2014	2015	2014	2013
Biopalma da Amazônia S.A.	6	34	(22)	(35)	(43)
Compañia Mineradora Miski Mayo S.A.C.	261	283	10	4	13
Minerações Brasileiras Reunidas S.A.	1,360	39	(66)	(3)	1
PT Vale Indonesia Tbk	741	736	6	65	18
Vale Nouvelle Calédonie S.A.S.	55	176	(301)	(348)	(68)
Vale Oman Pelletizing LLC	67	67	7	7	12
Outros	(375)	(136)	(125)	6	(111)
	<b>2,115</b>	<b>1,199</b>	<b>(491)</b>	<b>(304)</b>	<b>(178)</b>



### 13. Intangibles

Changes in intangibles are as follows:

	Indefinite useful life	Finite useful life			Total
	Goodwill (i)	Concessions	Right of use (ii)	Software	
<b>Balance on December 31, 2013</b>	<b>4,140</b>	<b>1,907</b>	<b>253</b>	<b>571</b>	<b>6,871</b>
Additions	-	835	102	252	1,189
Disposals	-	(6)	-	-	(6)
Amortization	-	(202)	(31)	(174)	(407)
Impairment (note 15)	(460)	-	-	-	(460)
Translation adjustment	(411)	(321)	(27)	(99)	(858)
Others	491	-	-	-	491
<b>Total</b>	<b>3,760</b>	<b>2,213</b>	<b>297</b>	<b>550</b>	<b>6,820</b>
Cost	3,760	3,421	518	1,356	9,055
Accumulated amortization	-	(1,208)	(221)	(806)	(2,235)
<b>Balance on December 31, 2014</b>	<b>3,760</b>	<b>2,213</b>	<b>297</b>	<b>550</b>	<b>6,820</b>
Additions	-	549	-	128	677
Disposals	-	(20)	-	-	(20)
Amortization	-	(150)	(42)	(155)	(347)
Impairment (note 15)	(81)	-	-	-	(81)
Translation adjustment	(762)	(778)	(48)	(176)	(1,764)
Acquisition of subsidiary (note 6(f))	39	-	-	-	39
<b>Total</b>	<b>2,956</b>	<b>1,814</b>	<b>207</b>	<b>347</b>	<b>5,324</b>
Cost	2,956	2,588	464	1,025	7,033
Accumulated amortization	-	(774)	(257)	(678)	(1,709)
<b>Balance on December 31, 2015</b>	<b>2,956</b>	<b>1,814</b>	<b>207</b>	<b>347</b>	<b>5,324</b>

(i) Goodwill is allocated mainly in iron ore and nickel segments in the amount of US\$1,040 e US\$1,863, respectively.

(ii) Refers to the usufruct contract between the Company and noncontrolling stockholders to use the shares of Empreendimentos Brasileiros de Mineração S.A. (owner of Minerações Brasileiras Reunidas S.A. shares) and intangible assets identified in the business combination of Vale Canada Limited ("Vale Canada"). The amortization of the right of use will expire in 2037 and Vale Canada's intangible assets will end in September of 2046. The concessions refer to the agreements with the Brazilian government for the exploration and the development of ports and railways.

## 14. Property, plant and equipment

The net book value of property, plant and equipment pledged to secure judicial claims on December 31, 2015 and 2014 were US\$44 and US\$68, respectively.

Changes in property, plant and equipment are as follows:

	Land	Building	Facilities	Equipment	Mineral properties	Others	Constructions in progress	Total
<b>Balance on December 31, 2013</b>	<b>945</b>	<b>7,785</b>	<b>10,937</b>	<b>8,404</b>	<b>16,276</b>	<b>10,519</b>	<b>26,799</b>	<b>81,665</b>
Additions (i)	-	-	-	-	-	-	12,054	12,054
Disposals (ii)	(3)	(50)	(10)	(9)	(264)	(28)	(232)	(596)
Depreciation and amortization	-	(454)	(818)	(1,025)	(1,083)	(723)	-	(4,103)
Transfer to non-current assets held for sale	-	-	(10)	(49)	(85)	(2)	(2,764)	(2,910)
Impairment (note 15)	-	533	(47)	112	(1,255)	(18)	(17)	(692)
Translation adjustment	(75)	(1,412)	(2,407)	(992)	(132)	(1,238)	(1,040)	(7,296)
Transfers	202	5,252	3,168	2,846	1,472	2,444	(15,384)	-
<b>Total</b>	<b>1,069</b>	<b>11,654</b>	<b>10,813</b>	<b>9,287</b>	<b>14,929</b>	<b>10,954</b>	<b>19,416</b>	<b>78,122</b>
Cost	1,069	14,144	15,749	14,381	20,965	14,888	19,416	100,612
Accumulated depreciation	-	(2,490)	(4,936)	(5,094)	(6,036)	(3,934)	-	(22,490)
<b>Balance on December 31, 2014</b>	<b>1,069</b>	<b>11,654</b>	<b>10,813</b>	<b>9,287</b>	<b>14,929</b>	<b>10,954</b>	<b>19,416</b>	<b>78,122</b>
Additions (i)	-	-	-	-	-	-	9,499	9,499
Disposals	(3)	(8)	(41)	(81)	(152)	(1,554)	(22)	(1,861)
Disposal of asset retirement obligation	-	-	-	-	(334)	-	-	(334)
Depreciation and amortization	-	(547)	(713)	(1,066)	(864)	(766)	-	(3,956)
Transfer to non-current assets held for sale	-	-	-	-	(127)	-	-	(127)
Impairment (note 15)	(13)	(1,828)	(838)	(1,100)	(982)	(1,979)	(1,748)	(8,488)
Translation adjustment	(292)	(3,383)	(3,182)	(1,846)	(2,404)	(2,439)	(5,327)	(18,873)
Transfers	5	3,213	2,253	2,112	238	2,871	(10,692)	-
Acquisition of subsidiary (note 6(f))	-	-	-	1	-	119	-	120
<b>Total</b>	<b>766</b>	<b>9,101</b>	<b>8,292</b>	<b>7,307</b>	<b>10,304</b>	<b>7,206</b>	<b>11,126</b>	<b>54,102</b>
Cost	766	13,707	13,152	12,230	17,054	10,617	11,126	78,652
Accumulated depreciation	-	(4,606)	(4,860)	(4,923)	(6,750)	(3,411)	-	(24,550)
<b>Balance on December 31, 2015</b>	<b>766</b>	<b>9,101</b>	<b>8,292</b>	<b>7,307</b>	<b>10,304</b>	<b>7,206</b>	<b>11,126</b>	<b>54,102</b>

(i) Includes capitalized borrowing costs and asset retirement obligations, see cash flow.

(ii) Includes the disposal of CoW Indonesia (note 29(a)).

## 15. Impairment and onerous contracts

According to the accounting policy described in note 31(l), the Company identified evidence of impairment in relation to certain investments in associates and joint ventures, intangible and property, plant and equipment. The following impairment charges and reversals were recorded:

Segments by class of assets	Assets or cash-generating unit	Recoverable amount	Impairment (reversals)		
			2015	2014	2013
Property, plant and equipment					
Iron ore	Midwest system	-	522	-	-
Iron ore	Simandou project	-	-	1,135	-
Iron ore	Others	-	34	-	-
Pellets	North system (stopped operations)	-	55	-	-
Pellets	Pelletizing asset	-	-	-	182
Pellets	Others	-	3	-	-
Other ferrous products and services	Others	-	21	-	-
Coal	Mozambique	1,729	2,403	-	-
Coal	Australia	74	554	343	-
Nickel	Newfoundland (VNL)	2,353	3,460	-	-
Nickel	New Caledonia (VNC)	3,725	1,462	238	-
Nickel	Onça Puma	2,331	(252)	(1,617)	-
Nickel	Others	-	26	-	-
Copper	Others	-	36	-	-
Potash	Potássio Rio Colorado	20	548	-	2,116
Phosphates	Phosphate	3,842	(391)	593	-
Others	Others	-	7	-	-
			8,488	692	2,298
Intangible					
Coal	Australia	-	81	-	-
Phosphates	Phosphate	-	-	460	-
Impairment of non-current assets			8,569	1,152	2,298
Onerous contracts					
Iron ore	Midwest system		357	-	-
Impairment of non-current assets and onerous contracts			8,926	1,152	2,298
Investments in associates and joint ventures					
Pellets	Samarco Mineração S.A.	-	132	-	-
Copper	Teal Minerals Inc.	-	314	-	-
Others	Vale Soluções em Energia S.A.	-	-	31	-
Impairment of investments in associates and joint ventures			446	31	

### a) Impairment of non-current assets

In accordance with the Company's accounting policy, each CGU is evaluated at each reporting period to determine whether there are any indicators of impairment. If any such indicators of impairment exist, an estimate of the recoverable amount is performed.

In assessing whether an impairment is required, the carrying value of the asset or CGU is compared with its recoverable amount. The recoverable amount is the higher of the CGU's fair value less costs to sell ("FVLCS") and value in use ("ViU"). If an impairment was recognized in previous years and actual circumstances indicate that the impairment is no longer be applicable, an impairment reversal is recognized.

The FVLCS is calculated in each CGU and is estimated based on discounted future estimated cash flows, considering market based commodity price, the CGU five-year plans and life of mine plans, mineral reserves and mineral resources, costs and investments based on the best estimate of past performance and sale prices consistent with the projections used in reports published by industry considering the market price when available and appropriate.

The determination of FVLCS for each CGU are considered to be Level 3 fair value measurements, as they are derived from valuation techniques that include inputs that are not based on observable market data. The most sensitive assumptions were the discount rate and prices. All assets were tested using FVLCS model, except for North system.

These cash flows were discounted using a post-tax discount rate ranging from 6% to 10%. The discount rate was based on the weighted average cost of capital ("WACC") that reflected current market assessments of the time value of money and the risks specific to the CGU.

The price assumptions for calculating the FVLCS were a range of (in US\$ per ton) 48 to 65 for iron ore, 85 to 140 for coal, 13,000 to 20,000 for nickel and 105 to 125 for phosphate.

**Iron ore and pellets** - The Midwest system is comprised of the Corumbá mines and Paraná and Paraguay Waterway Systems. In 2015, there was a significant restructuring of operations, which includes the reduction of production and the revision of the freight strategy. With this restructuring, the Midwest system is evaluated as an independent CGU from other iron ore operations. Until 2014, this CGU was part of the iron ore CGU. The reduction of iron ore prices and the logistics cost lead to an impairment of US\$522. The impairment in the amount of US\$55 relates to pelletizing plants that were stopped in North system.

For the Simandou project, Vale recognized an impairment of US\$1,135 in 2014 related to the revocation of Vale's former 51%-owned subsidiary VBG-Vale BSGR Limited ("VBG") mining concessions in Guinea. During the first quarter of 2015, the investment was sold (note 6(e)).

For onerous contracts, provision is made for the present value of certain long term contracts where the unavoidable cost of meeting the Company's obligations is expected to exceed the benefits to be received. In 2015, the Company recognized provision for losses related to fluvial freight in the amount of US\$357 in other liabilities in the balance sheet.

**Coal** - The reduction in estimated future coal prices combined with the increase of logistics costs decreased the estimated net recoverable amount of Mozambique assets, causing an impairment of US\$2,403. The Coal assets in Australia were also impacted by the prices and the revision to the future mining plans in 2015, recording an impairment of US\$635. The impairment of US\$343 registered in 2014 relates to Integra and Isaac Plans which were sold during the fourth quarter of 2015.

**Nickel** - During the impairment test for 2015, the Company identified that the indicators which caused an impairment to be recognized in previous years for Onça Puma were no longer applicable. This was mainly due to the recovery of Onça Puma's production returning to normal operations for more than two years. Part of the impairment in the amount of US\$1,617 registered in 2012 was reversed in 2014. The amount of US\$252 was reversed in 2015.

In 2015, VNL was identified as a separate CGU (previously part of the Canada Nickel CGU) as there was a change in location of processed ore (feed of nickel concentrate) from the VNL mine that is now expected to be processed in Long harbor instead of Ontario's Sudbury operations.

A reduction of long term nickel price projections, that significantly reduced the recoverable values of the VNC and VNL CGUs, combined with carrying values that reflect significant capital investments in new processing facilities in recent years, resulted in an impairment loss in the amount of US\$4,922 for these CGU.

Of the total goodwill (note 13), US\$1,863 is allocated to the Nickel CGUs which was tested based on FVLCS determined using cash flows based on approved budgets and market assumptions, considering mineral reserves and resources and additional value calculated by experts, costs and investments based on the best estimate of past performance and sales nickel prices using a range from 13,000 to 20,000 (US\$ per ton). Cash flows used are designed based on the life of each CGU and considering a discount rates range from 6% to 8%.

**Fertilizers** - The scenario of depreciation of the R\$ against the US\$ had a favorable impact on the phosphate business in Brazil in 2015, reverting the total amount of the impairment that was previously recognized during 2014 in the amount of US\$391.

The majority of the remaining balance of the assets in PRC were impaired in 2015 as the management does not expect to be able to recover the amounts invested in the project. An impairment charge of US\$548 and US\$2,116 was recognized in 2015 and 2013, respectively.

## **b) Impairment of investments in associates and joint ventures**

In 2015, the Company recognized an impairment of US\$132 in its investment in Samarco (note 4) and US\$314 in Teal Minerals Inc. ("Teal"). Teal recognized an impairment of property, plant and equipment due to the revision of future mining plans and the decrease of the price of copper.

## 16. Loans and borrowings

### a) Total debt

	Current liabilities		Non-current liabilities	
	December 31, 2015	December 31, 2014	December 31, 2015	December 31, 2014
<b>Debt contracts in the international markets</b>				
<b>Floating rates in:</b>				
US\$	241	358	5,174	5,095
Others currencies	-	-	-	2
<b>Fixed rates in:</b>				
US\$	1,191	69	12,923	13,239
EUR	-	-	1,633	1,822
Others currencies	14	-	169	-
<b>Accrued charges</b>	<b>326</b>	<b>334</b>	<b>-</b>	<b>-</b>
	<b>1,772</b>	<b>761</b>	<b>19,899</b>	<b>20,158</b>
<b>Debt contracts in Brazil</b>				
<b>Floating rates in:</b>				
R\$, indexed to TJLP, TR, IPCA, IGP-M and CDI	212	296	4,709	5,503
Basket of currencies and US\$ indexed to LIBOR	290	211	1,342	1,364
<b>Fixed rates in:</b>				
R\$	63	48	268	363
<b>Accrued charges</b>	<b>169</b>	<b>103</b>	<b>129</b>	<b>-</b>
	<b>734</b>	<b>658</b>	<b>6,448</b>	<b>7,230</b>
	<b>2,506</b>	<b>1,419</b>	<b>26,347</b>	<b>27,388</b>

The future flows of debt payments (principal and interest) per nature of funding are as follows:

	Bank loans (i)	Capital market (i)	Development agencies (i)	Debt principal (i)	Estimated future payments of interest (ii)
2016	262	951	799	2,012	1,476
2017	991	1,212	918	3,121	1,512
2018	1,719	816	1,058	3,593	1,553
2019	578	1,000	1,239	2,817	1,446
2020	1,553	1,282	808	3,643	1,222
2021	289	77	822	1,188	1,089
Between 2022 and 2025	973	3,276	912	5,161	2,801
2026 onwards	88	6,482	124	6,694	6,294
	<b>6,453</b>	<b>15,096</b>	<b>6,680</b>	<b>28,229</b>	<b>17,393</b>

(i) Does not include accrued charges.

(ii) Consists of estimated future payments of interest, calculated based on interest rate curves and foreign exchange rates applicable as at December 31, 2015 and considering that all amortization payments and payments at maturity on loans and borrowings will be made on their contracted payments dates. The amount includes the estimated values of future interest payments (not yet accrued), in addition to interest already recognized in the financial statements.

At December 31, 2015, the average annual interest rates by currency are as follows:

	Average interest rate (i)	Total debt
<b>Loans and borrowings in</b>		
US\$	4.63%	21,431
R\$ (ii)	10.78%	5,541
EUR (iii)	4.06%	1,698
Others currencies	5.94%	183
		<b>28,853</b>

(i) In order to determine the average interest rate for debt contracts with floating rates, the Company used the last renegotiated rate at December 31, 2015.

(ii) R\$ denominated debt that bears interest at IPCA, CDI, TR or TJLP, plus spread. For a total of US\$3,772, the Company entered into derivative transactions to mitigate the exposure to the cash flow variations of the floating rate debt denominated in R\$, resulting in an average cost of 2.07% per year in US\$.

(iii) Eurobonds, for which the Company entered into derivatives to mitigate the exposure to the cash flow variations of the debt denominated in EUR, resulting in an average cost of 4.41% per year in US\$.

## b) Credit and financing lines

					Available amount
Type	Contractual currency	Date of agreement	Period of the agreement	Total amount	December 31, 2015
Credit lines					
Revolving credit facility	US\$	May 2015	5 years	3,000	3,000
Revolving credit facility	US\$	July 2013	5 years	2,000	2,000
Financing lines					
BNDES (i)	R\$	April 2008	10 years	1,869	365
BNDES - CLN 150	R\$	September 2012	10 years	994	5
BNDES - S11D e S11D Logística	R\$	May 2014	10 years	1,578	384

(i) Memorandum of understanding signature date, however term is considered from the signature date of each contract amendment. This credit line supported or supports the Usina VIII, Onça Puma, Salobo I and II and capital expenditure of Itabira projects.

In January 2016 (subsequent event), the Company drew down on US\$3,000 of its revolving credit facilities. The amount of US\$1,800 was drawn down on by Vale International S.A. and US\$1,200 (R\$4,686) by the Parent Company.

## c) Funding

In 2015, Vale issued infrastructure debentures in the amount of R\$1,350 (US\$346) and export credit notes in the amount of R\$1,500 (US\$384).

## d) Guarantees

As at December 31, 2015 and 2014, loans and borrowings are secured by property, plant and equipment and receivables in the amount of US\$495 and US\$1,312, respectively.

The securities issued through Vale's 100%-owned finance subsidiary Vale Overseas Limited are fully and unconditionally guaranteed by Vale.

## e) Covenants

Some of the Company's debt agreements with lenders contain financial covenants. The main covenants in those agreements require maintaining certain ratios, such as debt to EBITDA (Earnings before Interest Taxes, Depreciation and Amortization) and interest coverage. The Company has not identified any instances of noncompliance as at December 31, 2015 and 2014.

## 17. Asset retirement obligations

The Company applies judgment and assumptions when measuring its asset retirement obligation. The accrued amounts of these obligations are not deducted from the potential costs covered by insurance or indemnities.

The long term interest rates (per annum, used to discount these obligations to present value and to update the provisions) and the changes in the provision of asset retirement obligations are as follows:

	December 31, 2015	December 31, 2014
<b>Balance at beginning of the year</b>	<b>3,369</b>	<b>2,644</b>
Interest expense	109	193
Settlements	(88)	(41)
Revisions on cash flows estimates (i)	(135)	842
Translation adjustment	(781)	(269)
<b>Balance at end of the year</b>	<b>2,474</b>	<b>3,369</b>
Current	89	136
Non-current	2,385	3,233
	<b>2,474</b>	<b>3,369</b>
Brazil	7.28%	5.51%
Canada	0.59%	2.05%
Other regions	1.12% - 5.91%	1.61% - 8.81%

(i) Includes only the impacts in operating expenses and property, plants and equipments.

## 18. Litigation

### a) Provision for litigation

Vale is party to labor, civil, tax and other ongoing lawsuits, at administrative and court levels. Provisions for losses resulting from lawsuits are estimated and updated by the Company, based on analysis from the Company's legal consultants.

Changes in provision for litigation are as follows:

	Tax litigation	Civil litigation	Labor litigation	Environmental litigation	Total of litigation provision
<b>Balance on December 31, 2013</b>	<b>330</b>	<b>209</b>	<b>709</b>	<b>28</b>	<b>1,276</b>
Additions	103	54	237	32	426
Reversals	(2)	(104)	(133)	(13)	(252)
Payments	(37)	(20)	(48)	-	(105)
Indexation and interest	136	(6)	52	52	234
Translation adjustment	(164)	(15)	(111)	(7)	(297)
<b>Balance on December 31, 2014</b>	<b>366</b>	<b>118</b>	<b>706</b>	<b>92</b>	<b>1,282</b>
Additions	182	82	168	-	432
Reversals	(202)	(56)	(139)	(4)	(401)
Payments	(50)	(40)	(65)	(59)	(214)
Indexation and interest	52	13	7	3	75
Translation adjustment	(79)	(38)	(223)	(12)	(352)
<b>Balance on December 31, 2015</b>	<b>269</b>	<b>79</b>	<b>454</b>	<b>20</b>	<b>822</b>

### i. Provisions for labor litigation

Consist of lawsuits filed by employees and service suppliers, related to employment relationships. The most recurring claims are related to payment of overtime, hours in itinerary, and health and safety. The social security ("INSS") contingencies are related to legal and administrative disputes between INSS and Vale due to applicability of compulsory social security charges.

## b) Contingent liabilities

Contingent liabilities consist of administrative and judicial claims, which expectation of loss is classified as possible, and for which the recognition of a provision is not considered necessary by the Company, based on legal support.

	December 31, 2015	December 31, 2014
Tax litigation	5,326	6,094
Civil litigation	1,335	1,406
Labor litigation	1,866	1,955
Environmental litigation	1,381	1,122
<b>Total</b>	<b>9,908</b>	<b>10,577</b>

**i. Tax litigation** - The most significant claims relate to pending challenges by the Brazilian federal tax authority concerning the deductibility of Brazilian social contribution payments for income tax purposes and demands by Brazilian state tax authorities for additional payments of the value-added tax on services and circulation of goods ("ICMS") in relation to the use of ICMS credits from sales and energy transmission.

**ii. Civil litigation** - Most of these claim have been filed by suppliers for indemnification under construction contracts, primarily relating to certain alleged damages, payments and contractual penalties. A number of other claims involve disputed contractual terms for inflation indexation.

**iii. Labor litigation** - These claims represent a very large number of individual claims by (i) employees and service providers, primarily involving demands for additional compensation for overtime work, time spent commuting or health and safety conditions; and (ii) the Brazilian federal social security administration ("INSS") regarding contributions on compensation programs based on profits.

**iv. Environmental litigation** - The most significant claims concern alleged procedural deficiencies in licensing processes, non-compliance with existing environmental licenses or damage to the environment.

**c) Judicial deposits** - In addition to the provisions and contingent liabilities, the Company is required by law to make judicial deposits to secure a potential adverse outcome of certain lawsuits. These court-ordered deposits are monetarily adjusted and reported as non-current assets until a judicial decision to draw the deposit occurs.

	December 31, 2015	December 31, 2014
Tax litigations	211	354
Civil litigations	102	126
Labor litigations	553	789
Environmental litigations	16	-
<b>Total</b>	<b>882</b>	<b>1,269</b>

## d) Others

In the third quarter of 2015, the Company filed an enforceable action in the amount of R\$524 (US\$132) referring to the final court decision in favor of the Company of the accrued interest of compulsory deposits from 1987 to 1993. Currently it is not possible to estimate the economic benefit inflow as the counterparty can appeal on the calculation. Consequently, the asset was not recognized in the financial statements.

On April 30, 2014, Rio Tinto plc ("Rio Tinto") filed a lawsuit against Vale, BSGR, and other defendants in the United States District Court for the Southern District of New York ("Court"), alleging violations of the U.S. Racketeer Influenced and Corrupt Organizations Act (RICO) in relation to Rio Tinto's loss of certain Simandou mining rights, the Government of Guinea's assignment of those rights to BSGR, and Vale's subsequent investment in VBG. In November, 2015 Vale received the decision of the Court, which was for the dismissal of the lawsuit.



## 19. Income taxes - Settlement program ("REFIS")

In November 2013, the Company elected to participate in the REFIS, a federal tax settlement program, to settle most of the claims related to the collection of income tax and social contribution on equity gains of foreign subsidiaries and affiliates from 2003 to 2012.

In December 31, 2015, the balance of US\$4,430 (US\$345 as current and US\$4,085 as non-current) is due in 154 remaining monthly installments, bearing interest at the SELIC rate.

## 20. Income taxes

### a) Deferred income tax

	December 31, 2015	December 31, 2014
<b>Taxes losses carryforward</b>	<b>6,449</b>	<b>1,637</b>
<b>Temporary differences:</b>		
Pension plan	541	671
Provision for litigation	228	365
Provision for losses of assets	719	937
Fair value of financial instruments	823	1,341
Allocated goodwill	(2,578)	(4,831)
Others	52	515
	<b>(215)</b>	<b>(1,002)</b>
<b>Total</b>	<b>6,234</b>	<b>635</b>
Assets	7,904	3,976
Liabilities	(1,670)	(3,341)
	<b>6,234</b>	<b>635</b>

Changes in deferred tax are as follows:

	Assets	Liabilities	Total
<b>Balance on December 31, 2013</b>	<b>4,523</b>	<b>3,228</b>	<b>1,295</b>
Effect in income statement	(31)	118	(149)
Transfers (including between assets and liabilities)	(102)	331	(433)
Translation adjustment	(452)	(292)	(160)
Other comprehensive income	38	(44)	82
<b>Balance on December 31, 2014</b>	<b>3,976</b>	<b>3,341</b>	<b>635</b>
Effect in income statement (i)	4,180	(1,309)	5,489
Transfers (including between assets and liabilities)	141	141	-
Translation adjustment	(1,296)	(517)	(779)
Other comprehensive income	914	14	900
Acquisition of subsidiary	(11)	-	(11)
<b>Balance on December 31, 2015</b>	<b>7,904</b>	<b>1,670</b>	<b>6,234</b>

(i) From the total effect in income statement, US\$4,671 refers to tax losses carryforward.

Brazilian corporate tax law was amended at the end of 2014 by the Law 12,973 and became effective for the fiscal year 2015. The change was to provide that profits from foreign subsidiaries will be taxed in Brazil, on an accrual basis, applying the differential between the nominal local tax rate and the Brazilian tax rates (34%). Accordingly, from January 1st, 2015 the results from foreign subsidiaries are recognized in this systematic.

In accordance with paragraph 77 of the referred law, the accumulated losses of those subsidiaries, as at December 31, 2014, will be available to offset their future profits. On September 30, 2015, the Company filed the tax return and completed the review of the income tax loss carry-forwards available in each foreign subsidiary as at December 31, 2014. Accordingly, a deferred tax asset related to accumulated losses in certain of those foreign subsidiaries of US\$2,952 was recognized as deferred income tax in the income statement.

## b) Income tax reconciliation

The total amount presented as income taxes in the income statement is reconciled to the rate established by law, as follows:

	Year ended December 31		
	2015	2014	2013
<b>Net income (loss) before income taxes</b>	<b>(17,720)</b>	<b>1,553</b>	<b>7,241</b>
<b>Income taxes at statutory rates - 34%</b>	<b>6,024</b>	<b>(528)</b>	<b>(2,462)</b>
<b>Adjustments that affect the basis of taxes:</b>			
Income tax benefit from interest on stockholders' equity	356	1,123	1,167
Tax incentives	61	95	-
Results of overseas companies taxed by different rates which differs from the parent company rate	-	(1,200)	146
Equity results in income statement	(149)	172	173
Income taxes statement program - REFIS	-	-	(4,954)
Additions (reversals) of tax loss carry forward	1,498	(178)	180
Unrecognized tax losses of the year	(929)	-	-
Nondeductible effect of impairment	(1,857)	(450)	(719)
Others	96	(234)	(364)
<b>Income taxes</b>	<b>5,100</b>	<b>(1,200)</b>	<b>(6,833)</b>

## c) Tax incentives

In Brazil, Vale has a tax incentive for the partial reduction of income tax due, in the amount equivalent to the portion allocated by tax law to transactions in the North and Northeast regions with iron ore, manganese, copper, and nickel. The incentive is calculated based on the tax profit of the activity (called operating income) and takes into consideration the allocation of operating net income by incentive production levels during the periods specified for each product, generally 10 years, and in the case of the Company, they are expected to expire in 2024. An amount equal to that obtained with the tax saving must be appropriated in a retained earnings reserve account in Stockholders' equity, and may not be distributed as dividends to stockholders.

In addition to those incentives, 30% of the income tax due based on the regional profit needs to be reinvested on the purchase of machinery and equipment, subject to subsequent approval by the regulatory agency responsible, Superintendência do Desenvolvimento da Amazonia (SUDAM) and the Superintendência do Desenvolvimento do Nordeste (SUDENE). When the reinvestment is approved, it is retained in an earnings reserve account, which restricts the distribution as dividends to stockholders.

Vale also has tax incentives related to the production of nickel and cobalt from Vale Nouvelle Caledonie SAS ("VNC"). These incentives include the exemption of income tax during the construction phase of the project, and also for a period of 15 years beginning in the first year of commercial production, as defined by applicable law, followed by a 5-year 50% exemption of income tax. VNC is subject to a branch profit tax on its profits (after deducting available tax losses) starting in the first year that commercial production is reached. To date, there has been no net taxable income realized in VNC.

In Mozambique, the tax incentives applicable to Vale Moçambique S.A. for the Moatize Coal Mine Project include a 25% reduction of rate for five years counting from the first year the company has taxable profits. Vale also received tax incentives for projects in Oman, Malaysia, Malawi and a logistic project in Mozambique.

Vale is subject to the revision of income tax by local tax authorities for up to five years in companies operating in Brazil, ten years for operations in Indonesia and up to seven years for companies with operations in Canada.

## 21. Employee benefits obligations

### a) Employee postretirements obligations

In Brazil, the management of the pension plans of the Company is the responsibility of Fundação Vale do Rio Doce de Seguridade Social ("Valia") a nonprofit entity with administrative and financial autonomy. The Brazilian plans are as follows:

**Benefit plan Vale Mais ("Vale Mais") and benefit plan Valiaprev ("Valiaprev")** - Certain of the Company's employees are participants in a plan (Vale Mais e Valiaprev) with components of defined benefit (specific coverage for death, pensions and disability allowances) and components of defined contributions (for programmable benefits). The defined benefits plan is subject to actuarial evaluations. The defined contribution plan represents a fixed amount held on behalf of the participants. Both Vale Mais and Valiaprev were overfunded as at December 31, 2015 and 2014.

**Defined benefit plan ("Plano BD")** - The Plano BD has been closed to new entrants since the year 2000, when the Vale Mais plan was implemented. It is a plan that has defined benefit characteristics, covering almost exclusively retirees and their beneficiaries. It was overfunded as at December 31, 2015 and 2014 and the contributions made by the Company are not relevant.

**Abono complementação benefit plan** - The Company sponsors a specific group of former employees entitled to receive additional benefits from Valia normal payments plus post-retirement benefit that covers medical, dental and pharmaceutical assistance. The contributions made by the Company finished in 2014. The abono complementação benefit was overfunded as at December 31, 2015 and 2014.

**Other benefits** - The Company sponsors medical plans for employees that meet specific criteria and for employees who use the abono complementação benefit. Although those benefits are not specific retirement plans, actuarial calculations are used to calculate future commitments. As those benefits are related to health care plans they have the nature of underfunded benefits, and are presented as underfunded plans as at December 31, 2015 and 2014.

The Foreign plans are managed in accordance with their region. They are divided between plans in Canada, United States of America, United Kingdom, Indonesia, New Caledonia, Japan and Taiwan. Pension plans in Canada are composed of a defined benefit and defined contribution component. Currently the defined benefit plans do not allow new entrants. The foreign defined benefit plans underfunded as at December 31, 2015 and 2014.

Employers' disclosure about pensions and other post-retirement benefits on the status of the defined benefit elements of all plans is provided as follows.

### i. Change in benefit obligation

	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Benefit obligation as at December 31, 2013</b>	<b>4,080</b>	<b>4,406</b>	<b>1,693</b>
Service costs	29	96	23
Interest costs	474	233	83
Benefits paid	(327)	(321)	(74)
Participant contributions	1	-	-
Effect of changes in the financial assumptions	(32)	454	(81)
Translation adjustment	(497)	(347)	(146)
<b>Benefit obligation as at December 31, 2014</b>	<b>3,728</b>	<b>4,521</b>	<b>1,498</b>
Service costs	20	94	28
Interest costs	359	178	66
Benefits paid	(244)	(258)	(65)
Participant contributions	1	-	-
Transfers	8	(8)	-
Effect of changes in the actuarial assumptions	(184)	(70)	(31)
Translation adjustment	(1,214)	(768)	(273)
<b>Benefit obligation as at December 31, 2015</b>	<b>2,474</b>	<b>3,689</b>	<b>1,223</b>

## ii. Evolution of assets fair value

	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Fair value of plan assets as at December 31, 2013</b>	<b>5,271</b>	<b>3,804</b>	-
Interest income	625	201	-
Employer contributions	132	164	74
Participant contributions	1	-	-
Benefits paid	(327)	(321)	(74)
Plan settlements	-	(3)	-
Return on plan assets (excluding interest income)	(2)	169	-
Translation adjustment	(671)	(298)	-
<b>Fair value of plan assets as at December 31, 2014</b>	<b>5,029</b>	<b>3,716</b>	-
Interest income	491	151	-
Employer contributions	63	132	65
Participant contributions	1	-	-
Benefits paid	(244)	(258)	(65)
Return on plan assets (excluding interest income)	(284)	(8)	-
Transfers	5	(5)	-
Translation adjustment	(1,626)	(634)	-
<b>Fair value of plan assets as at December 31, 2015</b>	<b>3,435</b>	<b>3,094</b>	-

## iii. Reconciliation of assets and liabilities recognized in the balance sheet

	December 31, 2015			December 31, 2014		
	Overfunded pension plans	Underfunded pension plans	Others benefits	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Balance at beginning of the year</b>	<b>1,301</b>	-	-	<b>1,191</b>	-	-
Interest income	130	-	-	142	-	-
Changes on asset ceiling and onerous liability	(54)	-	-	140	-	-
Translation adjustment	(416)	-	-	(172)	-	-
<b>Balance at end of the year</b>	<b>961</b>	-	-	<b>1,301</b>	-	-

<b>Amount recognized in the balance sheet</b>						
Present value of actuarial liabilities	(2,474)	(248)	(160)	(3,728)	(387)	(246)
Fair value of assets	3,435	214	-	5,029	349	-
Effect of the asset ceiling	(961)	-	-	(1,301)	-	-
<b>Liabilities provisioned</b>	<b>-</b>	<b>(34)</b>	<b>(160)</b>	<b>-</b>	<b>(38)</b>	<b>(246)</b>

Current liabilities	-	-	(19)	-	-	(25)
Non-current liabilities	-	(34)	(141)	-	(38)	(221)
<b>Liabilities provisioned</b>	<b>-</b>	<b>(34)</b>	<b>(160)</b>	<b>-</b>	<b>(38)</b>	<b>(246)</b>

	December 31, 2015			December 31, 2014		
	Overfunded pension plans	Underfunded pension plans	Others benefits	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Amount recognized in the balance sheet</b>						
Present value of actuarial liabilities	-	(3,441)	(1,063)	-	(4,134)	(1,252)
Fair value of assets	-	2,880	-	-	3,367	-
<b>Liabilities provisioned</b>	<b>-</b>	<b>(561)</b>	<b>(1,063)</b>	<b>-</b>	<b>(767)</b>	<b>(1,252)</b>
Current liabilities	-	(17)	(32)	-	(16)	(26)
Non-current liabilities	-	(544)	(1,031)	-	(751)	(1,226)
<b>Liabilities provisioned</b>	<b>-</b>	<b>(561)</b>	<b>(1,063)</b>	<b>-</b>	<b>(767)</b>	<b>(1,252)</b>

	December 31, 2015			December 31, 2014			Total
	Overfunded pension plans	Underfunded pension plans	Others benefits	Overfunded pension plans	Underfunded pension plans	Others benefits	
<b>Balance at beginning of the year</b>	<b>1,301</b>	-	-	<b>1,191</b>	-	-	-
Interest income	130	-	-	142	-	-	-
Changes in asset ceiling/ onerous liability	(54)	-	-	140	-	-	-
Translation adjustment	(416)	-	-	(172)	-	-	-
<b>Balance at end of the year</b>	<b>961</b>	-	-	<b>1,301</b>	-	-	-
<b>Amount recognized in the balance sheet</b>							
Present value of actuarial liabilities	(2,474)	(3,689)	(1,223)	(3,728)	(4,521)	(1,498)	(1,498)
Fair value of assets	3,435	3,094	-	5,029	3,716	-	-
Effect of the asset ceiling	(961)	-	-	(1,301)	-	-	-
<b>Liabilities provisioned</b>	<b>-</b>	<b>(595)</b>	<b>(1,223)</b>	<b>-</b>	<b>(805)</b>	<b>(1,498)</b>	<b>(1,498)</b>
Current liabilities	-	(17)	(51)	-	(16)	(51)	(51)
Non-current liabilities	-	(578)	(1,172)	-	(789)	(1,447)	(1,447)
<b>Liabilities provisioned</b>	<b>-</b>	<b>(595)</b>	<b>(1,223)</b>	<b>-</b>	<b>(805)</b>	<b>(1,498)</b>	<b>(1,498)</b>

#### iv. Costs recognized in the income statements

	2015			2014			2013		
	Overfunded pension plans	Underfunded pension plans	Others underfunded pension plans	Overfunded pension plans	Underfunded pension plans	Others underfunded pension plans	Overfunded pension plans	Underfunded pension plans	Others underfunded pension plans
Current service cost	20	94	28	29	96	23	49	97	42
Interest on expense on liabilities	359	178	66	474	233	83	461	220	131
Interest income on plan assets	(491)	(151)	-	(625)	(201)	-	(523)	(169)	-
Interest expense on effect of (asset ceiling)/ onerous liability	132	-	-	142	-	-	13	-	-
<b>Total of cost, net</b>	<b>20</b>	<b>121</b>	<b>94</b>	<b>20</b>	<b>128</b>	<b>106</b>	<b>-</b>	<b>148</b>	<b>173</b>

#### v. Costs recognized in the statement of comprehensive income

	2015			2014			2013		
	Overfunded pension plans	Underfunded pension plans	Others benefits	Overfunded pension plans	Underfunded pension plans	Others benefits	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Balance at beginning of the year</b>	<b>(143)</b>	<b>(570)</b>	<b>(132)</b>	<b>(94)</b>	<b>(395)</b>	<b>(196)</b>	<b>(3)</b>	<b>(994)</b>	<b>(381)</b>
Effect of changes actuarial assumptions	184	70	31	32	(454)	81	1,059	267	249
Return on plan assets (excluding interest income)	(284)	(8)	-	(2)	169	-	(576)	315	-
Change of asset ceiling / costly liabilities (excluding interest income)	70	-	-	(133)	-	-	(423)	-	-
Others	-	2	1	-	28	-	-	-	-
	<b>(30)</b>	<b>64</b>	<b>32</b>	<b>(103)</b>	<b>(257)</b>	<b>81</b>	<b>60</b>	<b>582</b>	<b>249</b>
Deferred income tax	10	2	(9)	34	68	(17)	(19)	(167)	(75)
<b>Others comprehensive income</b>	<b>(20)</b>	<b>66</b>	<b>23</b>	<b>(69)</b>	<b>(189)</b>	<b>64</b>	<b>41</b>	<b>415</b>	<b>174</b>
Translation adjustments	49	10	14	20	2	6	10	11	12
Transfers/ disposal	1	(1)	-	-	12	(6)	(142)	173	(1)
<b>Accumulated other comprehensive income</b>	<b>(113)</b>	<b>(495)</b>	<b>(95)</b>	<b>(143)</b>	<b>(570)</b>	<b>(132)</b>	<b>(94)</b>	<b>(395)</b>	<b>(196)</b>

## vi. Risks related to plans

The Administrators of the plans have committed to strategic planning to strengthen internal controls and risk management. This commitment is archive by conducting audits of internal controls, which aim to mitigate operational risks in routine management of market risk and credit activities. Risks are presented as follow:

**Legal** - lawsuits: issuing periodic reports to internal audit and directors contemplating the analysis of lawyers about the possibility of loss (remote, probable or possible), aiming to support the administrative decision regarding provisioning. Contracts, tax and decision-making process: previous legal analysis through technical advice. Analysis and ongoing monitoring of developments in the legal scenario and its dissemination within the institution in order to subsidize the administrative plans, considered the impact of regulatory changes.

**Actuarial** - the annual actuarial valuation of the benefit plans comprises the assessment of costs, revenues and adequacy of plan funding. It also considered the monitoring of biometric, economic and financial assumptions (asset volatility, changes in interest rates, inflation, life expectancy, salaries and other).

**Market** - profitability projections are performed for the various plans and profiles of investments for 10 years in the management study of assets and liabilities. These projections include the risks of investments in various market segments. Furthermore, the risks for short-term market of the plans are monitored monthly through metrics of VaR (Value at Risk) and stress testing. For exclusive investment funds of Valia, the market risk is measured daily by the custodian asset bank.

**Credit** - assessment of the credit quality of issuers by hiring expert consultants to evaluate financial institutions and internal assessment of payment ability of non-financial companies. For assets of non-financial companies is conducted a monitoring of the company until the maturity of the security.

## vii. Actuarial and economic assumptions and sensitivity analysis

All calculations involve future actuarial projections about some parameters, such as: salaries, interest, and inflation, the behavior of INSS benefits, mortality and disability.

The economic actuarial assumptions adopted have been formulated considering the long-term period for maturity and should therefore be examined accordingly. In the short term they may not necessarily be realized.

In the evaluations were adopted the following assumptions:

	Brazil		
	December 31, 2015		
	Overfunded pension plans	Underfunded pension plans	Others benefits
	Overfunded pension plans	Underfunded pension plans	Others benefits
Discount rate to determine benefit obligation	13.63%	13.71%	13.63%
Nominal average rate to determine expense/ (income)	12.36%	13.71%	N/A
Nominal average rate of salary increase	8.12%	8.12%	N/A
Nominal average rate of benefit increase	6.00%	6.00%	6.00%
Immediate health care cost trend rate	N/A	N/A	9.18%
Ultimate health care cost trend rate	N/A	N/A	9.18%
Nominal average rate of price inflation	6.00%	6.00%	6.00%

	Foreign	
	December 31, 2015	
	Underfunded pension plans	Others benefits
	Underfunded pension plans	Others benefits
Discount rate to determine benefit obligation	4.00%	3.90%
Nominal average rate to determine expense/ (income)	4.80%	N/A
Nominal average rate of salary increase	3.90%	N/A
Nominal average rate of benefit increase	3.90%	3.00%
Immediate health care cost trend rate	N/A	6.30%
Ultimate health care cost trend rate	N/A	4.50%
Nominal average rate of price inflation	2.00%	2.00%

For the sensitivity analysis, the Company considers the effect of 1% in nominal discount rate to determine the actuarial liability. The effects of this change in actuarial liabilities in premise and adopted the average duration of the plan are as follows:

	December 31, 2015		
	Overfunded pension plans	Underfunded pension plans	Others benefits
<b>Nominal discount rate - 1% increase</b>			
Actuarial liability balance	2,263	3,024	1,065
Assumptions made	8.33%	5.01%	5.35%
Average duration of the obligation - (years)	8.70	11.76	15.29
<b>Nominal discount rate - 1% reduction</b>			
Actuarial liability balance	2,715	3,909	1,043
Assumptions made	10.01%	3.01%	3.90%
Average duration of the obligation - (years)	9.53	11.76	15.22

### viii. Assets of pension plans

Brazilian plan assets as at December 31, 2015 and 2014 includes respectively (i) investments in a portfolio of Vale's stock in the amount of US\$4 and US\$94; (ii) equity investments from related parties in the amount of US\$0 and US\$1; and (iii) Brazilian Federal Government securities in the amount of US\$2,976 and US\$3,581.

Foreign plan assets as at December 31, 2015 and 2014 include Canadian Government securities in the amount of US\$675 and US\$852, respectively.

### ix. Overfunded pension plans

Assets by category are as follows:

	December 31, 2015				December 31, 2014			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	1	-	-	1	-	-	-	-
Accounts Receivable	-	-	-	-	5	-	-	5
Equity securities	-	-	-	-	475	-	-	475
Debt securities - Corporate bonds	-	94	-	94	-	157	-	157
Debt securities - Government bonds	1,659	-	-	1,659	2,106	-	-	2,106
Investments funds - Fixed Income	1,799	-	-	1,799	2,272	-	-	2,272
Investments funds - Equity	44	-	-	44	333	-	-	333
International investments	29	-	-	29	-	-	-	-
Structured investments - Private Equity funds	138	-	136	274	-	-	253	253
Structured investments - Real estate funds	-	-	6	6	-	-	7	7
Real estate	-	-	319	319	-	-	497	497
Loans to participants	-	-	249	249	-	-	404	404
<b>Total</b>	<b>3,670</b>	<b>94</b>	<b>710</b>	<b>4,474</b>	<b>5,191</b>	<b>157</b>	<b>1,161</b>	<b>6,509</b>
Funds not related to risk plans				(1,039)				(1,480)
<b>Fair value of plan assets at end of year</b>				<b>3,435</b>				<b>5,029</b>

Measurement of overfunded plan assets at fair value with no observable market variables (level 3) are as follows:

	Private equity funds	Real state funds	Real state	Loans to participants	Total
<b>Balance as at December 31, 2013</b>	<b>227</b>	<b>8</b>	<b>547</b>	<b>431</b>	<b>1,213</b>
Return on plan assets	(12)	-	56	52	96
Assets purchases, sales and settlements	88	-	3	186	277
Assets sold during the year	(17)	-	(42)	(211)	(270)
Translation adjustment	(33)	(1)	(67)	(54)	(155)
<b>Balance as at December 31, 2014</b>	<b>253</b>	<b>7</b>	<b>497</b>	<b>404</b>	<b>1,161</b>
Return on plan assets	(84)	1	4	47	(32)
Assets purchases, sales and settlements	49	1	1	40	91
Assets sold during the year	(7)	-	(28)	(118)	(153)
Translation adjustment	(75)	(3)	(156)	(124)	(358)
Transfers in and/ out of Level 3	-	-	1	-	1
<b>Balance as at December 31, 2015</b>	<b>136</b>	<b>6</b>	<b>319</b>	<b>249</b>	<b>710</b>

## x. Underfunded pension plans

Assets by category are as follows:

	December 31, 2015				December 31, 2014			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	-	49	-	49	1	29	-	30
Equity securities	1,106	-	-	1,106	1,615	9	-	1,624
Debt securities - Corporate bonds	-	12	-	12	-	402	-	402
Debt securities - Government bonds	56	684	-	740	77	853	-	930
Investments funds - Fixed Income	150	281	-	431	189	-	-	189
Investments funds - Equity	86	356	-	442	95	397	-	492
International investments	2	30	-	32	-	-	-	-
Structured investments - Private Equity funds	-	-	98	98	-	-	18	18
Real estate	-	-	20	20	-	-	24	24
Loans to participants	-	-	5	5	-	-	7	7
Others	-	-	159	159	-	-	-	-
<b>Total</b>	<b>1,400</b>	<b>1,412</b>	<b>282</b>	<b>3,094</b>	<b>1,977</b>	<b>1,690</b>	<b>49</b>	<b>3,716</b>
Funds not related to risk plans				-				-
Fair value of plan assets at end of year				<b>3,094</b>				<b>3,716</b>

Measurement of underfunded plan assets at fair value with no observable market variables (level 3) are as follows:

	Private equity funds	Real state	Loans to participants	Others	Total
<b>Balance as at December 31, 2013</b>	-	24	-	-	24
Return on plan assets	-	4	-	-	4
Assets purchases, sales and settlements	20	-	7	-	27
Translation adjustment	(2)	(4)	-	-	(6)
<b>Balance as at December 31, 2014</b>	<b>18</b>	<b>24</b>	<b>7</b>	<b>-</b>	<b>49</b>
Return on plan assets	-	5	1	-	6
Assets purchases, sales and settlements	102	-	-	186	288
Assets sold during the year	(1)	-	-	-	(1)
Translation adjustment	(21)	(8)	(3)	(27)	(59)
Transfers in and/ out of Level 3	-	(1)	-	-	(1)
<b>Balance as at December 31, 2015</b>	<b>98</b>	<b>20</b>	<b>5</b>	<b>159</b>	<b>282</b>

## xi. Disbursement of future cash flow

Vale expects to disburse US\$183 in 2016 in relation to pension plans and other benefits.

## xii. Expected benefit payments

The expected benefit payments, which reflect future services, are as follows:

	December 31, 2015		
	Overfunded pension plans	Underfunded pension plans	Others benefits
2016	228	205	57
2017	241	202	60
2018	255	200	62
2019	269	198	65
2020	283	196	67
2021 and thereafter	1,624	1,106	325



#### **b) Profit sharing program ("PLR")**

The Company recorded as cost of goods sold and services rendered and other operating expenses related to the PLR US\$68 and US\$502 for the year ended on December 31, 2015 and 2014, respectively.

#### **c) Long-term compensation plan**

Vale has long-term incentive programs such as Matching and Virtual Shares Programs ("PAV") for some executives of the Company, covering 3 to 4 year cycles, respectively.

For the Matching program, the participants may acquire preferred share of Vale to participate on the plan, through a prescribed financial institution under market conditions and without any benefit being provided by Vale. Since 2014, the participation on the program has been mandatory for the executive officers.

Except for the executive officers, the shares purchased by executive have no restrictions and can be sold at any time. If the shares are held for a period of three years, and the participants maintains its employment relationship with Vale during this period, the participant is entitled to receive from Vale a payment in cash equivalent to the market value of their stock holdings under this program.

For PAV program, certain eligible executives have the right to receive, during a four year cycle, a monetary value equivalent to market value of a determined number of stocks based on the Company's performance measured as an indicator of total return to the Stockholders.

Liabilities of the plans are measured at fair value on the date of each issuance of the report, based on market rates. Compensation costs incurred are recognized by the defined vesting period of three years. At December 31, 2015, 2014 and 2013 the Company recognized in the income statement the amounts of US\$29, US\$61 and US\$84, respectively, related to long term compensation plan.

## 22. Financial instruments classification

	December 31, 2015				December 31, 2014			
	Loans and receivables or amortized cost	At fair value through net income	Derivatives designated as hedge accounting	Total	Loans and receivables or amortized cost	At fair value through net income	Derivatives designated as hedge accounting	Total
<b>Financial assets</b>								
<b>Current</b>								
Cash and cash equivalents	3,591	-	-	3,591	3,974	-	-	3,974
Financial investments	28	-	-	28	148	-	-	148
Derivative financial instruments	-	121	-	121	-	166	-	166
Accounts receivable	1,476	-	-	1,476	3,275	-	-	3,275
Related parties	70	-	-	70	579	-	-	579
	<b>5,165</b>	<b>121</b>	<b>-</b>	<b>5,286</b>	<b>7,976</b>	<b>166</b>	<b>-</b>	<b>8,142</b>
<b>Non-current</b>								
Derivative financial instruments	-	93	-	93	-	87	-	87
Loans	188	-	-	188	229	-	-	229
Related parties	1	-	-	1	35	-	-	35
	<b>189</b>	<b>93</b>	<b>-</b>	<b>282</b>	<b>264</b>	<b>87</b>	<b>-</b>	<b>351</b>
<b>Total of financial assets</b>	<b>5,354</b>	<b>214</b>	<b>-</b>	<b>5,568</b>	<b>8,240</b>	<b>253</b>	<b>-</b>	<b>8,493</b>
<b>Financial liabilities</b>								
<b>Current</b>								
Suppliers and contractors	3,365	-	-	3,365	4,354	-	-	4,354
Derivative financial instruments	-	2,023	53	2,076	-	956	460	1,416
Loans and borrowings	2,506	-	-	2,506	1,419	-	-	1,419
Related parties	475	-	-	475	306	-	-	306
	<b>6,346</b>	<b>2,023</b>	<b>53</b>	<b>8,422</b>	<b>6,079</b>	<b>956</b>	<b>460</b>	<b>7,495</b>
<b>Non-current</b>								
Derivative financial instruments	-	1,429	-	1,429	-	1,609	1	1,610
Loans and borrowings	26,347	-	-	26,347	27,388	-	-	27,388
Related parties	213	-	-	213	109	-	-	109
Participative stockholders' debentures	-	342	-	342	-	1,726	-	1,726
Others (i)	-	141	-	141	-	115	-	115
	<b>26,560</b>	<b>1,912</b>	<b>-</b>	<b>28,472</b>	<b>27,497</b>	<b>3,450</b>	<b>1</b>	<b>30,948</b>
<b>Total of financial liabilities</b>	<b>32,906</b>	<b>3,935</b>	<b>53</b>	<b>36,894</b>	<b>33,576</b>	<b>4,406</b>	<b>461</b>	<b>38,443</b>

(i) See note 23(a).

The classification of financial assets and liabilities by currencies are as follows:

December 31, 2015							
Financial assets	R\$	US\$	CAD	AUD	EUR	Others currencies	Total
<b>Current</b>							
Cash and cash equivalents	816	2,528	12	54	11	170	3,591
Financial investments	-	28	-	-	-	-	28
Derivative financial instruments	50	71	-	-	-	-	121
Accounts receivable	251	1,084	125	10	4	2	1,476
Related parties	70	-	-	-	-	-	70
	<b>1,187</b>	<b>3,711</b>	<b>137</b>	<b>64</b>	<b>15</b>	<b>172</b>	<b>5,286</b>
<b>Non-current</b>							
Derivative financial instruments	75	18	-	-	-	-	93
Loans	27	103	58	-	-	-	188
Related parties	1	-	-	-	-	-	1
	<b>103</b>	<b>121</b>	<b>58</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>282</b>
<b>Total of assets</b>	<b>1,290</b>	<b>3,832</b>	<b>195</b>	<b>64</b>	<b>15</b>	<b>172</b>	<b>5,568</b>
<b>Financial liabilities</b>							
<b>Current</b>							
Suppliers and contractors	1,499	1,389	335	9	115	18	3,365
Derivative financial instruments	911	1,165	-	-	-	-	2,076
Loans and borrowings	434	1,992	15	-	65	-	2,506
Related parties	255	-	220	-	-	-	475
	<b>3,099</b>	<b>4,546</b>	<b>570</b>	<b>9</b>	<b>180</b>	<b>18</b>	<b>8,422</b>
<b>Non-current</b>							
Derivative financial instruments	1,215	214	-	-	-	-	1,429
Loans and borrowings	5,107	19,439	165	3	1,633	-	26,347
Related parties	73	140	-	-	-	-	213
Participative stockholders' debentures	342	-	-	-	-	-	342
Others	141	-	-	-	-	-	141
	<b>6,878</b>	<b>19,793</b>	<b>165</b>	<b>3</b>	<b>1,633</b>	<b>-</b>	<b>28,472</b>
<b>Total of liabilities</b>	<b>9,977</b>	<b>24,339</b>	<b>735</b>	<b>12</b>	<b>1,813</b>	<b>18</b>	<b>36,894</b>

  

December 31, 2014							
Financial assets	R\$	US\$	CAD	AUD	EUR	Others currencies	Total
<b>Current</b>							
Cash and cash equivalents	977	2,778	22	38	61	98	3,974
Financial investments	148	-	-	-	-	-	148
Derivative financial instruments	139	27	-	-	-	-	166
Accounts receivable	740	2,514	12	-	8	1	3,275
Related parties	397	182	-	-	-	-	579
	<b>2,401</b>	<b>5,501</b>	<b>34</b>	<b>38</b>	<b>69</b>	<b>99</b>	<b>8,142</b>
<b>Non-current</b>							
Related parties	4	31	-	-	-	-	35
Loans	39	190	-	-	-	-	229
Derivative financial instruments	11	76	-	-	-	-	87
	<b>54</b>	<b>297</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>351</b>
<b>Total of assets</b>	<b>2,455</b>	<b>5,798</b>	<b>34</b>	<b>38</b>	<b>69</b>	<b>99</b>	<b>8,493</b>
<b>Financial liabilities</b>							
<b>Current</b>							
Suppliers and contractors	2,183	2,142	1	1	27	-	4,354
Derivative financial instruments	357	1,059	-	-	-	-	1,416
Loans and borrowings	440	887	19	-	73	-	1,419
Related parties	305	1	-	-	-	-	306
	<b>3,285</b>	<b>4,089</b>	<b>20</b>	<b>1</b>	<b>100</b>	<b>-</b>	<b>7,495</b>
<b>Non-current</b>							
Derivative financial instruments	1,456	154	-	-	-	-	1,610
Loans and borrowings	5,866	19,488	210	2	1,822	-	27,388
Related parties	109	-	-	-	-	-	109
Participative stockholders' debentures	1,726	-	-	-	-	-	1,726
Others	115	-	-	-	-	-	115
	<b>9,272</b>	<b>19,642</b>	<b>210</b>	<b>2</b>	<b>1,822</b>	<b>-</b>	<b>30,948</b>
<b>Total of liabilities</b>	<b>12,557</b>	<b>23,731</b>	<b>230</b>	<b>3</b>	<b>1,922</b>	<b>-</b>	<b>38,443</b>

## 23. Fair value estimate

Due to the short-term cycle, it is assumed that the fair value of cash and cash equivalents balances, financial investments, accounts receivable and accounts payable approximate their book values. For the measurement and determination of fair value, the Company uses various methods including market, income or cost approaches, in order to estimate the value that market participants would use when pricing the asset or liability. The financial assets and liabilities recorded at fair value classified and disclosed in accordance with the following levels:

**Level 1** – unadjusted quoted prices on an active, liquid and visible market for identical assets or liabilities that are accessible at the measurement date;

**Level 2** - quoted prices (adjusted or unadjusted) for identical or similar assets or liabilities on active markets; and

**Level 3** - assets and liabilities, for which quoted prices, do not exist, or where prices or valuation techniques are supported by little or no market activity, unobservable or illiquid.

### a) Assets and liabilities measured and recognized at fair value:

	December 31, 2015			December 31, 2014		
	Level 2	Level 3	Total	Level 2	Level 3	Total
<b>Financial assets</b>						
Derivative financial instruments	214	-	214	253	-	253
<b>Total</b>	<b>214</b>	<b>-</b>	<b>214</b>	<b>253</b>	<b>-</b>	<b>253</b>
<b>Financial liabilities</b>						
Derivative financial instruments	3,505	-	3,505	3,026	-	3,026
Participative stockholders' debentures	342	-	342	1,726	-	1,726
Others (minimum return instrument)	-	141	141	-	115	115
<b>Total</b>	<b>3,847</b>	<b>141</b>	<b>3,988</b>	<b>4,752</b>	<b>115</b>	<b>4,867</b>

## Methods and techniques of evaluation

### i) Derivative financial instruments

Financial instruments are evaluated by calculating their present value through the use of instrument yield curves at the closing dates. The curves and prices used in the calculation for each group of instruments are detailed in the "market curves".

The pricing method used for European options is the Black & Scholes model. In this model, the fair value of the derivative is a function of the volatility in the price of the underlying asset, the exercise price of the option, the interest rate and period to maturity. In the case of options which income is a function of the average price of the underlying asset over the period of the option, the Company uses Turnbull & Wakeman model. In this model, in addition to the factors that influence the option price in the Black-Scholes model, the formation period of the average price is also considered.

In the case of swaps, both the present value of the assets and liability are estimated by discounting the cash flow by the interest rate of the currency in which the swap is denominated. The difference between the present value of assets and liability of the swap generates its fair value.

For the TJLP swaps, the calculation of the fair value assumes that TJLP is constant, that is the projections of future cash flow in Brazilian Reals are made on the basis of the last TJLP disclosed.

Contracts for the purchase or sale of products, inputs and costs of selling with future settlement are priced using the forward yield curves for each product. Typically, these curves are obtained on the stock exchanges where the products are traded, such as the London Metals Exchange ("LME"), the Commodity Exchange ("COMEX") or other providers of market prices. When there is no price for the desired maturity, Vale uses an interpolation between the available maturities.

**ii) Participative stockholders' debentures** - Consist of the debentures issued during the privatization process (note 29(b)), whose fair values are measured based on the market approach. Reference prices are available on the secondary market.

**iii) Minimum return instrument** - Refers to a minimum return instrument held by Brookfield which under certain conditions can generate a disbursement obligation to Vale at the end of the sixth year of the completion of the acquisition of interest in VLI (note 6(b)). The Company used internal assumptions in a probability model to calculate the fair value of this instrument.

## b) Fair value of financial instruments not measured at fair value

The fair value estimate for level 1 is based on market approach considering the secondary market contracts. For loans allocated to level 2, the income approach is adopted and the fair value for both fixed-indexed rate debt and floating rate debt is determined on a discounted cash flows basis using LIBOR future values and Vale's bonds curve.

The fair values and carrying amounts of non-current loans (net of interest) are as follows:

Financial liabilities	Balance	Fair value	Level 1	Level 2
<b>December 31, 2015</b>				
Debt principal	28,229	26,233	12,297	13,936
<b>December 31, 2014</b>				
Debt principal	28,370	29,479	15,841	13,638

## 24. Derivative financial instruments

### a) Derivatives effects on balance sheet

	December 31, 2015		December 31, 2014	
	Current	Non-current	Current	Non-current
<b>Assets</b>				
<b>Derivatives designated as economic hedge</b>				
<b>Foreign exchange and interest rate risk</b>				
CDI & TJLP vs. US\$ fixed and floating rate swap	69	-	137	11
IPCA swap	2	16	7	-
Eurobonds swap	-	-	-	41
Pre dollar swap	-	-	2	-
	<b>71</b>	<b>16</b>	<b>146</b>	<b>52</b>
<b>Commodities price risk</b>				
Nickel	50	11	20	3
	<b>50</b>	<b>11</b>	<b>20</b>	<b>3</b>
<b>Others</b>	-	66	-	32
	-	<b>66</b>	-	<b>32</b>
<b>Total</b>	<b>121</b>	<b>93</b>	<b>166</b>	<b>87</b>

	December 31, 2015		December 31, 2014	
	Current	Non-current	Current	Non-current
<b>Liabilities</b>				
<b>Derivatives designated as economic hedge</b>				
<b>Foreign exchange and interest rate risk</b>				
CDI & TJLP vs. US\$ fixed and floating rate swap	799	1,131	442	1,355
IPCA swap	21	101	-	63
Eurobonds swap	146	29	9	90
Pre dollar swap	93	72	30	98
	<b>1,059</b>	<b>1,333</b>	<b>481</b>	<b>1,606</b>
<b>Commodities price risk</b>				
Nickel	40	10	23	3
Bunker oil (i)	924	-	452	-
	<b>964</b>	<b>10</b>	<b>475</b>	<b>3</b>
<b>Others</b>	-	86	-	-
	-	<b>86</b>	-	-
<b>Derivatives designated as cash flow hedge accounting</b>				
Bunker oil (i)	50	-	434	-
Foreign exchange	3	-	26	1
	<b>53</b>	-	<b>460</b>	<b>1</b>
<b>Total</b>	<b>2,076</b>	<b>1,429</b>	<b>1,416</b>	<b>1,610</b>

(i) As at December 31, 2015 and 2014, includes US\$102 and US\$152, respectively, of transactions in which the financial settlement occurs subsequently of the closing month.

## b) Effects of derivatives on the income statement, cash flow and other comprehensive income

	Year ended December 31								
	Gain (loss) recognized in the income statement			Financial settlement inflows (outflows)			Gain(loss) recognized in other comprehensive income		
	2015	2014	2013	2015	2014	2013	2015	2014	2013
<b>Derivatives designated as economic hedge</b>									
<b>Foreign exchange and interest rate risk</b>									
CDI & TJLP vs. US\$ fixed and floating rate swap	(1,172)	(437)	(897)	(330)	4	(146)	-	-	-
IPCA swap	(61)	(58)	-	7	-	-	-	-	-
Eurobonds swap	(130)	(160)	91	(13)	10	(5)	-	-	-
Pre dollar swap	(139)	(28)	(55)	(42)	7	16	-	-	-
	<b>(1,502)</b>	<b>(683)</b>	<b>(861)</b>	<b>(378)</b>	<b>21</b>	<b>(135)</b>	-	-	-
<b>Commodities price risk</b>									
Nickel	(49)	9	(2)	(62)	12	(5)	-	-	-
Bunker oil	(742)	(533)	(72)	(270)	(90)	(62)	-	-	-
	<b>(791)</b>	<b>(524)</b>	<b>(74)</b>	<b>(332)</b>	<b>(78)</b>	<b>(67)</b>	-	-	-
<b>Others</b>	<b>(142)</b>	<b>(5)</b>	<b>(58)</b>	-	-	-	-	-	-
<b>Derivatives designated as cash flow hedge accounting</b>									
Bunker oil	(439)	(81)	(42)	(450)	(81)	(42)	435	(423)	(10)
Nickel	-	-	13	-	-	13	-	-	(13)
Foreign exchange	(42)	(41)	(11)	(42)	(41)	(11)	17	8	(28)
	<b>(481)</b>	<b>(122)</b>	<b>(40)</b>	<b>(492)</b>	<b>(122)</b>	<b>(40)</b>	<b>452</b>	<b>(415)</b>	<b>(51)</b>
<b>Total</b>	<b>(2,916)</b>	<b>(1,334)</b>	<b>(1,033)</b>	<b>(1,202)</b>	<b>(179)</b>	<b>(242)</b>	<b>452</b>	<b>(415)</b>	<b>(51)</b>

Related to the effects of derivatives in the income statement, the Company recognized as cost of goods sold and services rendered and financial expense the amounts of US\$439 and US\$2,477, respectively, for the year ended December 2015.

The maturities dates of the derivative financial instruments are as follows:

	<b>Maturity dates</b>
Currencies and interest rates	July 2023
Bunker oil	December 2016
Nickel	February 2018
Others	December 2027

## Additional information about derivatives financial instruments

The risk of the derivatives portfolio is measured using the delta-Normal parametric approach, and considers that the future distribution of the risk factors and its correlations tends to present the same statistic properties verified in the historical data. The value at risk estimate considers a 95% confidence level for a one-business day time horizon.

There was no cash amount deposited as margin call regarding derivative positions on December 31, 2015. The derivative positions described in this document did not have initial costs associated.

The following tables detail the derivatives positions for Vale and its controlled companies as of December 31, 2015, with the following information: notional amount, fair value (including credit risk), gains or losses in the period, value at risk and the fair value breakdown by year of maturity.

### a) Foreign exchange and interest rates derivative positions

#### (i) Protection programs for the R\$ denominated debt instruments

In order to reduce cash flow volatility, swap transactions were implemented to convert into US\$ the cash flows from certain debt instruments denominated in R\$ with interest rates linked mainly to CDI, TJLP and IPCA. In those swaps, Vale pays fixed or floating rates in US\$ and receives payments in R\$ linked to the interest rates of the protected debt instruments.

The swap transactions were negotiated over-the-counter and the protected items are the cash flows from debt instruments linked to R\$. These programs transform into US\$ the obligations linked to R\$ to achieve a currency offset in the Company's cash flows, by matching its receivables - mainly linked to US\$ - with its payables.

Flow	Notional		Index	Average rate	Fair value		Financial Settlement		Value at Risk	Fair value by year		
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014	Inflows (Outflows)	December 31, 2015		2016	2017	2018
CDI vs. US\$ fixed rate swap												
Receivable	R\$ 5,239	R\$ 4,511	CDI	108.33%	(783)	(547)	(164)	40	(492)	(51)	(241)	-
Payable	US\$ 2,288	US\$ 2,284	Fix	3.39%								
CDI vs. US\$ floating rate swap												
Receivable	-	R\$ 428	CDI	0.00%	-	(83)	(77)	-	-	-	-	-
Payable	-	US\$ 250	Libor +	0.00%								
TJLP vs. US\$ fixed rate swap												
Receivable	R\$ 5,484	R\$ 6,247	TJLP +	1.32%	(1,015)	(953)	(102)	67	(234)	(285)	(141)	(355)
Payable	US\$ 2,611	US\$ 3,051	Fix	1.69%								
TJLP vs. US\$ floating rate swap												
Receivable	R\$ 267	R\$ 295	TJLP +	0.93%	(63)	(66)	(1)	4	(4)	(6)	(7)	(46)
Payable	US\$ 156	US\$ 173	Libor +	-1.21%								
R\$ fixed rate vs. US\$ fixed rate swap												
Receivable	R\$ 1,356	R\$ 735	Fix	6.82%	(165)	(127)	(41)	19	(93)	(9)	3	(65)
Payable	US\$ 528	US\$ 395	Fix	-0.74%								
IPCA vs. US\$ fixed rate swap												
Receivable	R\$ 1,000	R\$ 1,000	IPCA +	6.55%	(105)	(56)	7	10	2	1	0.2	(108)
Payable	US\$ 434	US\$ 434	Fix	3.98%								
IPCA vs. CDI swap												
Receivable	R\$ 1,350	R\$ 0	IPCA +	6.62%	2	-	-	0.3	(21)	(21)	(15)	59
Payable	R\$ 1,350	US\$ 0	CDI	98.58%								

#### (ii) Protection program for EUR denominated debt instruments

In order to reduce the cash flow volatility, swap transactions were implemented to convert into US\$ the cash flows from certain debt instruments issued in Euros by Vale. In those swaps, Vale receives fixed rates in EUR and pays fixed rates in US\$.

The swap transactions were negotiated over-the-counter and the protected items are the cash flows from debt instruments linked to EUR. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to EUR/US\$ exchange rate.

Flow	Notional		Index	Average rate	Fair value		Financial Settlement	Value at Risk	Fair value by year			
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014	Inflows (Outflows)		December 31, 2015	2016	2017	2018
EUR fixed rate vs. US\$ fixed rate swap												
Receivable	€ 1,000	€ 1,000	Fix	4.06%	(175)	(58)	(13)	14	(146)	(5)	(4)	(19)
Payable	US\$ 1.302	US\$ 1.302	Fix	4.51%								

### (iii) Foreign exchange hedging program for disbursements in CAD

In order to reduce the cash flow volatility, forward transactions were implemented to mitigate the foreign exchange exposure that arises from the currency mismatch between revenues denominated in US\$ and disbursements denominated in CAD.

The forward transactions were negotiated over-the-counter and the protected item is part of the CAD denominated disbursements. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to CAD/US\$ exchange rate. This program is classified under the hedge accounting requirements.

Flow	Notional		Bought / Sold	Average rate (CAD / USD)	Fair value		Financial Settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014			
Forwards	CAD 10	CAD 230	B	1.028	(2)	(27)	-	0.1	(2)

## b) Commodities derivative positions

### (i) Bunker Oil purchase cash flows protection program

In order to reduce the impact of bunker oil price fluctuation on maritime freight hiring/supply and, consequently, reducing the company's cash flow volatility, bunker oil derivatives were implemented. These transactions are usually executed through forward purchases and zero cost-collars.

The derivative transactions were negotiated over-the-counter and the protected item is part of the Vale's costs linked to bunker oil prices. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to bunker oil prices changes. Part of this program is classified under the hedge accounting requirements.

	Notional (ton)		Bought / Sold	Average strike (US\$/ton)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
Flow	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014	December 31, 2015	December 31, 2015	2016
Bunker Oil protection									
Forwards	1,867,500	2,205,000	B	508	(577)	(363)	(172)	11	(577)
Call options	2,041,500	-	B	385	0.02	-	-	0.01	0.02
Put options	2,041,500	-	S	314	(297)	-	(60)	10	(297)
Total					(873)	(363)			(873)
Bunker Oil hedge									
Forward	0	1,950,000	B	0	-	(371)	(439)	-	-

### (ii) Protection programs for base metals raw materials and products

In the operational protection program for nickel sales at fixed prices, derivatives transactions were implemented to convert into floating prices the contracts with clients that required a fixed price, in order to keep nickel revenues exposed to nickel price fluctuations. Those operations are usually implemented through the purchase of nickel forwards, which are unwind before the original maturity in order to match the settlement dates of the commercial contracts in which the prices were fixed.

In the operational protection program for the purchase of raw materials and products, derivatives transactions were implemented, usually through the sale of nickel and copper forward or futures, in order to reduce the mismatch between the pricing period of purchases (concentrate, cathode, sinter, scrap and others) and the pricing period of the final product sales to the clients.

The derivative transactions are negotiated at London Metal Exchange or over-the-counter and the protected item is part of Vale's revenues and costs linked to nickel and copper prices. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to nickel and copper prices changes.

Flow	Notional (ton)		Bought / Sold	Average strike (US\$/ton)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year		
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014	December 31, 2015	December 31, 2015	2016	2017	2018
Fixed price sales protection											
Nickel forwards	16,917	11,264	B	11,821	(46)	(24)	(63)	5	(37)	(9)	0
Raw material purchase protection											
Nickel forwards	118	140	S	9,603	0.1	0.2	0.9	0.0	0.1	-	-
Copper forwards	385	360	S	4,938	0.1	0.1	0.6	0.0	0.1	-	-
Total					0.2	0.3			0.2	-	-



### c) Silver Wheaton Corp. warrants

The company owns warrants of Silver Wheaton Corp. (SLW), a Canadian company with stocks negotiated in Toronto Stock Exchange and New York Stock Exchange. Such warrants configure American call options and were received as part of the payment regarding the sale of 25% of gold payable flows produced as a sub product from Salobo copper mine during its life and 70% of gold payable flows produced as a sub product from some nickel mines in Sudbury during 20 years.

Flow	Notional (quantity)		Bought / Sold	Average strike (US\$/share)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014			
Call options	10,000,000	10,000,000	B	65	7	33	-	1	7

### d) Call options from debentures

The company has debentures in which lenders have call options of a specified quantity of Ferrovia Norte Sul ordinary shares, later changed to VLI SA shares. The call option's strike price is given by the debentures' remaining notional in each exercise date.

Flow	Notional (quantity)		Bought / Sold	Average strike (R\$/share)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014			
Call options	140,239	-	S	8,570	(39)	-	-	2	(39)

### e) Options related to Minerações Brasileiras Reunidas S.A. ("MBR") shares

The Company entered into a contract that has options related to MBR shares. Under certain restrict and contingent conditions, which are beyond the buyer's control, such as illegality due to changes in the law, the contract has a clause that gives the buyer the right to sell back its stake to the Company. It this case, the Company could settle through cash or shares. On the other hand, the Company has the right to buy back this non-controlling interest in the subsidiary.

Flow	Notional (quantity, in millions)		Bought / Sold	Average strike (R\$/share)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014			
Options	2,139	-	B/S	1.8	15	-	-	9	15

### f) Embedded derivatives in commercial contracts

The Company has some nickel concentrate and raw materials purchase agreements in which there are provisions based on nickel and copper future prices behavior. These provisions are considered as embedded derivatives.

Flow	Notional (ton)		Bought / Sold	Average strike (US\$/ton)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2015	December 31, 2014			December 31, 2015	December 31, 2014			
Nickel forwards	3,877	4,491	S	9,468	3.0	(0.6)			2.3
Copper forwards	5,939	6,310	S	4,961	2.0	1.1			0.3
<b>Total</b>					<b>5.0</b>	<b>0.6</b>	<b>-</b>	<b>1.7</b>	<b>2.6</b>

The Company has also a natural gas purchase agreement in which there's a clause that defines that a premium can be charged if the Company's pellet sales prices trade above a pre-defined level. This clause is considered an embedded derivative and both his fair value and value at risk were not material as of December 31, 2015.

### g) Sensitivity analysis of derivative financial instruments

The following tables present the potential value of the instruments given hypothetical stress scenarios for the main market risk factors that impact the derivatives positions. The scenarios were defined as follows:

- *Scenario I:* fair value calculation considering market prices as of December 31, 2015
- *Scenario II:* fair value estimated considering a 25% deterioration in the associated risk variables
- *Scenario III:* fair value estimated considering a 50% deterioration in the associated risk variables

Instrument	Instrument's main risk events	Scenario I	Scenario II	Scenario III
<b>CDI vs. US\$ fixed rate swap</b>	R\$ depreciation	(783)	(1,369)	(1,954)
	US\$ interest rate inside Brazil decrease	(783)	(798)	(813)
	Brazilian interest rate increase	(783)	(787)	(792)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
<b>TJLP vs. US\$ fixed rate swap</b>	R\$ depreciation	(1,015)	(1,647)	(2,279)
	US\$ interest rate inside Brazil decrease	(1,015)	(1,057)	(1,100)
	Brazilian interest rate increase	(1,015)	(1,094)	(1,163)
	TJLP interest rate decrease	(1,015)	(1,057)	(1,101)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
<b>TJLP vs. US\$ floating rate swap</b>	R\$ depreciation	(63)	(98)	(134)
	US\$ interest rate inside Brazil decrease	(63)	(66)	(70)
	Brazilian interest rate increase	(63)	(68)	(72)
	TJLP interest rate decrease	(63)	(65)	(68)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
<b>R\$ fixed rate vs. US\$ fixed rate swap</b>	R\$ depreciation	(165)	(298)	(432)
	US\$ interest rate inside Brazil decrease	(165)	(180)	(196)
	Brazilian interest rate increase	(165)	(195)	(219)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
<b>IPCA vs. US\$ fixed rate swap</b>	R\$ depreciation	(105)	(223)	(341)
	US\$ interest rate inside Brazil decrease	(105)	(115)	(125)
	Brazilian interest rate increase	(105)	(133)	(157)
	IPCA index decrease	(105)	(120)	(134)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
<b>IPCA vs. CDI swap</b>	Brazilian interest rate increase	2	(39)	(73)
	IPCA index decrease	2	(20)	(40)
Protected item: R\$ denominated debt linked to IPCA	IPCA index decrease	n.a.	20	40
<b>EUR fixed rate vs. US\$ fixed rate swap</b>	EUR depreciation	(175)	(489)	(803)
	Euribor increase	(175)	(215)	(187)
	US\$ Libor decrease	(175)	(196)	(218)
Protected item: EUR denominated debt	EUR depreciation	n.a.	489	803
<b>CAD Forward</b>	CAD depreciation	(2)	(5)	(8)
Protected item: Disbursement in CAD	CAD depreciation	n.a.	5	8

Instrument	Instrument's main risk events	Scenario I	Scenario II	Scenario III
<b>Bunker Oil protection</b>				
Forwards and options	Bunker Oil price decrease	(873)	(1,038)	(1,202)
Protected item: Part of costs linked to bunker oil prices	Bunker Oil price decrease	n.a.	1,038	1,202
<b>Bunker Oil hedge</b>				
Forwards	Bunker Oil price decrease	-	-	-
Protected item: Part of costs linked to bunker oil prices	Bunker Oil price decrease	n.a.	-	-
<b>Nickel sales fixed price protection</b>				
Forwards	Nickel price decrease	(46)	(83)	(121)
Protected item: Part of nickel revenues with fixed prices	Nickel price fluctuation	n.a.	83	121
<b>Purchase protection program</b>				
Nickel forwards	Nickel price increase	0.1	(0.2)	(0.4)
Protected item: Part of costs linked to nickel prices	Nickel price increase	n.a.	0.2	0.4
Copper forwards	Copper price increase	0.1	(0.4)	(0.8)
Protected item: Part of costs linked to copper prices	Copper price increase	n.a.	0.4	0.8
SLW warrants	SLW stock price decrease	7	3	0
VLI call options	VLI stock value increase	(39)	(62)	(86)
Options regarding non-controlling interest in subsidiary	Subsidiary stock value increase	15	(28)	(59)

Instrument	Main risks	Scenario I	Scenario II	Scenario III
Embedded derivatives - Raw material purchase (nickel)	Nickel price increase	3	(5)	(14)
Embedded derivatives - Raw material purchase (copper)	Copper price increase	2.0	(4.9)	(11.8)

## h) Financial counterparties' ratings

The transactions of derivative instruments, cash and cash equivalents as well as investments are held with financial institutions whose exposure limits are periodically reviewed and approved by the delegated authority. The financial institutions credit risk is performed through a methodology that considers, among other information, ratings provided by international rating agencies.

The table below presents the ratings in foreign currency published by agencies Moody's and S&P regarding the main financial institutions that we had outstanding positions as of December 31, 2015.

Long term ratings by counterparty	Moody's	S&P
ANZ Australia and New Zealand Banking	Aa2	AA-
Banco Bradesco	Baa3	BB+
Banco de Credito del Peru	Baa1	BBB
Banco do Brasil	Baa3	BB+
Banco do Nordeste	Ba1	BB+
Banco Safra	Baa3	BB+
Banco Santander	Baa3	BB+
Banco Votorantim	Ba1	BB+
Bank of America	Baa1	BBB+
Bank of Nova Scotia	Aa2	A+
Bank of Tokyo Mitsubishi UFJ	A2	A
Banpara	Ba3	BB
Barclays	Baa3	BBB
BBVA	A3	BBB+
BNP Paribas	A1	A+
BTG Pactual	Ba2	BB-

Long term ratings by counterparty	Moody's	S&P
Caixa Economica Federal	Baa3	BB+
Citigroup	Baa1	BBB+
Credit Agricole	A2	A
Deutsche Bank	A3	BBB+
Goldman Sachs	A3	BBB+
HSBC	A1	A
Intesa Sanpaolo Spa	Baa1	BBB-
Itau Unibanco	Ba1	BB+
JP Morgan Chase & Co	A3	A-
Macquarie Group Ltd	A3	BBB
Morgan Stanley	A3	BBB+
National Australia Bank NAB	Aa2	AA-
Royal Bank of Canada	Aa3	AA-
Societe Generale	A2	A
Standard Bank Group	Baa3	-
Standard Chartered	Aa3	A-

## i) Market curves

The curves used on the pricing of derivatives instruments were developed based on data from BM&F, Central Bank of Brazil, London Metals Exchange and Bloomberg.

### (i) Products

#### Nickel

Maturity	Price (US\$/ton)	Maturity	Price (US\$/ton)	Maturity	Price (US\$/ton)
SPOT	8,665	JUN16	8,857	DEC16	8,907
JAN16	8,793	JUL16	8,868	DEC17	9,007
FEB16	8,807	AUG16	8,878	DEC18	9,106
MAR16	8,820	SEP16	8,885	DEC19	9,166
APR16	8,831	OCT16	8,892		
MAY16	8,846	NOV16	8,900		

#### Copper

Maturity	Price (US\$/lb)	Maturity	Price (US\$/lb)	Maturity	Price (US\$/lb)
SPOT	2.14	JUN16	2.13	DEC16	2.13
JAN16	2.14	JUL16	2.13	DEC17	2.14
FEB16	2.14	AUG16	2.13	DEC18	2.15
MAR16	2.14	SEP16	2.13	DEC19	2.16
APR16	2.13	OCT16	2.13		
MAY16	2.13	NOV16	2.13		

#### Bunker Oil

Maturity	Price (US\$/ton)	Maturity	Price (US\$/ton)	Maturity	Price (US\$/ton)
SPOT	160	JUN16	181	DEC16	209
JAN16	162	JUL16	186	DEC17	249
FEB16	164	AUG16	191	DEC18	301
MAR16	167	SEP16	196	DEC19	374
APR16	171	OCT16	201		
MAY16	176	NOV16	205		

### (ii) Foreign exchange and interest rates

#### US\$-Brazil Interest Rate

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
02/01/16	2.03	12/01/16	4.07	10/01/18	4.27
03/01/16	2.28	01/02/17	4.15	01/02/19	4.28
04/01/16	2.63	02/01/17	4.13	04/01/19	4.19
05/02/16	2.79	03/01/17	4.16	07/01/19	4.18
06/01/16	3.00	04/03/17	4.26	10/01/19	4.23
07/01/16	3.24	07/03/17	4.26	01/02/20	4.31
08/01/16	3.55	10/02/17	4.22	04/01/20	4.26
09/01/16	3.80	01/02/18	4.35	07/01/20	4.25
10/03/16	3.96	04/02/18	4.18	10/01/20	4.17
11/01/16	4.05	07/02/18	4.36	01/04/21	4.43

#### US\$ Interest Rate

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
1M	0.43	6M	0.78	11M	0.86
2M	0.51	7M	0.80	12M	0.86
3M	0.61	8M	0.82	2Y	1.19
4M	0.69	9M	0.84	3Y	1.45
5M	0.75	10M	0.85	4Y	1.64

#### TJLP

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
02/01/16	7.00	12/01/16	7.00	10/01/18	7.00
03/01/16	7.00	01/02/17	7.00	01/02/19	7.00
04/01/16	7.00	02/01/17	7.00	04/01/19	7.00
05/02/16	7.00	03/01/17	7.00	07/01/19	7.00
06/01/16	7.00	04/03/17	7.00	10/01/19	7.00
07/01/16	7.00	07/03/17	7.00	01/02/20	7.00
08/01/16	7.00	10/02/17	7.00	04/01/20	7.00
09/01/16	7.00	01/02/18	7.00	07/01/20	7.00
10/03/16	7.00	04/02/18	7.00	10/01/20	7.00
11/01/16	7.00	07/02/18	7.00	01/04/21	7.00

**BRL Interest Rate**

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
02/01/16	14.34	12/01/16	15.82	10/01/18	16.70
03/01/16	14.48	01/02/17	15.88	01/02/19	16.71
04/01/16	14.75	02/01/17	15.98	04/01/19	16.71
05/02/16	15.01	03/01/17	16.05	07/01/19	16.71
06/01/16	15.14	04/03/17	16.14	10/01/19	16.70
07/01/16	15.19	07/03/17	16.33	01/02/20	16.68
08/01/16	15.39	10/02/17	16.48	04/01/20	16.67
09/01/16	15.55	01/02/18	16.53	07/01/20	16.65
10/03/16	15.67	04/02/18	16.63	10/01/20	16.64
11/01/16	15.75	07/02/18	16.69	01/04/21	16.62

**Implicit Inflation (IPCA)**

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
02/01/16	7.70	12/01/16	9.08	10/01/18	9.06
03/01/16	7.83	01/02/17	9.14	01/02/19	9.01
04/01/16	8.08	02/01/17	9.15	04/01/19	8.96
05/02/16	8.32	03/01/17	9.16	07/01/19	8.92
06/01/16	8.45	04/03/17	9.17	10/01/19	8.87
07/01/16	8.50	07/03/17	9.20	01/02/20	8.83
08/01/16	8.69	10/02/17	9.19	04/01/20	8.78
09/01/16	8.84	01/02/18	9.14	07/01/20	8.75
10/03/16	8.95	04/02/18	9.14	10/01/20	8.71
11/01/16	9.02	07/02/18	9.12	01/04/21	8.68

**EUR Interest Rate**

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
1M	-0.21	6M	-0.08	11M	-0.06
2M	-0.16	7M	-0.07	12M	-0.06
3M	-0.13	8M	-0.07	2Y	0.03
4M	-0.11	9M	-0.06	3Y	0.06
5M	-0.09	10M	-0.06	4Y	0.19

**CAD Interest Rate**

Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)	Maturity	Rate (% p.a.)
1M	0.88	6M	0.96	11M	0.81
2M	0.87	7M	0.92	12M	0.79
3M	0.87	8M	0.88	2Y	0.83
4M	0.92	9M	0.85	3Y	0.95
5M	0.95	10M	0.83	4Y	1.08

**Currencies - Ending rates**

CAD/US\$	0.7212	US\$/BRL	3.9048	EUR/US\$	1.0934
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## 25. Stockholders' equity

### a) Share capital

Stockholders' equity is represented by common shares ("ON") and preferred non-redeemable shares ("PNA") without par value. Preferred shares have the same rights as common shares, with the exception of voting rights to elect members of the Board of Directors. The Board of Directors may, regardless of changes to bylaws, issue new shares (authorized capital), including the capitalization of profits and reserves to the extent authorized.

At December 31, 2015 and 2014, share capital was US\$61,614 corresponding to 5,244,316,120 shares issued and fully paid without par value.

Stockholders	December 31, 2015		
	ON	PNA	Total
Valepar S.A.	1,716,435,045	20,340,000	1,736,775,045
Brazilian Government (Golden Share)	-	12	12
Foreign investors - ADRs	814,888,084	664,356,644	1,479,244,728
FMP - FGTS	80,275,389	-	80,275,389
PIBB - BNDES	1,391,867	1,546,759	2,938,626
BNDESPar	206,378,882	66,185,272	272,564,154
Foreign institutional investors in local market	250,366,203	659,351,871	909,718,074
Institutional investors	77,393,251	146,982,509	224,375,760
Retail investors in Brazil	38,524,279	408,958,859	447,483,138
<b>Shares outstanding</b>	<b>3,185,653,000</b>	<b>1,967,721,926</b>	<b>5,153,374,926</b>
Shares in treasury	31,535,402	59,405,792	90,941,194
<b>Total issued shares</b>	<b>3,217,188,402</b>	<b>2,027,127,718</b>	<b>5,244,316,120</b>
<b>Amounts per class of shares (in millions)</b>	<b>38,525</b>	<b>23,089</b>	<b>61,614</b>
<b>Total authorized shares</b>	<b>7,200,000,000</b>	<b>3,600,000,000</b>	<b>10,800,000,000</b>

### b) Profit reserves

The amount of profit reserves are distributed as follow:

	Investments reserve	Legal reserve	Tax incentive reserve	Total of profit reserves
<b>Balance on December 31, 2013</b>	<b>25,068</b>	<b>3,451</b>	<b>1,047</b>	<b>29,566</b>
Capitalization of reserves	(13)	-	(1,023)	(1,036)
Cancellation of treasury stock	(3,000)	-	-	(3,000)
Realization of reserves	(3,387)	-	-	(3,387)
Allocation of income	-	18	61	79
Translation adjustment	(1,874)	(408)	45	(2,237)
<b>Balance on December 31, 2014</b>	<b>16,794</b>	<b>3,061</b>	<b>130</b>	<b>19,985</b>
Dividends and interest on capital of Vale's stockholders	(1,500)	-	-	(1,500)
Allocation of loss	(10,859)	(1,176)	(94)	(12,129)
Translation adjustment	(4,435)	(900)	(36)	(5,371)
<b>Balance on December 31, 2015</b>	<b>-</b>	<b>985</b>	<b>-</b>	<b>985</b>

**Investment reserve** - aims to ensure the maintenance and development of activities that comprise the Company's operations in an amount not exceeding 50% of distributable annual net income, limited to the total capital.

**Legal reserve** - is a requirement for all Brazilian public companies and represents the appropriation of 5% of annual net income based on Brazilian law, up to 20% of the capital.

**Tax incentive reserve** - results from the option to designate a portion of the income tax for investments in projects approved by the Brazilian Government as well as tax incentives (note 20).

### c) Unrealized fair value gain (losses)

	Retirement benefit obligations	Cash flow hedge	Available-for-sale financial instruments	Conversion shares	Total gain (losses)
<b>Balance December 31, 2013</b>	<b>(685)</b>	<b>(46)</b>	<b>(2)</b>	<b>(469)</b>	<b>(1,202)</b>
Other comprehensive income	(192)	(416)	-	-	(608)
Translation adjustment	32	9	-	56	97
<b>Balance December 31, 2014</b>	<b>(845)</b>	<b>(453)</b>	<b>(2)</b>	<b>(413)</b>	<b>(1,713)</b>
Other comprehensive income	70	447	1	-	518
Translation adjustment	72	-	-	131	203
<b>Balance December 31, 2015</b>	<b>(703)</b>	<b>(6)</b>	<b>(1)</b>	<b>(282)</b>	<b>(992)</b>

### d) Basic and diluted earnings per share

Basic and diluted earnings per share are as follows:

	Year ended December 31		
	2015	2014	2013
<b>Net income (loss) attributable to the Company's stockholders</b>	<b>(12,129)</b>	<b>657</b>	<b>584</b>
<b>Basic and diluted earnings per share:</b>			
Income (loss) available to preferred stockholders	(4,631)	251	223
Income (loss) available to common stockholders	(7,498)	406	361
<b>Total</b>	<b>(12,129)</b>	<b>657</b>	<b>584</b>
Weighted average number of shares outstanding (thousands of shares) - preferred shares	1,967,722	1,967,722	1,967,722
Weighted average number of shares outstanding (thousands of shares) - common shares	3,185,653	3,185,653	3,185,653
<b>Total</b>	<b>5,153,375</b>	<b>5,153,375</b>	<b>5,153,375</b>
<b>Basic and diluted earnings per share</b>			
Preferred share	(2.35)	0.13	0.11
Common share	(2.35)	0.13	0.11

### e) Remuneration to the Company's stockholders

Vale's by-laws determine the minimum remuneration to stockholders of 25% of net income, after adjustments from Brazil's legal requirements. The minimum remuneration includes the rights of stockholders Class "A" of preferred shares which provides priority to receive of 3% of the equity or 6% on the portion of capital formed by these classes of shares, whichever higher.

The proposal of stockholders' remuneration was calculated in R\$. The equivalent amount in US\$ are as follows:

	2015
<b>Loss</b>	<b>(12,129)</b>
Realization of reserves	1,500
Allocation of loss	12,129
	<b>1,500</b>
<b>Remuneration:</b>	
Mandatory minimum (includes the rights of the preferred shares)	-
Additional remuneration	1,500
	<b>1,500</b>
<b>Remuneration by nature:</b>	
Interest on capital	1,000
Dividends	500
	<b>1,500</b>
<b>Total remuneration per share</b>	<b>0.291071389</b>

The amounts paid to stockholders, by nature of remuneration, are as follows:

	Dividends	Interest on capital	Total	Amount per share
<b>Amounts paid in 2013</b>				
First installment - April	400	1,850	2,250	0.436607084
Second installment - October	287	1,963	2,250	0.436607084
<b>Total</b>	<b>687</b>	<b>3,813</b>	<b>4,500</b>	
<b>Amounts paid in 2014</b>				
First installment - April	-	2,100	2,100	0.407499945
Second installment - October	717	1,383	2,100	0.407499945
<b>Total</b>	<b>717</b>	<b>3,483</b>	<b>4,200</b>	
<b>Amounts paid in 2015</b>				
First installment - April	-	1,000	1,000	0.194047593
Second installment - October	500	-	500	0.097023796
<b>Total</b>	<b>500</b>	<b>1,000</b>	<b>1,500</b>	

In January, 2016 (subsequent event), Vale announced that, in compliance with its dividend policy and due to price volatility in mineral commodities, the Executive Board has approved and will submit to the Board of Directors a proposal for a minimum dividend equal to zero for 2016. As the scenario is clearly defined and there is sufficient cash flow, the Board of Directors may decide on the distribution of remuneration to shareholders.

## 26. Costs and expenses by nature

### a) Cost of goods sold and services rendered

	Year ended December 31		
	2015	2014	2013
Personnel	2,313	3,051	3,265
Material and service	3,859	5,389	6,128
Fuel oil and gas	1,299	1,639	1,804
Maintenance	2,587	2,434	1,868
Energy	569	602	663
Acquisition of products	829	1,615	1,412
Depreciation and depletion	3,529	3,856	3,724
Freight	3,496	3,592	3,189
Others	2,032	2,886	2,192
<b>Total</b>	<b>20,513</b>	<b>25,064</b>	<b>24,245</b>
Cost of goods sold	19,990	24,100	22,359
Cost of services rendered	523	964	1,886
<b>Total</b>	<b>20,513</b>	<b>25,064</b>	<b>24,245</b>

### b) Selling and administrative expenses

	Year ended December 31		
	2015	2014	2013
Personnel	267	436	495
Services (consulting, infrastructure and others)	113	196	331
Advertising and publicity	12	40	44
Depreciation and amortization	133	223	192
Travel expenses	12	24	19
Taxes and rents	16	28	26
Others	99	152	195
<b>Total</b>	<b>652</b>	<b>1,099</b>	<b>1,302</b>



### c) Others operational expenses (incomes), net

	Year ended December 31		
	2015	2014	2013
Provision for litigation	31	174	(88)
Provision for loss with VAT credits (ICMS)	194	117	120
Provision for profit sharing program	22	130	215
Provision for disposal of materials and inventories (i)	194	187	171
Gold stream transaction	(230)	-	(244)
VAT – settlement program	-	-	166
Results on sale or disposal of property, plant and equipment and intangible	78	91	98
Others (ii)	(83)	358	546
<b>Total</b>	<b>206</b>	<b>1,057</b>	<b>984</b>

(i) Includes depreciation in the amount of US\$54 for the year ended December 31, 2015.

(ii) The Company reviewed its mining plans, extending the life of some of its assets and the scope of work, and the excess of US\$331 between the difference of the liability reduction and the related asset retirement obligation in property, plant and equipment was recognized as other expenses.

## 27. Financial result

	Year ended December 31		
	2015	2014	2013
<b>Financial expenses</b>			
Loans and borrowings gross interest	(1,652)	(1,736)	(1,570)
Capitalized loans and borrowing costs	761	588	235
Labor, tax and civil lawsuits	(59)	(91)	(109)
Derivative financial instruments	(3,553)	(1,974)	(1,443)
Indexation and exchange rate variation (a)	(13,986)	(4,929)	(4,586)
Participative stockholders' debentures	965	(315)	(381)
Expenses of REFIS	(547)	(683)	(2,637)
Others	(580)	(699)	(540)
	<b>(18,651)</b>	<b>(9,839)</b>	<b>(11,031)</b>
<b>Financial income</b>			
Short-term investments	157	193	101
Derivative financial instruments	1,076	640	410
Indexation and exchange rate variation (b)	6,506	2,729	1,646
Others	111	208	542
	<b>7,850</b>	<b>3,770</b>	<b>2,699</b>
<b>Financial results, net</b>	<b>(10,801)</b>	<b>(6,069)</b>	<b>(8,332)</b>
<b>Summary of indexation and exchange rate variation</b>			
Loans and borrowings	(10,462)	(3,251)	(3,335)
Others	2,982	1,051	395
<b>Net (a) + (b)</b>	<b>(7,480)</b>	<b>(2,200)</b>	<b>(2,940)</b>

## 28. Deferred revenue - Gold stream

In 2013, the Company entered into a gold stream transaction ("original transaction") with Silver Wheaton Corp. ("SLW") to sell 25% of the gold extracted during the life of the mine as a by-product of Salobo copper mine ("Salobo transaction") and 70% of the gold extracted during the next 20 years as a by-product of the Sudbury nickel mines ("Sudbury transaction"). The Company received up-front cash proceeds of US\$1,900.

The original transaction was amended in March, 2015 to include an additional 25% of gold extracted during the life of the mine as a by-product of Salobo copper mine ("amended transaction"). The Company received up-front cash proceeds of US\$900. The Company may also receive an additional cash payment contingent on its decision to expand the capacity to process Salobo copper ores until 2036. The additional amount could range from US\$88 to US\$720 depending on timing and size of the expansion.

As the gold is delivered to SLW, Vale receives a payment equal to the lesser of: (i) US\$400 per ounce of refined gold delivered (which payment will be subject to an annual increase of 1% per year commencing on January 1, 2017 for the original and amended transactions and each January 1 thereafter) and (ii) the reference market price on the date of delivery.

This transaction was bifurcated into two identifiable components: (i) the sale of the mineral rights and, (ii) the services for gold extraction on the portion in which Vale operates as an agent for SLW gold extraction.

The result of the sale of the mineral rights of US\$230 was recognized in the income statement under other operating expenses, net. The portion related to the provision of future services for gold extraction was recorded as deferred revenue (liability) in the amount of US\$532 and will be recognized in the income statement as the service is rendered and the gold extracted. During the year ended December 31, 2015 and 2014, the Company recognized in income statement US\$106 and US\$64, respectively, related to rendered services of the original and amended transactions.

The deferred revenue is recognized based on the units of gold extracted compared to the total of proven and probable gold reserves negotiated with SLW. Defining the gain on sale of mineral interest and the deferred revenue portion of the transaction requires the use of critical accounting estimates as follow:

- Discount rates used to measure the present value of future inflows and outflows;
- Allocation of costs between copper and gold based on relative prices;
- Expected margin for the independent elements (sale of mineral rights and service for gold extraction) based on Company's best estimate.

## 29. Commitments

### a) Base metals operations

#### i) Nickel Operations – New Caledonia

In regards to the construction and installation of the nickel plant in New Caledonia, Vale Canada Limited ("Vale Canada") provided guarantees in respect of a special financing arrangement, structured under French tax law, to BNP Paribas (agent for the benefit of certain French institutional tax investors). The guarantees relate to lease finance payments due from Vale Nouvelle-Calédonie S.A.S. ("VNC") to a special purpose company held by the French tax investors in respect of certain assets of the plant. Consistent with VNC's commitments under the financing structure, these assets were substantially complete as at December 31, 2012. Vale Canada has committed that these assets will operate for a five year period following substantial completion. Vale Canada believes the likelihood of the guarantees being called upon is remote.

In October 2012, Vale Canada entered into an agreement with Sumic Nickel Netherland B.V. ("Sumic"), a shareholder in VNC, to amend the shareholders' agreement to reflect Sumic's agreement to the dilution of their interest in VNC from 21% to 14.5%. Sumic originally held a put option to sell to Vale Canada the shares they own in VNC if the defined cost of the initial project exceeded a certain limit and an agreement could not be reached on how to proceed with the project. In October 2012, the trigger for the put option changed from a cost threshold to a production test and later the put option date was extended to December 31, 2015. VNC did not achieve the production test by December 31, 2015 and Sumic's put option was automatically triggered. Consequently, Sumic will sell its shares in VNC to Vale Canada in 2016. As the put option was automatically triggered in December 2015, Vale recognized in its equity the amount related to 14.5% of VNC and the liabilities for Sumic as related parties (note 30).

## ii) Nickel Operations – Indonesia

In October 2014, Vale subsidiary PT Vale Indonesia Tbk (“PTVI”), a public company in Indonesia, renegotiated its agreement with the Government to operate (known as the Contract of Work (“CoW”)). The renegotiation included an undertaking by PTVI to further divest 20% of its shares to Indonesian participants (approximately 20% of PTVI’s shares already being registered on the Indonesian stock exchange) within five years. This undertaking will be fulfilled by PTVI’s existing major shareholders, being Vale Canada and Sumitomo Metal Mining, Co., Ltd., on a pro rata basis. The renegotiated CoW impacted 2014 income statement, recorded as a loss of US\$167 as results on measurement or sales of non-current assets.

## iii) Nickel Operations – Canada

The subsidiaries Vale Canada, Vale Newfoundland & Labrador Limited (“VNLL”) and the Province of Newfoundland and Labrador (the “Province”) signed a Development Agreement under rights and obligations with respect to the development and operation of the Voisey’s Bay mine along with certain other obligations with respect to processing in the Province and the export of nickel and copper concentrate. On December 19, 2014, the Sixth Amendment to the Development Agreement was executed. The Sixth Amendment includes operational and other key commitments in the Development Agreement. As such, under the Development Agreement, as amended, VNLL has a potential obligation secured by letters of credit and other security, which may become due and payable in the event that certain commitments in relation to the construction of the underground mine are delayed or not met.

In the course of the operations the Company has provided other letters of credit and guarantees in the amount of US\$1 billion that are associated with items such as environment reclamation, asset retirement obligation commitments, insurance, electricity commitments, post-retirement benefits, community service commitments and import and export duties.

## b) Participative stockholders’ debentures

At the time of its privatization in 1997, Vale issued debentures to then-existing stockholders, including the Brazilian Government. The debentures’ terms were set to ensure that pre-privatization stockholders would participate in potential future benefits that might be obtained from exploiting mineral resources.

A total of 388,559,056 debentures were issued with a par value of R\$0.01 (one cent of Brazilian Real), whose value will be inflation-indexed the General Market Price Index (“IGP-M”), as set out in the Issue Deed. The Company paid as semiannual remuneration the amount of R\$207 (US\$65) and R\$285 (US\$112), respectively, for the year ended December 31, 2015 and 2014.

## c) Operating lease obligations

The future payment commitments for operating lease are as follows:

2016	56
2017	59
2018	62
2019	53
2020 and thereafter	56
<b>Total minimum payments required</b>	<b>286</b>

## d) Guarantees provided

At December 31, 2015, corporate guarantees provided by Vale (within the limit of its direct or indirect interest) for the companies Norte Energia S.A. and Companhia Siderúrgica do Pecém S.A. totaled US\$274 and US\$1,172, respectively. Due to the conclusion of the energy generation assets transaction (note 5), the guarantee of Norte Energia S.A. is shared with Cemig GT.

### 30. Related parties

Transactions with related parties are made by the Company at arm's-length, observing the price and usual market conditions and therefore do not generate any undue benefit to their counterparties or loss to the Company.

In the normal course of operations, Vale enters into contracts with related parties (subsidiaries, associates, joint ventures and stockholders), related to the sale and purchase of products and services, loans, leasing of assets, sale of raw material and railway transportation services.

The balances of these related party transactions and their effects on the financial statements are as follows:

	Assets							
	December 31, 2015				December 31, 2014			
	Cash and cash equivalents	Derivative financial instruments	Accounts receivable	Related parties	Cash and cash equivalents	Derivative financial instruments	Accounts receivable	Related parties
Banco Bradesco S.A.	37	66	-	-	60	24	-	-
Banco do Brasil S.A.	395	16	-	-	427	35	-	-
Baovale Mineração S.A.	-	-	-	-	-	-	4	9
Companhia Coreano-Brasileira de Pelotização	-	-	-	6	-	-	-	-
Companhia Hispano-Brasileira de Pelotização	-	-	1	4	-	-	-	-
Companhia Italo-Brasileira de Pelotização	-	-	-	8	-	-	-	-
Companhia Nipo-Brasileira de Pelotização	-	-	-	9	-	-	-	-
Consórcio de Rebocadores da Baía de São Marcos	-	-	15	-	-	-	-	-
Ferrovia Norte Sul S.A.	-	-	3	-	-	-	9	-
Mitsui & Co., Ltd.	-	-	1	-	-	-	9	-
MRS Logística S.A.	-	-	-	17	-	-	3	24
Samarco Mineração S.A.	-	-	-	-	-	-	24	310
Teal Minerals Inc.	-	-	-	-	-	-	-	216
VLI Multimodal S.A.	-	-	9	-	-	-	25	-
VLI Operações Portuárias S.A.	-	-	25	-	-	-	26	-
VLI S.A.	-	-	-	10	-	-	9	-
Others	-	-	24	17	-	-	56	55
<b>Total</b>	<b>432</b>	<b>82</b>	<b>78</b>	<b>71</b>	<b>487</b>	<b>59</b>	<b>165</b>	<b>614</b>

	Liabilities							
	December 31, 2015				December 31, 2014			
	Derivative financial instruments	Suppliers and contractors	Related parties	Loans and borrowings	Derivative financial instruments	Suppliers and contractors	Related parties	Loans and borrowings
Aliança Geração de Energia S.A.	-	11	-	-	-	-	-	-
Baovale Mineração S.A.	-	8	-	-	-	4	-	-
Banco do Brasil S.A.	250	-	-	2,625	134	-	-	2,520
Banco Bradesco S.A.	205	-	-	370	154	-	-	10
Banco Nacional de Desenvolvimento Econômico e Social ("BNDES")	39	-	-	4,066	-	-	-	4,716
BNDES Participações S.A.	-	-	-	371	-	-	-	589
Companhia Coreano-Brasileira de Pelotização	-	4	70	-	-	1	86	-
Companhia Hispano-Brasileira de Pelotização	-	37	7	-	-	32	-	-
Companhia Ítalo-Brasileira de Pelotização	-	3	64	-	-	1	47	-
Companhia Nipo-Brasileira de Pelotização	-	9	112	-	-	2	147	-
Consórcio de Rebocadores da Baía de São Marcos	-	8	-	-	-	-	-	-
Ferrovia Centro-Atlântica S.A.	-	-	68	-	-	-	98	-
Mitsui & Co., Ltd.	-	11	-	-	-	11	-	-
MRS Logística S.A.	-	23	-	-	-	25	-	-
Sumic Nickel Netherland B.V	-	-	352	-	-	-	-	-
Others	-	22	15	-	-	32	37	-
<b>Total</b>	<b>494</b>	<b>136</b>	<b>688</b>	<b>7,432</b>	<b>288</b>	<b>108</b>	<b>415</b>	<b>7,835</b>

	Year ended December 31					
	2015			2014		
	Net operating revenue	Costs and expenses	Financial result	Net operating revenue	Costs and expenses	Financial result
Aliança Geração de Energia S.A.	12	-	-	-	-	-
Banco Bradesco S.A.	-	-	(75)	-	-	(24)
Banco do Brasil S.A.	-	-	(374)	-	-	(110)
Banco Nacional de Desenvolvimento Econômico e Social ("BNDES")	-	-	(372)	-	-	(199)
Baovale Mineração S.A.	-	(24)	-	-	-	-
BNDES Participações S.A.	-	-	(50)	-	-	(41)
California Steel Industries, Inc.	-	-	-	183	(215)	-
Companhia Coreano-Brasileira de Pelotização	-	(80)	-	-	(97)	-
Companhia Hispano-Brasileira de Pelotização	-	(50)	-	-	(47)	-
Companhia Ítalo-Brasileira de Pelotização	-	(66)	-	-	(49)	-
Companhia Nipo-Brasileira de Pelotização	-	(106)	-	-	(155)	-
Ferrovias Centro Atlântica S.A.	47	(39)	(1)	59	(61)	-
Mitsui & Co., Ltd.	187	-	-	111	(35)	-
MRS Logística S.A.	-	(489)	-	-	(593)	-
Samarco Mineração S.A.	127	-	-	210	-	-
Teal Minerals Inc.	-	-	12	-	-	10
VLI Operações Portuárias S.A.	53	-	-	202	-	-
VLI S.A.	198	-	-	148	-	8
Others	55	(44)	(4)	102	(42)	9
<b>Total</b>	<b>679</b>	<b>(898)</b>	<b>(864)</b>	<b>1,015</b>	<b>(1,294)</b>	<b>(347)</b>

The key management personnel remuneration is as follows:

	Year ended December 31		
	2015	2014	2013
<b>Short-term benefits</b>			
Wages or pro-labor	8	11	11
Direct and indirect benefits	6	7	7
Bonus	8	12	9
	<b>22</b>	<b>30</b>	<b>27</b>
<b>Long-term benefits</b>			
Shares based	1	1	1
<b>Termination of position</b>	<b>6</b>	<b>-</b>	<b>1</b>
	<b>29</b>	<b>31</b>	<b>29</b>

### 31. Summary of the main accounting policies

#### a) Functional currency and presentation currency

The financial statements of the Group and its associates and joint ventures are measured using the currency of the primary economic environment in which the entity operates ("functional currency"), which in the case of the Parent Company is the Brazilian real ("BRL" or "R\$"). For presentation purposes, these financial statements are presented in United States dollar ("USD" or "US\$") as the Company believes that this is how international investors analyze the financial statements.

Operations in other currencies are translated into the functional currency using the actual exchange rates in force on the respective transactions dates. The foreign exchange gains and losses resulting from the translation at the exchange rates in force at the end of the year are recognized in the income statement as financial expense or income.

The income statement and balance sheet of the Group's entities which functional currency is different from the presentation currency are translated into the presentation currency as follows: (i) assets, liabilities and stockholders' equity (except components described in item (iii)) are translated at the closing rate at the balance sheet date; (ii) income and expenses are translated at the average exchange rates, except for specific transactions that, considering their significance, are translated at the rate at the transaction date and; (iii) capital, capital reserves and treasury stock are translated at the rate at the date of each transaction. All resulting exchange differences are recognized in the comprehensive income as cumulative translation adjustment, and transferred to the income statement when the operations are realized.

The exchange rates used by the Group for major currencies to translate its operations are as follows:

	Exchange rates used for conversions into R\$					
	Closing rate			Average rate for the year ended		
	2015	2014	2013	2015	2014	2013
US dollar ("US\$")	3.9048	2.6562	2.3426	3.3387	2.3547	2.1605
Canadian dollar ("CAD")	2.8171	2.2920	2.2031	2.6020	2.1308	2.0954
Australian dollar ("AUD")	2.8532	2.1765	2.0941	2.4979	2.1205	2.0821
Euro ("EUR" or "€")	4.2504	3.2270	3.2265	3.6999	3.1205	2.8716

#### b) Consolidation and investments in associates and joint ventures

The financial statements reflect the assets, liabilities and transactions of the Parent Company and its direct and indirect controlled entities ("subsidiaries"). Intercompany balances and transactions, which include unrealized profits, are eliminated. Subsidiaries over which control is achieved through other means, such as stockholders agreement, are also consolidated even if the Company does not own a majority of the voting capital.

For entities over which the Company has joint control ("joint ventures") or significant influence, but not control ("associates"), the investments are accounted for using the equity method. For interests in joint arrangements operations ("joint operations"), the Company recognizes its share of assets, liabilities and net income.

Unrealized gains on downstream or upstream transactions between the Company and its associates and joint ventures are eliminated fully or proportionately to the extent of the Company.

The composition of the Group (relevant entities based on its operations for the Group) and its non-consolidated entities are as follows:

	Location	Principal activity	% ownership	% Voting capital	% Noncontrolling interest or other investors
<b>Direct and indirect subsidiaries</b>					
Companhia Portuária da Baía de Sepetiba	Brazil	Iron ore	100.0%	100.0%	0.0%
Compañía Minera Miski Mayo S.A.C.	Peru	Fertilizers	40.0%	51.0%	60.0%
Mineração Corumbaense Reunida S.A.	Brazil	Iron ore and manganese	100.0%	100.0%	0.0%
Minerações Brasileiras Reunidas S.A.	Brazil	Iron ore	62.5%	98.3%	37.5%
Salobo Metais S.A.	Brazil	Copper	100.0%	100.0%	0.0%
Vale International Holdings GmbH	Austria	Holding and research	100.0%	100.0%	0.0%
Vale Canada Holdings Inc.	Canada	Holding	100.0%	100.0%	0.0%
Vale Canada Limited	Canada	Nickel	100.0%	100.0%	0.0%
Vale Fertilizantes S.A.	Brazil	Fertilizers	100.0%	100.0%	0.0%
Vale International S.A.	Switzerland	Trading and holding	100.0%	100.0%	0.0%
Vale Malaysia Minerals Sdn. Bhd.	Malaysia	Iron ore	100.0%	100.0%	0.0%
Vale Manganeis S.A.	Brazil	Manganese and ferroalloys	100.0%	100.0%	0.0%
Vale Moçambique S.A.	Mozambique	Coal	95.0%	95.0%	5.0%
Vale Nouvelle Calédonie S.A.S.	New Caledonia	Nickel	80.5%	80.5%	19.5%
Vale Shipping Holding Pte. Ltd.	Singapore	Iron ore	100.0%	100.0%	0.0%
<b>Direct and indirect associates and joint ventures</b>					
Aliança Geração de Energia S.A.	Brazil	Energy	55.0%	55.0%	45.0%
Companhia Coreano-Brasileira de Pelotização	Brazil	Pellets	50.0%	50.0%	50.0%
Companhia Hispano-Brasileira de Pelotização	Brazil	Pellets	50.9%	51.0%	49.1%
Companhia Ítalo-Brasileira de Pelotização	Brazil	Pellets	50.9%	51.0%	49.1%
Companhia Nipo-Brasileira de Pelotização	Brazil	Pellets	51.0%	51.1%	49.0%
Companhia Siderúrgica do Pecém	Brazil	Steel	50.0%	50.0%	50.0%
Henan Longyu Energy Resources Co., Ltd.	China	Coal	25.0%	25.0%	75.0%
MRS Logística S.A.	Brazil	Iron ore	40.0%	40.0%	60.0%
Samarco Mineração S.A.	Brazil	Pellets	50.0%	50.0%	50.0%
VLI S.A.	Brazil	Logistics	37.6%	37.6%	62.4%

The accounting practices of subsidiaries, associates and joint ventures are consistent with the policies adopted by the Parent Company.

### c) Noncontrolling interests

Investments held by investors in Vale's subsidiaries are classified as noncontrolling interests. The Company treats transactions with noncontrolling interests as transactions with equity owners of the Group.

For purchases of noncontrolling interests, the difference between any amount paid and the portion acquired of the carrying value of net assets of the subsidiary is recorded in stockholders' equity. Gains or losses on disposals of noncontrolling interest are also recorded in stockholders' equity.

### d) Segment information

The Company discloses in note 3, segment information in accordance with the principles and concepts used by the chief operating decision makers in evaluating performance and allocating resources. The information is analyzed by operating segment as follows:

#### i. Ferrous minerals

Ferrous minerals comprises the production and extraction of ferrous minerals, as iron ore, pellets and its logistic services (railroads, ports and terminals), manganese and ferroalloys, and others ferrous products and services.

#### ii. Coal

Coal comprises the extraction of coal and its logistic services (railroads, ports and terminals).

#### iii. Base metals

Base metals include the production and extraction of non-ferrous minerals, and are presented as nickel and its by-products (ferro-nickel, copper, precious metals and others) and copper (copper concentrated).

#### **iv. Fertilizers**

Fertilizers include the production of the three major groups of nutrients (potash, phosphate and nitrogen) and other fertilizers products.

#### **v. Others**

The segments of others comprise sales and expenses of other products, services and investments in joint ventures and associate in other businesses.

#### **e) Accounts receivables**

Account receivables are financial instruments classified in the category loan and receivables and represent the total amount due from sale of products and services rendered by the Company. The receivables are initially recognized at fair value and subsequently measured at amortized cost, net of impairment losses, when applicable.

#### **f) Inventories**

Inventories are stated at the lower of cost or the net realizable value. The inventory production cost is determined on the basis of variable and fixed costs, direct and indirect costs of production, using the average cost method. An allowance for losses on obsolete or slow-moving inventory is recognized.

#### **g) Assets and liabilities held for sale**

When the Company is committed to sale assets which (i) are available for immediate disposal; (ii) the sale is highly probable; and (iii) the carrying amount of these assets will be recovered through the sale rather than the continuing use, these assets and related liabilities are classified as assets and liabilities held for sale. The assets and related liabilities which are classified as held for sale are described in note 5.

The non-current assets and related liabilities held for sale are recognized as current assets and are measured at the lower of carrying amount or fair value less costs to sell.

#### **h) Stripping Costs**

The cost associated with the removal of overburden and other waste materials ("stripping costs") incurred during the development of mines, before production takes place, are capitalized as part of the depreciable cost of developing the mining property. These costs are subsequently amortized over the useful life of the mine.

Post-production stripping costs are included in the cost of inventory, except when a new project is developed to permit access to a significant body of ore. In such cases, the cost is capitalized as a non-current asset and is amortized during the extraction of the body of ore, over the useful life of the body of ore.

Stripping costs are measured at fixed and variable costs directly and indirectly attributable to its removal and, when applicable, net of any impairment losses measured in same basis adopted for the cash generating unit of which it is part.

#### **i) Intangibles**

Intangibles are carried at the acquisition cost, net of amortization and impairment.

Intangibles with finite useful lives are amortized over their effective use and are tested for impairment whenever there is an indication that the asset may be impaired. Assets with indefinite useful lives are not amortized and are tested for impairment at least annually.

The Company holds railway concessions which are valid over a certain period of time. Those assets are classified as intangible assets and amortized over the shorter of their useful lives and the concession term at the end of which they will be returned to the government.

Intangibles acquired in a business combination are recognized separately from goodwill.



The estimated useful lives are as follows:

	Useful life
Concessions	3 to 12 years
Right of use	22 to 31 years
Software	3 to 5 years

## j) Property, plant and equipment

Property, plant and equipment are evaluated at the cost of acquisition or construction, net of amortization and impairment.

Mining assets developed internally are determined by (i) direct and indirect costs attributed to build the mine site and plant, (ii) financial charges incurred during the construction period, (iii) depreciation of other fixed assets used into building, (iv) estimated decommissioning and site restoration expenses, and (iv) other capitalized expenditures occurred during the development phase (phase when the project demonstrates its economic benefit to the Company, and the Company has ability and intention to complete the project).

The depletion of mining assets is determined based on the ratio between production and total proven and probable mineral reserves. Property, plant and equipment are depreciated using the straight-line method based on the estimated useful lives, from the date on which the assets become available for their intended use, except for land which is not depreciated.

The estimated useful lives are as follows:

	Useful life
Buildings	15 to 50 years
Facilities	8 to 50 years
Equipment	3 to 33 years
Mining assets	Production
Others:	
Locomotives	12.5 to 25 years
Wagon	33 to 44 years
Railway equipment	5 to 50 years
Ships	5 to 20 years
Others	2 to 50 years

The residual values and useful lives of assets are reviewed at the end of each fiscal year and adjusted if necessary.

Significant industrial maintenance costs, including spare parts, assembly services, and others, are recorded in property, plant and equipment and depreciated through the next programmed maintenance overhaul.

## k) Research and evaluation

### i. Exploration and evaluation expenditures

Expenditures on mining research are accounted for as operating expenses until the effective proof of economic feasibility and commercial viability of a given field can be demonstrated. From then on, the expenditures incurred are capitalized as mine development costs.

### ii. Expenditures on feasibility studies, new technologies and others research

The Company also conducts feasibility studies for many businesses which it operates including researching new technologies to optimize the mining process. After these costs are proven to generate future benefits to the Company, the expenditures incurred are capitalized.

## **l) Impairment of assets**

The Company assesses, at each reporting date, whether there is evidence that the carrying amount of financial assets measured through amortized cost and long-lived non-financial asset should be impaired.

For financial assets measured through amortized cost, Vale compares the carrying amount with the expected cash flows of the asset, and when appropriate, the carrying value is adjusted to reflect the present value of future cash flows.

For long-lived non-financial assets (such as intangible or property plant and equipment), when impairment indication are identified, a test is conducted by comparing the recoverable value of these assets grouped at the lowest levels for which there are separately identifiable cash flows of the cash-generating unit ("CGU") to which the asset belongs to their carrying amount. If the Company identifies the need for impairment, it is applied to each asset's cash-generating unit. The recoverable amount is the higher of value in use and fair value less costs to sell.

The Company determines its cash flows based on approved budgets, considering mineral reserves and mineral resources calculated by internal experts, costs and investments based on the best estimate of past performance and approved budgets, sale prices consistent with the projections used in reports published by industry considering the market price when available and appropriate. Cash flows used are based on the life of each cash-generating unit (consumption of reserve units in the case of minerals) and considering discount rates that reflect specific risks relating to the relevant assets in each cash-generating unit, depending on their composition and location.

Regardless the indication of impairment of its carrying value, goodwill balances arising from business combinations, intangible assets with indefinite useful lives and land are tested for impairment at least once a year.

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

## **m) Suppliers and contractors**

Accounts payable to suppliers and contractors are obligations to pay for goods and services that were acquired in the ordinary course of business. They are initially recognized at fair value and subsequently measured at amortized cost using the effective interest rate method.

The Company has transactions with payment terms up to 360 days. Under these circumstances, some suppliers discounts their receivables with financial institutions to a range of Libor+0.4% p.a. to Libor+1.3% p.a. These operations amount to US\$270 and US\$282 at December 31, 2015 and 2014, respectively, and are adjusted to present value, which the accrued interest is recognized as interest expense in the income statement.

## **n) Loans and borrowings**

Loans and borrowings are initially measured at fair value, net of transaction costs incurred and are subsequently carried at amortized cost and updated using the effective interest rate method. Any difference between the proceeds (net of transaction costs) and the redemption value is recognized in the Income statement over the period of the loan, using the effective interest rate method. The fees paid in obtaining the loan are recognized as transaction costs.

Loans and borrowing costs are capitalized as part of property, plants and equipment if those costs are directly related to a qualified asset. The capitalization occurs until the qualified asset is ready for its intended use. The average capitalization rate is 46%. Borrowing costs that are not capitalized are recognized in the income statement in the period in which they are incurred.

## **o) Leases**

The Company classifies its contracts as a finance leases or operating leases based on the substance of the contract as to whether it is linked to the transfer of substantially all risks and benefits of the assets ownership to the Company during their useful life.

For finance leases, the lower of the fair value of the leased asset and the present value of minimum lease payments is recorded in tangible fixed assets and the corresponding obligation recorded in liabilities. For operating leases, payments are recognized on a straight line basis during the term of the contract as a cost or expense in the income statement.

## **p) Provisions**

Provisions are recognized only when there is a present obligation (legal or constructive) resulting from a past event, and it is probable that the settlement of this obligation will result in an outflow of resources, and the amount of the obligation can be reasonably estimated. Provisions are reviewed and adjusted to reflect the current best estimate at the end of each reporting period. Provisions are measured at the present value of the expenditure expected to be required to settle an obligation using a pre-tax rate, which reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the obligation due to the passage of time is recognized as interest expense.

### **i. Provision for asset retirement obligations**

The provision made by the Company refers to costs related to mine closure and reclamation, with the completion of mining activities and decommissioning of assets related to mine. When the provision is recognized, the corresponding cost is capitalized as part of property plant and equipment and is depreciated on the same basis over the related asset and recorded in the income statement.

The long-term liability is subsequently measured using a long-term risk free discount rate applicable to the liability and recorded in the income statement as financial expenses until the Company makes payments related to mine closure and decommissioning of assets mining.

### **ii. Provision for litigation**

The provision refers to litigation and fines incurred by the Company. A provision is recognized when the obligation is considered probable and can be measured. The accounting counterpart for the obligation is an expense in income statement. This obligation is updated according to the evolution of the judicial process or interest incurred and can be reversed if the estimate of loss is not considered probable or settled when the obligation is paid.

## **q) Employee benefits**

### **i. Current benefits – wages, vacations and related taxes**

Payments of benefits such as wages or accrued vacation, as well the related social security taxes over those benefits are recognized monthly in income, on an accruals basis.

### **ii. Current benefits – profit sharing program**

The Company has a profit sharing program based on the performance goals achievement of the Company and its employees. The Company recognizes the provision based on the recurring measurement of the compliance with goals and results, using the accrual basis and recognition of present obligation arising from past events in the estimated outflow of resources in the future. The provision is recorded as cost of goods sold and services rendered or operating expenses in accordance with the activity of each employee.

### **iii. Non-current benefits – long-term incentive programs**

The Company has established a procedure for awarding certain eligible executives (Matching and Virtual Shares Programs) with the goal of encouraging employee retention and optimum performance. Plan liabilities are measured at each reporting date, at their fair values, based on market prices. Obligations are measured at each reporting date, at fair values based on market prices. The compensation costs incurred are recognized in income during the vesting period as defined.

#### **iv. Non-current benefits – pension costs and other post-retirement benefits**

The Company has several retirement plans for its employees.

For defined contribution plans, the Company's obligations are limited to a monthly contribution linked to a pre-defined percentage of the remuneration of employees enrolled in to these plans.

For defined benefit plans, actuarial calculations are periodically obtained for liabilities determined in accordance with the Projected Unit Credit Method in order to estimate the Company's obligation. The liability recognized in the balance sheet represents the present value of the defined benefit obligation as at that date, less the fair value of plan assets. The Company recognized in the income statement the costs of services, the interest expense of the obligations and the interest income of the plan assets. The remeasurement of gains and losses, return on plan assets (excluding the amount of interest on return of assets, which is recognized in income for the year) and changes in the effect of the ceiling of the active and onerous liabilities are recognized in comprehensive income for the year.

For overfunded plans, the Company does not recognize any assets or benefits in the balance sheet or income statement until such time as the use of the surplus is clearly defined. For underfunded plans, the Company recognizes actuarial liabilities and results arising from the actuarial valuation.

#### **r) Derivative financial instruments and hedge operations**

Derivatives transactions in which are not qualified as hedge accounting are classified and presented as economic hedge, as the Company uses derivative instruments to manage its financial risks as a way of hedging against these risks. Derivative financial instruments are recognized as assets or liabilities in the balance sheet and are measured at their fair values. Changes in the fair values of derivatives are recorded in income statement or in stockholders' equity when the transaction is eligible to be characterized as effective hedge accounting.

On the beginning of the hedge accounting operations, the Company documents the relationship between hedging instruments and hedged items with the objective of risk management and strategy for carrying out hedging operations. The Company also documents, both initially and on a continuously basis, that its assessment of whether the derivatives used in hedging transactions are highly effective.

The effective components of changes in the fair values of derivative financial instruments designated as cash flow hedges are recorded as unrealized fair value gain or losses and recognized in stockholders' equity; and their non-effective components recorded in income statement. The amounts recorded in the statement of comprehensive income, will only be transferred to income statement (costs, operating expenses or financial expenses) when the hedged item is actually realized.

#### **s) Financial instruments classification**

The Company classifies its financial instruments in accordance with the purpose for which they were acquired, and determines the classification and initial recognition according to the following categories:

##### **i. Financial assets**

**Measured at fair value through net income** – Financial assets held for trading acquired for the purpose of selling in the short-term. These instruments are measured at fair value, except for derivative financial instruments not classified as hedge accounting, considering the inclusion of the credit risk of counterparties on the calculation of the instruments.

**Loans and receivables** – Non-derivative financial instruments with fixed or defined payments, which are not quoted in an active market, are initially measured at fair value and subsequently at amortized cost using the effective interest method.

**Held to maturity** – Non-derivative financial assets with fixed or determinable payments and fixed maturities for which the Company has the intent and ability to hold them to maturity, are initially measured at fair value and subsequently at amortized cost.

**Available for sale** – Non-derivative financial assets not classified in another category of financial instrument. Financial instruments in this category are measured at fair value, with changes in fair value until the moment of realization then recorded in the stockholders' equity. On realization of the financial asset, its fair value is reclassified to income statement.

## ii. Financial liabilities

**Measured at fair value through net income** – Financial liabilities with the purpose of trading (repurchase) or which are initially measured at fair value by the Company, being irreversibly this method of classification.

**Measured at amortized cost** – Non-derivative financial liabilities with fixed and determinable payments and fixed maturities, which were not classified as measured at fair value through the income statement.

### t) Share capital

The Company repurchases its shares to hold in treasury for future sale or cancellation. These shares are recorded in a specific account as a reduction of stockholders' equity at their acquisition value and carried at cost. These programs are approved by the Board of Directors with a determined terms and numbers of type of shares.

Incremental costs directly attributable to the issue of new shares or options are recognized in stockholders' equity as a deduction from the amount raised, net of taxes.

### u) Government grants and support

Government grants and support are accounted for when Company has reasonably complied with conditions set by the government in relation to the grants. The Company recognizes the grants in the income statement as a reduction in tax expense according to the nature of the item, and classified through retained earnings in stockholders' equity during allocation of net income.

### v) Revenue recognition

Revenue is recognized when Vale transfers to its customers all of the significant risks and rewards of ownership of the product sold or when services are rendered. Net revenue excludes any applicable sales taxes and is recognized at the fair value of the consideration received or receivable to the extent that it is probable that economic benefits will flow to Vale and the revenues and costs can be reliably measured.

Depending on the contract, sales can be recognized when the product is available at the loading port, loaded on the ship or delivered to the destination. Service revenues are recognized in the amount by which the services are rendered and accepted by the customer.

In some cases, the sale price is determined on a provisional basis at the date of sale and the final selling price is subject to escalation clauses through date of final pricing. Revenue from the sale of provisionally priced products is recognized when the risks and rewards of ownership are transferred to the customer and the revenue can be measured reliably. At this date, the amount of revenue to be recognized is estimated based on the forward price of the product sold and later adjusted to reflect the final price.

Amounts billed to customers for shipping related to products sold by the Company are recognized as revenue when the Company is responsible for shipping. Shipping costs are recognized as operating costs.

### w) Current and deferred income taxes

Income taxes are recognized in the income statement, except for items recognized directly in stockholders' equity.

The provision for income tax is calculated individually for each entity in the Group based on Brazilian tax rates, on an accrual basis, by applying the differential between the nominal local tax rates (based on rules in force in the location of the entity) and the Brazilian rate. The recognition of deferred taxes are based on temporary differences between carrying value and the tax basis of assets and liabilities as well as taxes losses carry forwards. The deferred income taxes assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against fiscal current liabilities and when the deferred income taxes assets and liabilities are related to income taxes recorded by the same taxation authority on the same taxable entity.

Deferred tax assets arising from tax losses, negative social contribution basis and temporary differences are registered taking into consideration the analysis of future performance, based on economic and financial projections, prepared based on internal assumptions and macroeconomic, trade and tax scenarios that may be subject to changes in future.

#### **x) Basic and diluted earnings per share**

Basic earnings per share are calculated by dividing the income attributable to the stockholders of the Company, after accounting for the remuneration to the holders of equity securities, by the weighted average number of shares outstanding (total shares less treasury shares).

Diluted earnings per share are calculated by adjusting the weighted average number of shares outstanding for the conversion of all dilutive potential shares. The Company does not have mandatory convertible securities that could result in the dilution of the earning per share.

#### **y) Stockholder's remuneration**

The stockholder's remuneration is paid on dividends and interest on capital. This remuneration is recognized as a liability in the financial statements of the Company based on bylaws. Any amount above the minimum compulsory remuneration approved by the bylaws shall only be recognized in current liabilities on the date that is approved by stockholders.

The Company is permitted to distribute interest attributable to stockholders' equity. The calculation is based on the stockholders' equity amounts as stated in the statutory accounting records and the interest rate applied may not exceed the Brazilian Government Long-term Interest Rate ("TJLP") determined by the Central Bank of Brazil. Also, such interest may not exceed 50% of the net income for the year or 50% of retained earnings plus profit reserves as determined by Brazilian corporate law.

The benefit to the Company, as opposed to making a dividend payment, is a reduction in the income tax burden because this interest charge is tax deductible in Brazil. Income tax of 15% is withheld on behalf of the stockholders relative to the interest distribution. Under Brazilian law, interest attributed to stockholders' equity is considered as part of the annual minimum mandatory dividend (note 25 (e)). This notional interest distribution is treated for accounting purposes as a deduction from stockholders' equity in a manner similar to a dividend and the tax credit recorded in income.

### **32. Critical accounting estimates and judgments**

The preparation of financial statements requires the use of certain critical accounting estimates and judgments by the management of the Company. These estimates are based on the best knowledge and information existing at the balance sheet date. Changes in facts and circumstances may lead to the revision of these estimates. Actual future results may differ from the estimates.

The significant estimates and assumptions used by Company in these financial statements are as follow:

#### **a) Mineral reserves and mine useful life**

The estimates of proven and probable reserves are regularly evaluated and updated. These reserves are determined using generally accepted geological estimates. The calculation of reserves requires the Company to take positions on expected future conditions that are uncertain, including future ore prices, exchange rates, inflation rates, mining technology, availability of permits and production costs. Changes in some of these assumptions could have a significant impact on the proven and probable reserves of the Company.

The estimated volume of mineral reserves is used as basis for the calculation of depletion of the mines, and also for the estimated useful life which is a major factor to quantify the provision for asset retirement obligation and environmental recovery of mines. Any changes to the estimates of the volume of mine reserves and the useful lives of assets may have a significant impact on the depreciation, depletion and amortization charges included in cost of goods sold and calculation of impairment test. Changes in the estimated useful life of the mine have a significant impact on the estimates of environmental provision and impairment analysis.

#### **b) Asset retirement obligation**

The Company recognizes an obligation under the fair value for asset retirement obligations in the period in which they occur. The Company considers the accounting estimates related to closure costs of a mine as a critical accounting policy because they involve significant values for the provision and are estimated using several assumptions, such as interest rate, useful life of the asset considering the current state of closure and the projected date of depletion of each mine. The estimates are reviewed annually.

#### **c) Impairment**

The Company tests impairment of tangible (whether there is evidence of impairment) and intangible (annually) assets segregated by cash-generating units using discounted cash flow models that depends on several estimates, which are influenced by market conditions prevailing at the time the impairment test is performed.

#### **d) Litigation losses**

Provisions are recorded when the possibility of loss relating to legal proceedings or contingent liabilities is considered probable by the Company's legal department and its legal advisors.

The provisions are recorded when the amount of loss can be reasonably estimated. By their nature, litigations will be resolved when one or more future event occurs or fails to occur. Typically, the occurrence or not of such events is outside the Company's control. Legal uncertainties involve the exercise of significant estimates and judgments of management regarding the results of future events.

#### **e) Post-retirement benefits for employees**

The amount recognized and disclosed depend on a number of factors that are determined based on actuarial calculations using various assumptions in order to determine costs and liabilities. One of these assumptions is selection and use of the discount rate. Any changes to these assumptions will affect the amount recognized.

At the end of each year the Company and external actuaries review the assumptions that will be used for the following year. These assumptions are used in determining the fair values of assets and liabilities, costs and expenses and the future values of estimated cash outflows, which are recorded in the plan obligations.

#### **f) Fair values of derivatives and others financial instruments**

The fair values of financial instruments that are not traded in active markets are determined using valuation techniques. Vale uses its own judgment to choose between the various methods. Assumptions are based on the market conditions, at the end of the year.

An analysis of the impact if actual results are different from management's estimates is present on note 24 (sensitivity analysis).

#### **g) Deferred income taxes**

The Company recognizes the effects of deferred taxes arising from tax losses and temporary differences and derecognizes when believes that tax credits recoverable are not probable. Deferred tax liabilities are fully recognized.

The determination of the recognition of income tax or deferred income tax, assets and liabilities, and any derecognition of tax credits requires the use of estimates. For each tax asset, the Company assesses the probability that some or all of the tax assets may not be recoverable. The impairment recorded in relation to the accumulated tax losses depends on the assessment of the probability of the generation of future taxable profits based on production and sales planning, commodity prices, operational costs, restructuring plans, reclamation costs and planned capital costs.

### 33. Risk management

Vale considers that an effective risk management is a key objective to support its growth plan, strategic planning and financial flexibility. Therefore, Vale has developed its risk management strategy in order to provide an integrated approach of the risks the company is exposed to. To do that, Vale evaluates not only the impact in the results of the business caused by variables traded in financial markets (market risk) and those arising from liquidity risk, but also the risk from counterparties obligations (credit risk), those relating to inadequate or failed internal processes, people, systems or external events (operational risk), among others.

#### a) Risk management policy

The Board of Directors established a risk management policy in order to support the Company's growth plan, strategic planning and Company's business continuity, besides to improve its capital structure and management of the Group, ensure adequate degree of flexibility in financial management while maintaining the level of robustness required for investment grade and to strengthen its corporate governance practices.

The corporate risk management policy determines that Vale should measure and monitor regularly its corporate risk on a consolidated approach in order to guarantee that the overall risk level of the Company remains aligned with the guidelines defined by the Board of Directors and the Executive Board.

The Executive Risk Management Committee, created by the Board of Directors, is responsible for supporting the Executive Board in the risk assessments and for issuing opinion regarding the Company's risk management. It's also responsible for the supervision and revision of the principles and instruments of corporate risks management.

The Executive Board is responsible for the approval of the policy deployment into norms, rules and responsibilities and for reporting to the Board of Directors about such procedures.

The risk management norms and instructions complement the corporate risk management policy and define practices, processes, controls, roles and responsibilities in the Company risk management function.

The Company may, when necessary, allocate specific risk limits to management activities, including but not limited to, market risk limit, corporate and sovereign credit limit, in accordance with the acceptable corporate risk limit.

#### b) Liquidity risk management

The liquidity risk arises from the possibility that Vale might not perform on its obligations at the due dates, as well as face difficulties to meet its cash requirements due to market liquidity constraints.

To mitigate such risk, Vale has a revolving credit facility to assist the short term liquidity management and to enable more efficiency in cash management, being consistent with the strategic focus on cost of capital reduction. The revolving credit facilities available today were acquired from a syndicate of several global commercial banks.

#### c) Credit risk management

Vale's exposure to credit risk arises from trade receivables, derivative transactions, guarantees, payment to suppliers and cash investments. Vale's credit risk management process provides a framework for assessing and managing counterparties' credit risk and for maintaining Vale's risk at an acceptable level.

##### (i) Commercial credit risk management

For the commercial credit exposure, which arises from sales to final customers, the risk management area, in accordance with the current delegation level, approves or request the approval of credit risk limits for each counterparty.

Vale attributes an internal credit risk rating for each counterparty using its own quantitative methodology for credit risk analysis, which is based on market prices, external credit ratings and financial information of the counterparty, as well as qualitative information regarding the counterparties' strategic position and history of commercial relations.

As at 31 December 2015, 56% of accounts receivable due to Vale commercial sales had insignificant or low risk, 35% had moderate risk and 9% high risk.



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

Vale has a diversified accounts receivable portfolio from a geographical standpoint, with China, Europe, Brazil and Japan the regions with more significant exposures. According to each region, different guarantees can be used to enhance the credit quality of the receivables.

Vale controls its account receivables portfolio through Credit and Cash Collection committees, in which representatives from risk management, cash collection and commercial departments monitor periodically each counterparty's exposure. Finally, Vale has an automatic control that blocks additional sales to customers in default with Vale.

## **(ii) Treasury credit risk management**

To manage the credit exposure arising from cash investments and derivative instruments, Vale's Board of Executive Officers approves, on an annual basis, credit limits by counterparty. Furthermore, Vale controls the portfolio diversification, the overall credit risk of the treasury portfolio and the each counterparty risk by monitoring market credit risk information.

## **d) Market risk management**

Vale is exposed to the behavior of several market risk factors that can impact its cash flow. The assessment of this potential impact arising from the volatility of risk factors and their correlations is performed periodically to support the decision making process and the growth strategy of the Company, ensure its financial flexibility and monitor the volatility of future cash flows.

When necessary, market risk mitigation strategies are evaluated and implemented in line with these objectives. Some strategies may incorporate financial instruments, including derivatives. The portfolios of the financial instruments are monitored on a monthly basis, enabling financial results surveillance and its impact on cash flow.

Considering the nature of Vale's business and operations, the main market risk factors which the Company is exposed to are:

- Foreign exchange and Interest rates;
- Product prices and input costs.

## **e) Foreign exchange and interest rate risk**

Vale's cash flow is subjected to volatility of several currencies, once its product prices are predominantly indexed to US dollar, while most of the costs, disbursements and investments are indexed to other currencies, mainly Brazilian real and Canadian dollar.

In order to reduce the potential impact that arises from this currency mismatch, derivatives instruments may be used as a risk mitigation strategy.

Vale implemented hedge transactions to protect its cash flow against the market risks that arises from its debt obligations – mainly currency volatility. The hedges cover most of the debts in Brazilian reais and Euros. Vale uses swap transactions to convert debt linked to Brazilian real and Euros into US dollar that have similar - or sometimes shorter - settlement dates than the final maturity of the debt instruments. Their notional amounts are similar to the principal and interest payments, subject to liquidity market conditions.

Swaps with shorter settlement dates are renegotiated through time so that their final maturity matches - or becomes closer - to the debts' final maturity. At each settlement date, the results of the swap transactions partially offset the impact of the foreign exchange rate in Vale's obligations, contributing to stabilize the cash disbursements in US dollar.

In the case of debt instruments denominated in Brazilian real, in the event of an appreciation (or depreciation) of the Brazilian Real against the US Dollar, the negative (or positive) impact on Vale's debt service (interest and/or principal payment) measured in US dollars will be partially offset by the positive (or negative) effect from the swaps, regardless of the US\$/R\$ exchange rate on the payment date. The same rationale is applicable to debts denominated in other currencies and their respective swaps.

Vale has also exposure to interest rates risks over loans and borrowings. The US Dollar floating rate debt in the portfolio consists mainly of loans including export pre-payments, commercial banks and multilateral organizations loans. In general, such debt instruments are indexed to the LIBOR (London Interbank Offer Rate in US dollar). Vale has part of its debt in Brazilian reais floating rates, but use swap transactions to convert most of it to US Dollar fixed rates. After considering the interest rate swaps, the great majority of its debt is fixed rate.

#### **f) Risk of product and input prices**

Vale is also exposed to market risks including commodities price and input price volatilities. In accordance with risk management policy, risk mitigation strategies involving commodities can be used to adjust the cash flow risk profile and reduce Vale's cash flow volatility. For this kind of risk mitigation strategy, Vale uses predominantly forwards, futures or zero-cost collars.

#### **g) Operational risk management**

The operational risk management is the structured approach that Vale uses to manage uncertainty related to possible inadequate or failure in internal processes, people, systems and external events, in accordance with the principles and guidelines of ISO 31000.

The main operational risks are periodically monitored, ensuring the effectiveness of preventive and mitigating key controls in place and the execution of the risk treatment strategy (implementation of new or improved controls, changes in the risk environment, risk sharing by contracting insurance, provisioning of resources, etc.).

Therefore, the Company seeks to have a clear view of its major risks, the best cost-benefit mitigation plans and the effectiveness of the controls in place, monitoring the potential impact of operational risk and allocating capital efficiently.

#### **h) Capital management**

Vale's policy aims at establishing a capital structure that will ensure the continuity of your business in the long term. Within this perspective, the Company has been able to deliver value to stockholders through dividend payments and capital gain, and at the same time maintain a debt profile suitable for its activities, with an amortization well distributed over the years, thus avoiding a concentration in one specific period.

#### **i) Insurance**

Vale issues several types of insurance policies, such as operational risk policy, engineering risks insurance (projects), civil responsibility, life insurance policy for their employees, among others. The coverage of these policies is similar to the ones used in general by the mining industry and is issued in line with the objectives defined by the Company, with the corporate risk management policy and the limitation imposed by the insurance and reinsurance global market. In general, the company's assets directly related with its operations are included in the coverage of insurance policies.

Insurance management is performed with the support of existing insurance committees in the various operational areas of the Company. Among the management instruments, Vale uses captive reinsurance to balance the price on reinsurance contracts with market, as well as enable access to key international markets of insurance and reinsurance.

## Members of the Board of Directors, Fiscal Council, Advisory Committees and Executive Officers

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### Board of Directors

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Sérgio Alexandre Figueiredo Clemente

#### Vice-President

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Gueitiro Matsuo Genso  
Tarcísio José Massote de Godoy  
Fernando Jorge Buso Gomes  
Hiroyuki Kato  
Oscar Augusto de Camargo Filho  
Luciano Galvão Coutinho  
Lucio Azevedo  
Alberto Guth

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Moacir Nachbar Junior  
Francisco Ferreira Alexandre  
Gilberto Antonio Vieira  
Robson Rocha  
Luiz Mauricio Leuzinger  
Yoshitomo Nishimitsu  
Eduardo de Oliveira Rodrigues Filho  
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Carlos Roberto de Assis Ferreira

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Moacir Nachbar Junior  
Oswaldo Mário Pego de Amorim Azevedo  
Marcos Paulo Pereira da Silva

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Marcel Juvinião Barros  
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#### Finance Committee

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Arthur Prado Silva  
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#### Chairman

Marcelo Barbosa Saintive  
Cláudio José Zucco  
Aníbal Moreira dos Santos  
Raphael Manhães Martins

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#### Chief Executive Officer

Vânia Lucia Chaves Somavilla

#### Executive Officer (Human Resources, Health & Safety, Sustainability and Energy)

Luciano Siani Pires

#### Executive Officer (Finance and Investors Relations)

Roger Allan Downey

#### Executive Officer (Fertilizers, Coal and Strategy)

Gerd Peter Poppinga

#### Executive Officer (Ferrous)

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#### Executive Officer (Capital Projects Implementation)

Humberto Ramos de Freitas

#### Executive Officer (Logistics and Mineral Research)

Jennifer Anne Maki

#### Executive Officer (Base Metals)

Marcelo Botelho Rodrigues

#### Global Controller Director

Murilo Muller

#### Controllershship Director

Dioni Brasil

#### Accounting Manager

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