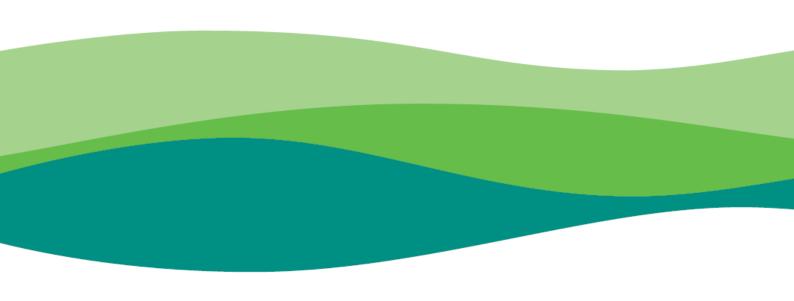


Interim Financial Statements June 30, 2017



IFRS in US\$



Vale S.A. Interim Financial Statements Contents

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Report of independent registered public accounting firm

To the Board of Directors and Stockholders of Vale S.A.
Rio de Janeiro - RJ

We have reviewed the accompanying condensed consolidated balance sheet of Vale S.A. ("the Company") and subsidiaries as of June 30, 2017, the related condensed consolidated statements of income, comprehensive income and cash flows for the three and six-month periods ended on June 30, 2017 and 2016, and the related condensed consolidated statement of changes in equity for the six-month periods ended on June 30, 2017 and 2016. These condensed consolidated financial statements are the responsibility of the Company's management.

We conducted our review in accordance with the standards of the Public Company Accounting Oversight Board (United States). A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the Public Company Accounting Oversight Board (United States), the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an audit opinion.

Based on our review, we are not aware of any material modification that should be made to the condensed consolidated financial statements referred to above for them to be in conformity with the International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

We have previously audited, in accordance with standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of Vale S.A. and subsidiaries as of December 31, 2016 and the related consolidated statements of income, comprehensive income, changes in equity and cash flows for the year then ended (not presented herein); and in our report dated February 22, 2017, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying condensed consolidated balance sheet as of December 31, 2016, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

KPMG Auditores Independentes Rio de Janeiro, Brazil July 26, 2017



Consolidated Income Statement

In millions of United States dollars, except earnings per share data

| | | | hree month | | Six month |
|---|-----------|----------|--------------|------------------|--------------|
| | | <u> </u> | ded June 30, | <u> </u> | ded June 30, |
| | Notes | 2017 | 2016 | 2017 | 2016 |
| Continuing operations | | | (i) | | (i) |
| Net operating revenue | 3(c) | 7,235 | 6,162 | 15,750 | 11,497 |
| Cost of goods sold and services rendered | 4(a) | (5,102) | (4,313) | (9,836) | (8,202) |
| Gross profit | -(u) | 2,133 | 1,849 | 5,914 | 3,295 |
| Operating expenses | | | | | |
| Selling and administrative expenses | 4(b) | (132) | (127) | (256) | (234) |
| Research and evaluation expenses | | (80) | (72) | (145) | (127) |
| Pre operating and operational stoppage | | (90) | (110) | (205) | (207) |
| Other operating expenses, net | 4(c) | (88) | (142) | (165) | (178) |
| | | (390) | (451) | (771) | (746) |
| Impairment and other results on non-current assets | 12 and 15 | (220) | (66) | 292 | (66) |
| Operating income | | 1,523 | 1,332 | 5,435 | 2,483 |
| Financial income | 5 | 458 | 3,889 | 1,398 | 7,139 |
| Financial expenses | 5 | (1,797) | (1,814) | (3,350) | (3,653) |
| Equity results in associates and joint ventures | 13 | (24) | 190 | 49 | 345 |
| Impairment and other results in associates and joint ventures | 17 | (34) | (1,113) | (95) | (1,113) |
| Income before income taxes | _ | 126 | 2,484 | 3,437 | 5,201 |
| Income taxes | 6 | | | | |
| Current tax | | (69) | (413) | (570) | (754) |
| Deferred tax | | 118 | (929) | (104) | (1,536) |
| | | 49 | (1,342) | (674) | (2,290) |
| Net income from continuing operations | | 175 | 1,142 | 2,763 | 2,911 |
| Net income attributable to noncontrolling interests | | 31 | 15 | 46 | 14 |
| Net income from continuing operations attributable to Vale's stockholders | | 144 | 1,127 | 2,717 | 2,897 |
| Discontinued operations | 11 | | | | |
| Loss from discontinued operations | | (125) | (21) | (207) | (10) |
| Net income attributable to noncontrolling interests | | 3 | - | ` 4 ['] | ` 5 |
| Loss from discontinued operations attributable to Vale's stockholders | | (128) | (21) | (211) | (15) |
| Net income | | 50 | 1,121 | 2,556 | 2,901 |
| Net income attributable to noncontrolling interests | | 34 | 15 | 50 | 19 |
| Net income attributable to Vale's stockholders | | 16 | 1,106 | 2,506 | 2,882 |
| Earnings per share attributable to Vale's stockholders: | | | | | |
| Basic and diluted earnings per share: | 7 | | | | |
| | • | | | | |
| Preferred share (US\$) | | - | 0.21 | 0.49 | 0.56 |

⁽i) Period restated according to Note 11.



Consolidated Statement of Comprehensive Income

In millions of United States dollars

| | Three month period | d ended June 30, | Six month perio | d ended June 30, |
|--|--------------------|------------------|-----------------|------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Net income | 50 | 1,121 | 2,556 | 2,901 |
| Other comprehensive income: | | | | |
| Items that will not be reclassified subsequently to the income statement | | | | |
| Cumulative translation adjustments | (1,753) | 3,861 | (639) | 7,107 |
| Retirement benefit obligations | (283) | (183) | (313) | (268) |
| Tax recognized within other comprehensive income | 88 | 55 | 95 | 82 |
| Total items that will not be reclassified subsequently to the income statement | (1,948) | 3,733 | (857) | 6,921 |
| | | ** | | |
| Items that may be reclassified subsequently to the income statement | | | | |
| Cumulative translation adjustments | 1,308 | (2,077) | 691 | (3,678) |
| Cash flow hedge | - | - | - | 6 |
| Net investments hedge | (392) | - | (128) | - |
| Equity results in associates and joint ventures, net of taxes | - | 5 | - | 5 |
| Transfer of realized results to net income, net of taxes | - | (75) | - | (78) |
| Tax recognized within other comprehensive income | 78 | 7 | (29) | (142) |
| Total of items that may be reclassified subsequently to the income statement | 994 | (2,140) | 534 | (3,887) |
| Total comprehensive income (loss) | (904) | 2,714 | 2,233 | 5,935 |
| | | | | |
| Comprehensive income attributable to noncontrolling interests | 4 | 85 | 41 | 153 |
| Comprehensive income (loss) attributable to Vale's stockholders | (908) | 2,629 | 2,192 | 5,782 |



Consolidated Statement of Cash Flows

In millions of United States dollars

| | Three month period er | nded June 30, | Six month period er | Six month period ended June 30, | |
|--|-----------------------|---------------|---------------------|---------------------------------|--|
| | 2017 | 2016 | 2017 | 2016 | |
| | | (i) | | (i | |
| Cash flow from operating activities: | | | | | |
| ncome before income taxes from continuing operations | 126 | 2,484 | 3,437 | 5,201 | |
| Continuing operations adjustments for: | | | | | |
| Equity results in associates and joint ventures | 24 | (190) | (49) | (345 | |
| mpairment and other results on non-current assets | 220 | 66 | (292) | 66 | |
| mpairment and other results in associates and joint ventures | 34 | 1,113 | 95 | 1,113 | |
| Depreciation, amortization and depletion | 904 | 839 | 1,812 | 1,622 | |
| Financial results, net | 1,339 | (2,075) | 1,952 | (3,486 | |
| Changes in assets and liabilities: | | | | | |
| Accounts receivable | 1,380 | 78 | 1,678 | (914 | |
| nventories | (223) | 28 | (444) | (15 | |
| Suppliers and contractors | 244 | 342 | 326 | 26 | |
| Payroll and related charges | 199 | 39 | (43) | 43 | |
| Other assets and liabilities, net | (162) | 311 | (331) | 403 | |
| | 4,085 | 3,035 | 8,141 | 3,714 | |
| nterest on loans and borrowings paid | (412) | (362) | (927) | (821 | |
| Derivatives paid, net (note 20) | (3) | (353) | (110) | (863 | |
| nterest on participative stockholders' debentures paid | (70) | (37) | (70) | (37 | |
| ncome taxes | (37) | (114) | (405) | (254) | |
| ncome taxes - Settlement program | (120) | (100) | (241) | (188) | |
| Net cash provided by operating activities from continuing operations | 3,443 | 2,069 | 6,388 | 1,551 | |
| Net cash provided by operating activities from discontinued operations | 2 | 50 | 94 | 54 | |
| Net cash provided by operating activities | 3,445 | 2,119 | 6,482 | 1,605 | |
| Cash flow from investing activities: | | | | | |
| inancial investments redeemed (invested) | 34 | (112) | (19) | (23) | |
| oans and advances - Net receipts (payments) | (100) | - | (244) | (3 | |
| additions to investments | (361) | (136) | (370) | (226 | |
| additions to property, plant and equipment and intangible (note 3(b)) | (890) | (1,164) | (1,997) | (2,491 | |
| roceeds from disposal of assets and investments (note 12) | 8 | 12 | 523 | 24 | |
| Dividends and interest on capital received from associates and joint ventures | 82 | 114 | 82 | 115 | |
| Others investments activities | (19) | (21) | (21) | (46 | |
| Net cash used in investing activities from continuing operations | (1,246) | (1,307) | (2,046) | (2,650 | |
| Net cash used in investing activities from discontinued operations | (81) | (58) | (144) | (105) | |
| Net cash used in investing activities | (1,327) | (1,365) | (2,190) | (2,755) | |
| Cash flow from financing activities: | | | | | |
| Loans and borrowings | | | | | |
| Additions | 300 | 1,433 | 1,450 | 4,633 | |
| Repayments | (1,852) | (1,808) | (2,970) | (2,962) | |
| Fransactions with stockholders: | 4=.1 | | | | |
| Dividends attributed to stockholders | (1,454) | - | (1,454) | - | |
| Dividends and interest on capital paid to noncontrolling interest | (5) | (71) | (8) | (75 | |
| Fransactions with noncontrolling stockholders (note 12) | - | <u> </u> | 255 | (17 | |
| Net cash provided by (used in) financing activities from continuing operations | (3,011) | (446) | (2,727) | 1,579 | |
| Net cash provided by (used in) financing activities from discontinued operations | 34 | (4) | <u> </u> | (5) | |
| Net cash provided by (used in) financing activities | (2,977) | (450) | (2,727) | 1,574 | |
| ncrease (decrease) in cash and cash equivalents | (859) | 304 | 1,565 | 424 | |
| Cash and cash equivalents in the beginning of the period | 6,716 | 3,779 | 4,262 | 3,591 | |
| Effect of exchange rate changes on cash and cash equivalents | (137) | 47 | (93) | 115 | |
| Cash and cash equivalents from disposals subsidiaries | - | - | (14) | - | |
| Cash and cash equivalents at end of the period | 5,720 | 4,130 | 5,720 | 4,130 | |
| Non-cash transactions: | | | | | |
| Additions to property, plant and equipment - capitalized loans and borrowing costs | 83 | 213 | 186 | 390 | |
| | | | | | |

⁽i) Period restated according to Note 11.



Consolidated Statement of Financial Position

In millions of United States dollars

| | Notes | June 30, 2017 | December 31, 2016 |
|--|--------------|------------------------|------------------------|
| Assets | | | |
| Current assets | 16 | F 720 | 4.262 |
| Cash and cash equivalents | 16 | 5,720 | 4,262 |
| Accounts receivable Other financial assets | 8 10 | 1,709 | 3,663 363 |
| Inventories | 9 | 2,193 | |
| Prepaid income taxes | 9 | 3,864 217 | 3,349 159 |
| Recoverable taxes | | 1,302 | 1,625 |
| Others | | 427 | 557 |
| Others | - | 15,432 | 13,978 |
| | | | |
| Non-current assets held for sale | 11 | 4,430 19,862 | 8,589 22,567 |
| Non-current assets | | 13,002 | 22,307 |
| Judicial deposits | 22(c) | 939 | 962 |
| Other financial assets | 10 | 3,334 | 628 |
| Prepaid income taxes | | 548 | 527 |
| Recoverable taxes | | 733 | 727 |
| Deferred income taxes | 6(a) | 7,095 | 7,343 |
| Others | | 319 | 274 |
| | | 12,968 | 10,461 |
| Investments in associates and joint ventures | 13 | 3,605 | 3,696 |
| Intangibles | 14 | 7,211 | 6,871 |
| Property, plant and equipment | 15 | 54,659 | 55,419 |
| Troperty, plant and equipment | | 78,443 | 76.447 |
| Total assets | _ | 98,305 | 99,014 |
| Liabilities Current liabilities | | | |
| Suppliers and contractors | | 3,746 | 3,630 |
| Loans and borrowings | 16 | 2,063 | 1,660 |
| Other financial liabilities | 10 | 876 | 1,086 |
| Taxes payable | 10 | 641 | 657 |
| Provision for income taxes | | 257 | 171 |
| Liabilities related to associates and joint ventures | 17 | 295 | 292 |
| Provisions | 21 | 834 | 952 |
| Dividends and interest on capital | | - | 798 |
| Others | | 781 | 896 |
| | _ | 9,493 | 10,142 |
| Liabilities associated with non-current assets held for sale | 11 | 1,089 | 1,090 |
| Elabilities associated with horr current assets field for safe | | 10,582 | 11,232 |
| Non-current liabilities | | | |
| Loans and borrowings | 16 | 25,789 | 27,662 |
| Other financial liabilities | 10 | 3,144 | 2,127 |
| Taxes payable | | 4,862 | 4,961 |
| Deferred income taxes | 6(a) | 1,565 | 1,700 |
| Provisions | 21 | 6,053 | 5,748 |
| Liabilities related to associates and joint ventures | 17 | 724 | 785 |
| Deferred revenue - Gold stream | | 1,984 | 2,090 |
| Others | _ | 1,701 | 1,685 |
| | <u>_</u> | 45,822 | 46,758 |
| Total liabilities | = | 56,404 | 57,990 |
| Stockholders' equity | 24 | | |
| Equity attributable to Vale's stockholders | 24 | 40,471 | 39,042 |
| Equity attributable to vale's stockholders | | 1,430 | 1,982 |
| Total stockholders' equity | _ | 41,901 | 41,024 |
| | _ | | |
| Total liabilities and stockholders' equity | _ | 98,305 | 99,014 |



Statement of Changes in Equity

In millions of United States dollars

Translation adjustments

Balance at June 30, 2016

Transactions with stockholders:
Dividends of noncontrolling interest

Capitalization of noncontrolling interest advances

| | 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 stockholders' |
|---|---------------|---------------------------------|--|--------------------|--------------------|---|--|----------------------|--|--|----------------------------------|
| Balance at December 31, 2016 | 61,614 | (152) | (699) | 4,203 | (1,477) | (1,147) | (23,300) | earnings - | 39,042 | 1,982 | equity 41,024 |
| Net income | - | - () | - | -, | - | - | - | 2,506 | 2,506 | 50 | 2,556 |
| Other comprehensive income: | | | | | | | | , | , | | , |
| Retirement benefit obligations | - | - | - | - | - | (218) | - | - | (218) | - | (218) |
| Net investments hedge | - | - | - | - | - | - | (84) | - | (84) | - | (84) |
| Translation adjustments | - | - | - | (63) | - | 5 | 149 | (103) | (12) | (9) | (21) |
| Transactions with stockholders: | | | | | | | | | | | |
| Dividends and interest on capital of Vale's stockholders | - | - | - | (658) | - | - | - | - | (658) | - | (658) |
| Dividends of noncontrolling interest | - | - | - | - | - | - | - | - | - | (107) | (107) |
| Acquisitions and disposal of participation of noncontrolling interest (note 12) | - | - | (105) | - | - | - | - | - | (105) | (512) | (617) |
| Capitalization of noncontrolling interest advances | | <u> </u> | - | - | - | | | - | | 26 | 26 |
| Balance at June 30, 2017 | 61,614 | (152) | (804) | 3,482 | (1,477) | (1,360) | (23,235) | 2,403 | 40,471 | 1,430 | 41,901 |
| | 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 stockholders' equity |
| Balance at December 31, 2015 | 61,614 | (152) | (702) | 985 | (1,477) | (992) | (25,687) | - | 33,589 | 2,115 | 35,704 |
| Net income | - | - (202) | - | - | (=), | - (332) | - | 2,882 | 2,882 | 19 | 2,901 |
| Other comprehensive income: | | | | | | | | _,00_ | _,00_ | - | _,551 |
| Retirement benefit obligations | - | - | - | - | - | (186) | - | - | (186) | - | (186) |
| Cash flow hedge | - | - | - | - | - | 7 | - | - | 7 | - | 7 |

(702)

213

1,198

(1,477)

(97)

(1,268)

2,762

(22,925)

201

3,083

3,079

39,371

134

(172)

2,112

16

3,213

(172)

41,483

16

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

61,614

(152)



Selected Notes to the Interim 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 in the city of 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 Madrid – LATIBEX (XVALO and XVALP).

Vale and its direct and indirect subsidiaries ("Vale" or "Company") are global 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 Company also produces copper, metallurgical and thermal coal, manganese ore, ferroalloys, platinum group metals, gold, silver and cobalt. The information by segment is presented in note 3.

2. Basis for preparation of the interim financial statements

a) Statement of compliance

The condensed consolidated interim financial statements of the Company ("interim financial statements") present the accounts of the Company and have been prepared in accordance with IAS 34 Interim Financial Reporting of the International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB").

b) Basis of presentation

The interim 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 the income statement or available-for-sale financial instruments measured at fair value through the statement of comprehensive income; and (ii) impairment of assets.

The accounting practices, accounting estimates and judgments, risk management and measurement methods are the same as those adopted when preparing the financial statements for the year ended December 31, 2016. The accounting policy for recognizing and measuring income taxes in the interim period is described in note 6. These interim financial statements were prepared to update users about relevant information presented in the period and should be read in conjunction with the financial statements for the year ended December 31, 2016.

The comparative information for the period ended June 30, 2016 was restated for the purposes of applying IFRS 5 "Non-current assets held for sale and discontinued operations" after approval by the Board of Directors of the sale of the fertilizers assets, as presented in Note 11.

The interim financial statements of the Company 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 interim financial statements are presented in United States dollar ("USD" or "US\$") as the Company believes that this is how international investors analyze the interim financial statements.

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

| | | _ | | | Ave | erage rate for the |
|---------------------------|---------------|-------------------|---------------|------------------|---------------|--------------------|
| | | Closing rate | Three mo | nth period ended | Six mo | nth period ended |
| | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2016 | June 30, 2017 | June 30, 2016 |
| US Dollar ("US\$") | 3.3082 | 3.2591 | 3.2174 | 3.5076 | 3.1807 | 3.7017 |
| Canadian dollar ("CAD") | 2.5485 | 2.4258 | 2.3937 | 2.7217 | 2.3847 | 2.7809 |
| Australian dollar ("AUD") | 2.5394 | 2.3560 | 2.4154 | 2.6153 | 2.3986 | 2.7142 |
| Euro ("EUR" or "€") | 3.7750 | 3.4384 | 3.5480 | 3.9624 | 3.4479 | 4.1288 |

Subsequent events were evaluated through July 26, 2017, which is the date the interim financial statements were approved by the Board of Directors.

c) Accounting standards issued but not yet effective

The standards and interpretations issued by IASB relevant to the Company but not yet effective are the same as those adopted when preparing the financial statements for the year ended December 31, 2016.



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) 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 excluding (i) the depreciation, depletion and amortization, (ii) results on measurement or sales of non-current assets, (iii) impairment, (iv) onerous contracts and plus (v) dividends received from associates and joint ventures.

| | | | | | Three | month period end | ed June 30, 2017 |
|---------------------------------------|--------------------------|------------------------|---------------------------|----------------------------|--------------------------|----------------------------------|--------------------|
| | | Cost of goods sold and | Sales, administrative and | | Pre operating | Dividends received from | |
| | Net operating revenue | services rendered | other operating expenses | Research and evaluation | and operational stoppage | associates and joint ventures | Adjusted EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 3,544 | (1,885) | (94) | (23) | (40) | - | 1,502 |
| Iron ore Pellets | 1,331 | (712) | (10) | (5) | (1) | 37 | 640 |
| Ferroalloys and manganese | 117 | (81) | (2) | - | (1) | - | 33 |
| Other ferrous products and services | 122 | (77) | 12 | - | - | - | 57 |
| | 5,114 | (2,755) | (94) | (28) | (42) | 37 | 2,232 |
| | | | | | | | |
| Coal | 481 | (305) | (11) | (4) | (4) | - | 157 |
| | | | | | | | |
| Base metals | | | | | | | |
| Nickel and other products | 1,009 | (818) | (32) | (11) | (12) | - | 136 |
| Copper | 503 | (247) | (4) | (2) | - | - | 250 |
| | 1,512 | (1,065) | (36) | (13) | (12) | - | 386 |
| | | | | | | | |
| Others | 128 | (125) | (57) | (35) | (2) | 45 | (46) |
| Total of continuing operations | 7,235 | (4,250) | (198) | (80) | (60) | 82 | 2,729 |
| | | | | | | | |
| Discontinued operations (Fertilizers) | 401 | (372) | (20) | (3) | (10) | - | (4) |
| Total | 7,636 | (4,622) | (218) | (83) | (70) | 82 | 2,725 |

| | | | | | Three | month period ende | ed June 30, 2016 |
|---------------------------------------|---------------|-------------------|--------------------|--------------|-----------------|-------------------|------------------|
| | | | Sales, | | | Dividends | |
| | | Cost of goods | administrative and | | Pre operating | received from | |
| | Net operating | sold and services | other operating | Research and | and operational | associates and | Adjusted |
| | revenue | rendered | expenses | evaluation | stoppage | joint ventures | EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 3,508 | (1,652) | (150) | (16) | (34) | - | 1,656 |
| Iron ore Pellets | 868 | (459) | (19) | (4) | (9) | 60 | 437 |
| Ferroalloys and manganese | 61 | (53) | 1 | - | (3) | - | 6 |
| Other ferrous products and services | 104 | (63) | (3) | - | (1) | - | 37 |
| | 4,541 | (2,227) | (171) | (20) | (47) | 60 | 2,136 |
| | | | | | | | |
| Coal | 145 | (236) | (6) | (3) | (10) | - | (110) |
| | | | | | | | |
| Base metals | | | | | | | |
| Nickel and other products | 1,050 | (775) | (2) | (21) | (26) | - | 226 |
| Copper | 397 | (237) | (9) | (1) | - | - | 150 |
| | 1,447 | (1,012) | (11) | (22) | (26) | - | 376 |
| | | , , , | | , , | . , | | |
| Others | 29 | (58) | (47) | (27) | (2) | 54 | (51) |
| Total of continuing operations | 6,162 | (3,533) | (235) | (72) | (85) | 114 | 2,351 |
| | | | · , | • • | | | - |
| Discontinued operations (Fertilizers) | 464 | (394) | (29) | (6) | (6) | 3 | 32 |
| Total | 6,626 | (3,927) | (264) | (78) | (91) | 117 | 2,383 |



| | | | | | Six | month period ende | ed June 30, 2017 |
|---------------------------------------|---------------|---------------|--------------------|--------------|-----------------|-------------------|------------------|
| | | Cost of goods | Sales, | | | Dividends | |
| | | sold and | administrative and | | Pre operating | received from | |
| | Net operating | services | other operating | Research and | and operational | associates and | Adjusted |
| | revenue | rendered | expenses | evaluation | stoppage | joint ventures | EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 8,370 | (3,562) | (92) | (39) | (81) | | 4,596 |
| Iron ore Pellets | 2,790 | (1,364) | (22) | (8) | (2) | 37 | 1,431 |
| Ferroalloys and manganese | 203 | (125) | (4) | - | (4) | | 70 |
| Other ferrous products and services | 248 | (153) | 8 | (1) | <u> </u> | | 102 |
| | 11,611 | (5,204) | (110) | (48) | (87) | 37 | 6,199 |
| | | | | | | | |
| Coal | 805 | (553) | (23) | (7) | (4) | - | 218 |
| | | | | | | | |
| Base metals | | | | | | | |
| Nickel and other products | 2,141 | (1,680) | (75) | (20) | (50) | - | 316 |
| Copper | 968 | (477) | (7) | (4) | - | - | 480 |
| | 3,109 | (2,157) | (82) | (24) | (50) | - | 796 |
| | | | | | | | |
| Others | 225 | (224) | (153) | (66) | (3) | 45 | (176) |
| Total of continuing operations | 15,750 | (8,138) | (368) | (145) | (144) | 82 | 7,037 |
| | | | · | | | | |
| Discontinued operations (Fertilizers) | 771 | (711) | (35) | (5) | (21) | - | (1) |
| Total | 16,521 | (8,849) | (403) | (150) | (165) | 82 | 7,036 |

| | | | | | Six | month period end | ed June 30, 2016 |
|---------------------------------------|---------------|---------------|--------------------|--------------|-----------------|------------------|------------------|
| | | Cost of goods | Sales, | | | Dividends | |
| | | sold and | administrative and | | Pre operating | received from | |
| | Net operating | services | other operating | Research and | and operational | associates and | Adjusted |
| | revenue | rendered | expenses | evaluation | stoppage | joint ventures | EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 6,425 | (2,961) | (306) | (27) | (66) | - | 3,065 |
| Iron ore Pellets | 1,621 | (896) | (35) | (4) | (13) | 60 | 733 |
| Ferroalloys and manganese | 108 | (99) | 3 | - | (5) | - | 7 |
| Other ferrous products and services | 191 | (122) | 2 | <u>-</u> | (2) | - | 69 |
| | 8,345 | (4,078) | (336) | (31) | (86) | 60 | 3,874 |
| | | | | | | | |
| Coal | 299 | (529) | 43 | (5) | (11) | - | (203) |
| | | | | | | | |
| Base metals | | | | | | | |
| Nickel and other products | 2,050 | (1,539) | (26) | (35) | (58) | - | 392 |
| Copper | 750 | (429) | (6) | (2) | | | 313 |
| | 2,800 | (1,968) | (32) | (37) | (58) | - " | 705 |
| | | | | | | | |
| Others | 53 | (103) | (39) | (54) | (2) | 55 | (90) |
| Total of continuing operations | 11,497 | (6,678) | (364) | (127) | (157) | 115 | 4,286 |
| | | | | | | · | |
| Discontinued operations (Fertilizers) | 848 | (690) | (40) | (11) | (8) | 3 | 102 |
| Total | 12,345 | (7,368) | (404) | (138) | (165) | 118 | 4,388 |
| | | | | | | | |

Adjusted EBITDA is reconciled to net income (loss) as follows:

From Continuing operations

| | Three month perio | d ended June 30, | Six month period ended June 30 | | |
|---|-------------------|------------------|--------------------------------|---------|--|
| | 2017 | 2016 | 2017 | 2016 | |
| Adjusted EBITDA from continuing operations | 2,729 | 2,351 | 7,037 | 4,286 | |
| Depreciation, depletion and amortization | (904) | (839) | (1,812) | (1,622) | |
| Dividends received from associates and joint ventures | (82) | (114) | (82) | (115) | |
| Impairment and other results on non-current assets | (220) | (66) | 292 | (66) | |
| Operating income | 1,523 | 1,332 | 5,435 | 2,483 | |
| Financial results, net | (1,339) | 2,075 | (1,952) | 3,486 | |
| Equity results in associates and joint ventures | (24) | 190 | 49 | 345 | |
| Impairment and other results in associates and joint ventures | (34) | (1,113) | (95) | (1,113) | |
| Income taxes | 49 | (1,342) | (674) | (2,290) | |
| Net income from continuing operations | 175 | 1,142 | 2,763 | 2,911 | |
| Net income attributable to noncontrolling interests | 31 | 15 | 46 | 14 | |
| Net income attributable to Vale's stockholders | 144 | 1,127 | 2,717 | 2,897 | |



From Discontinued operations

| | Three month period ended June 30, | | Six month per | riod ended June 30, |
|---|-----------------------------------|------|---------------|---------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Adjusted EBITDA from discontinued operations | (4) | 32 | (1) | 102 |
| Depreciation, depletion and amortization | - | (88) | - | (155) |
| Dividends received from associates and joint ventures | - | (3) | - | (3) |
| Impairment of non-current assets (note 11a) | (266) | - | (377) | - |
| Operating loss | (270) | (59) | (378) | (56) |
| Financial results, net | (6) | 16 | (10) | 30 |
| Equity results in associates and joint ventures | - | - | - | 1 |
| Income taxes | 151 | 22 | 181 | 15 |
| Loss from discontinued operations | (125) | (21) | (207) | (10) |
| Net income attributable to noncontrolling interests | 3 | - | 4 | 5 |
| Loss attributable to Vale's stockholders | (128) | (21) | (211) | (15) |

b) Assets by segment

| | | | | Three mo | onth period ended | Six mo | onth period ended |
|------------------|-----------|----------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| | | | June 30, 2017 | | | | June 30, 2017 |
| | | | _ | Additions to | | Additions to | |
| | | Investments in | Property, plant | property, plant | Depreciation, | property, plant | Depreciation, |
| | Product | associates and | and equipment | and equipment | depletion and | and equipment | depletion and |
| | inventory | joint ventures | and intangible (i) | and intangible (ii) | amortization (iii) | and intangible (ii) | amortization (iii) |
| Ferrous minerals | 1,641 | 1,869 | 34,742 | 620 | 427 | 1,450 | 844 |
| Coal | 94 | 301 | 1,793 | 15 | 74 | 71 | 179 |
| Base metals | 1,109 | 13 | 23,189 | 251 | 397 | 462 | 778 |
| Others | 26 | 1,422 | 2,146 | 4 | 6 | 14 | 11 |
| Total | 2,870 | 3,605 | 61,870 | 890 | 904 | 1,997 | 1,812 |

| | | | | Three mo | onth period ended | Six mo | onth period ended |
|------------------|-----------|----------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| | | D | ecember 31, 2016 | | | | June 30, 2016 |
| | | | | Additions to | | Additions to | |
| | | Investments in | Property, plant | property, plant | Depreciation, | property, plant | Depreciation, |
| | Product | associates and | and equipment | and equipment | depletion and | and equipment | depletion and |
| | inventory | joint ventures | and intangible (i) | and intangible (ii) | amortization (iii) | and intangible (ii) | amortization (iii) |
| Ferrous minerals | 1,134 | 1,808 | 34,834 | 766 | 381 | 1,683 | 728 |
| Coal | 126 | 285 | 1,907 | 157 | 15 | 290 | 38 |
| Base metals | 1,110 | 12 | 23,372 | 233 | 438 | 502 | 845 |
| Others | 3 | 1,591 | 2,177 | 8 | 5 | 16 | 11 |
| Total | 2,373 | 3,696 | 62,290 | 1,164 | 839 | 2,491 | 1,622 |

⁽i) Goodwill is allocated mainly in iron ore and nickel segments in the amount of US\$1,227 and US\$1,893 in June 30, 2017 and US\$1,246 and US\$1,835 in December 31, 2016, respectively.
(ii) Includes only cash effect.

c) Net operating revenue by geographic area

| | Three month period ended June 30, 20 | | | | | |
|---|--------------------------------------|------|-------------|--------|-------|--|
| | Ferrous minerals | Coal | Base metals | Others | Total | |
| Americas, except United States and Brazil | 138 | - | 190 | 55 | 383 | |
| United States of America | 121 | - | 189 | 13 | 323 | |
| Europe | 689 | 111 | 519 | 14 | 1,333 | |
| Middle East/Africa/Oceania | 354 | 37 | 3 | - | 394 | |
| Japan | 440 | 46 | 90 | - | 576 | |
| China | 2,469 | - | 85 | - | 2,554 | |
| Asia, except Japan and China | 300 | 246 | 391 | - | 937 | |
| Brazil | 603 | 41 | 45 | 46 | 735 | |
| Net operating revenue | 5,114 | 481 | 1,512 | 128 | 7,235 | |

⁽iii) Refers to amounts recognized in the income statement.



| | | | T | hree month period e | nded June 30, 2016 |
|---|------------------|------|-------------|---------------------|--------------------|
| | Ferrous minerals | Coal | Base metals | Others | Total |
| Americas, except United States and Brazil | 74 | 11 | 280 | - | 365 |
| United States of America | 53 | - | 177 | - | 230 |
| Europe | 593 | 22 | 495 | - | 1,110 |
| Middle East/Africa/Oceania | 287 | 22 | 4 | - | 313 |
| Japan | 300 | 31 | 74 | - | 405 |
| China | 2,581 | 6 | 113 | - | 2,700 |
| Asia, except Japan and China | 229 | 53 | 262 | - | 544 |
| Brazil | 424 | - | 42 | 29 | 495 |
| Net operating revenue | 4,541 | 145 | 1,447 | 29 | 6,162 |

| | | | | Six month period e | nded June 30, 2017 |
|---|------------------|------|-------------|--------------------|--------------------|
| | Ferrous minerals | Coal | Base metals | Others | Total |
| Americas, except United States and Brazil | 280 | - | 494 | 55 | 829 |
| United States of America | 174 | - | 375 | 58 | 607 |
| Europe | 1,579 | 200 | 1,024 | 30 | 2,833 |
| Middle East/Africa/Oceania | 781 | 88 | 6 | - | 875 |
| Japan | 830 | 79 | 178 | - | 1,087 |
| China | 6,127 | - | 245 | - | 6,372 |
| Asia, except Japan and China | 555 | 347 | 702 | - | 1,604 |
| Brazil | 1,285 | 91 | 85 | 82 | 1,543 |
| Net operating revenue | 11,611 | 805 | 3,109 | 225 | 15,750 |

| | | | | Six month period e | nded June 30, 2016 |
|---|------------------|------|-------------|--------------------|--------------------|
| | Ferrous minerals | Coal | Base metals | Others | Total |
| Americas, except United States and Brazil | 165 | 14 | 558 | - | 737 |
| United States of America | 87 | - | 348 | 4 | 439 |
| Europe | 1,078 | 29 | 918 | - | 2,025 |
| Middle East/Africa/Oceania | 451 | 41 | 13 | - | 505 |
| Japan | 554 | 65 | 126 | - | 745 |
| China | 4,853 | 31 | 270 | - | 5,154 |
| Asia, except Japan and China | 385 | 119 | 507 | - | 1,011 |
| Brazil | 772 | - | 60 | 49 | 881 |
| Net operating revenue | 8,345 | 299 | 2,800 | 53 | 11,497 |

4. Costs and expenses by nature

a) Cost of goods sold and services rendered

| | Three month period | ended June 30, | Six month period ended June 30, | | |
|----------------------------|--------------------|----------------|---------------------------------|-------|--|
| | 2017 | 2016 | 2017 | 2016 | |
| Personnel | 556 | 526 | 1,103 | 983 | |
| Materials and services | 899 | 931 | 1,681 | 1,551 | |
| Fuel oil and gas | 309 | 292 | 618 | 581 | |
| Maintenance | 753 | 633 | 1,476 | 1,239 | |
| Energy | 232 | 166 | 447 | 309 | |
| Acquisition of products | 159 | 146 | 323 | 229 | |
| Depreciation and depletion | 852 | 780 | 1,698 | 1,524 | |
| Freight | 771 | 611 | 1,430 | 1,111 | |
| Others | 571 | 228 | 1,060 | 675 | |
| Total | 5,102 | 4,313 | 9,836 | 8,202 | |
| | | | ., | | |
| Cost of goods sold | 4,946 | 4,198 | 9,541 | 7,980 | |
| Cost of services rendered | 156 | 115 | 295 | 222 | |
| Total | 5,102 | 4,313 | 9,836 | 8,202 | |

b) Selling and administrative expenses

| | Three month period ended June 30, | | Six month period ended June 30 | |
|-------------------------------|-----------------------------------|------|--------------------------------|------|
| | 2017 | 2016 | 2017 | 2016 |
| Personnel | 62 | 54 | 116 | 101 |
| Services | 17 | 16 | 29 | 27 |
| Depreciation and amortization | 22 | 32 | 51 | 54 |
| Taxes and rents | 4 | 3 | 11 | 10 |
| Selling expenses | 19 | 9 | 32 | 15 |
| Others | 8 | 13 | 17 | 27 |
| Total | 132 | 127 | 256 | 234 |



c) Others operational expenses (incomes), net

| | Three month period ended June 30, | | Six month period ended June 30, | |
|--|-----------------------------------|------|---------------------------------|------|
| | 2017 | 2016 | 2017 | 2016 |
| Provision for litigation | 17 | 57 | 29 | 106 |
| Profit sharing program | 30 | - | 69 | - |
| Disposals (reversals) of materials and inventories | 4 | (1) | 7 | (9) |
| Others | 37 | 86 | 60 | 81 |
| Total | 88 | 142 | 165 | 178 |

5. Financial result

| | Three month p | eriod ended June 30, | Six month | period ended June 30, |
|---|---------------|----------------------|-----------|-----------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Financial expenses | | | | |
| Loans and borrowings gross interest | (450) | (451) | (953) | (862) |
| Capitalized loans and borrowing costs | 83 | 213 | 186 | 390 |
| Derivative financial instruments | (160) | (166) | (266) | (224) |
| Indexation and exchange rate variation (a) | (864) | (1,051) | (1,196) | (2,218) |
| Participative stockholders' debentures | (87) | (86) | (499) | (202) |
| Expenses of REFIS | (108) | (129) | (234) | (243) |
| Others | (211) | (144) | (388) | (294) |
| | (1,797) | (1,814) | (3,350) | (3,653) |
| Financial income | | | | |
| Short-term investments | 52 | 23 | 88 | 62 |
| Derivative financial instruments | 69 | 925 | 384 | 1,423 |
| Indexation and exchange rate variation (b) | 273 | 2,934 | 834 | 5,629 |
| Others | 64 | 7 | 92 | 25 |
| | 458 | 3,889 | 1,398 | 7,139 |
| Financial results, net | (1,339) | 2,075 | (1,952) | 3,486 |
| | | | | |
| Summary of indexation and exchange rate variation | | | | |
| Loans and borrowings | (740) | 2,781 | (241) | 5,419 |
| Others | 149 | (898) | (121) | (2,008) |
| Net (a) + (b) | (591) | 1,883 | (362) | 3,411 |

As from January 1, 2017, the Company started to apply net investment hedge accounting in foreign operation, for more information see note 16.

6. Income taxes

a) Deferred income tax assets and liabilities

Changes in deferred tax are as follows:

| | Assets | Liabilities | Total |
|---|--------|-------------|-------|
| Balance at March 31, 2017 | 7,127 | 1,677 | 5,450 |
| Effect in income statement | 65 | (53) | 118 |
| Translation adjustment | (178) | 26 | (204) |
| Other comprehensive income | 81 | (85) | 166 |
| Balance at June 30, 2017 | 7,095 | 1,565 | 5,530 |
| | | | |
| | Assets | Liabilities | Total |
| Balance at March 31, 2016 | 7,675 | 1,817 | 5,858 |
| Effect in income statement | (940) | (11) | (929) |
| Transfers between asset and liabilities | 59 | 59 | - |
| Translation adjustment | 484 | (75) | 559 |
| Other comprehensive income | 11 | (51) | 62 |
| Balance at June 30, 2016 | 7,289 | 1,739 | 5,550 |



5,550

| | Assets | Liabilities | Total |
|---|---------|-------------|---------|
| Balance at December 31, 2016 | 7,343 | 1,700 | 5,643 |
| Effect in income statement | (186) | (82) | (104) |
| Translation adjustment | (39) | 36 | (75) |
| Other comprehensive income | (23) | (89) | 66 |
| Balance at June 30, 2017 | 7,095 | 1,565 | 5,530 |
| | | | |
| | Assets | Liabilities | Total |
| Balance at December 31, 2015 | 7,904 | 1,670 | 6,234 |
| Effect in income statement | (1,591) | (55) | (1,536) |
| Transfers between asset and liabilities | 144 | 144 | - |
| Translation adjustment | 961 | 49 | 912 |
| Other comprehensive income | (129) | (69) | (60) |

7,289

1,739

b) Income tax reconciliation - Income statement

Balance at June 30, 2016

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

| | Three month | period ended June 30, | Six month | period ended June 30, |
|--|-------------|-----------------------|-----------|-----------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Income before income taxes | 126 | 2,484 | 3,437 | 5,201 |
| Income taxes at statutory rates - 34% | (43) | (845) | (1,169) | (1,768) |
| Adjustments that affect the basis of taxes: | | | | |
| Income tax benefit from interest on stockholders' equity | 126 | - | 252 | - |
| Tax incentives | 1 | 95 | 179 | 98 |
| Equity results | (8) | 63 | 17 | 120 |
| Unrecognized tax losses of the period | (92) | (164) | (269) | (349) |
| Gain on sale of subsidiaries (note 12) | - | - | 175 | - |
| Other results in associates and joint ventures | - | (353) | - | (353) |
| Others | 65 | (138) | 141 | (38) |
| Income taxes | 49 | (1,342) | (674) | (2,290) |

Income tax expense is recognized at an amount determined by the estimated tax rate, adjusted for the tax effect of certain items recognized in full in the interim period. Therefore, the effective tax rate in the interim financial statement may differ from management's estimate of the effective tax rate for the annual financial statement.

c) Income taxes - Settlement program ("REFIS")

In 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 associates from 2003 to 2012.

At June 30, 2017, the balance of US\$5,332 (US\$470 as current and US\$4,862 as non-current) is due in 136 remaining monthly installments, bearing interest at the SELIC rate of 10.25% per year.



7. Basic and diluted earnings per share

The values of basic and diluted earnings per share are as follows:

| | Three month perio | Three month period ended June 30, | | iod ended June 30, |
|--|-------------------|-----------------------------------|-----------|--------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Basic and diluted earnings per share from continuing operations: | | <u> </u> | | |
| Income available to preferred stockholders | 55 | 430 | 1,037 | 1,106 |
| Income available to common stockholders | 89 | 697 | 1,680 | 1,791 |
| Total | 144 | 1,127 | 2,717 | 2,897 |
| Basic and diluted loss per share from discontinued operations: | | | | |
| Loss available to preferred stockholders | (49) | (8) | (81) | (6) |
| Loss available to common stockholders | (79) | (13) | (130) | (9) |
| Total | (128) | (21) | (211) | (15) |
| Basic and diluted earnings per share: | | | | |
| Income available to preferred stockholders | 6 | 422 | 956 | 1,100 |
| Income available to common stockholders | 10 | 684 | 1,550 | 1,782 |
| Total | 16 | 1,106 | 2,506 | 2,882 |
| Thousands of shares | | | | |
| Weighted average number of shares outstanding - preferred shares | 1,967,722 | 1,967,722 | 1,967,722 | 1,967,722 |
| Weighted average number of shares outstanding - common shares | 3,185,653 | 3,185,653 | 3,185,653 | 3,185,653 |
| Total | 5,153,375 | 5,153,375 | 5,153,375 | 5,153,375 |
| | | | | |
| Basic and diluted earnings per share from continuing operations: | | | | |
| Preferred share (US\$) | 0.02 | 0.21 | 0.53 | 0.56 |
| Common share (US\$) | 0.02 | 0.21 | 0.53 | 0.56 |
| Basic and diluted loss per share from discontinued operations: | | | | |
| Preferred share (US\$) | (0.02) | - | (0.04) | - |
| Common share (US\$) | (0.02) | - | (0.04) | - |
| Basic and diluted earnings per share: | | | | |
| Preferred share (US\$) | - | 0.21 | 0.49 | 0.56 |
| Common share (US\$) | - | 0.21 | 0.49 | 0.56 |

The Company does not hold dilutive potential ordinary shares outstanding that could result in dilution of earnings (loss) per share.

8. Accounts receivable

| | | | June 30, 2017 | December 31, 2016 |
|--|-----------------------------------|------|---------------|-----------------------|
| Trade receivables | | • | 1,770 | 3,723 |
| Impairment of trade receivables | | | (61) | (60) |
| | | | 1,709 | 3,663 |
| | | • | | |
| Trade receivables related to the steel sector - % | | | 77.17% | 83.44% |
| | | | | |
| | Three month period ended June 30, | | Six month | period ended June 30, |
| | 2017 | 2016 | 2017 | 2016 |
| Impairment of trade receivables recorded in the income statement | (4) | (2) | (4) | (3) |

No individual customer represents over 10% of receivables or revenues.

9. Inventories

| | June 30, 2017 | December 31, 2016 |
|----------------------|---------------|-------------------|
| Product inventory | 2,870 | 2,373 |
| Consumable inventory | 994 | 976 |
| Total | 3,864 | 3,349 |

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



10. Other financial assets and liabilities

| | | Current | | Non-Current |
|--|---------------|-------------------|---------------|-------------------|
| | June 30, 2017 | December 31, 2016 | June 30, 2017 | December 31, 2016 |
| Other financial assets | | | | |
| Financial investments | 10 | 18 | - | - |
| Loans | - | - | 180 | 180 |
| Derivative financial instruments (note 20) | 159 | 274 | 495 | 446 |
| Related parties (note 25) | 2,024 | 71 | 2,659 | 2 |
| | 2,193 | 363 | 3,334 | 628 |
| Other financial liabilities | | | | |
| Derivative financial instruments (note 20) | 362 | 414 | 975 | 1,225 |
| Related parties (note 25) | 514 | 672 | 994 | 127 |
| Participative stockholders' debentures | | - | 1,175 | 775 |
| | 876 | 1,086 | 3,144 | 2,127 |

11. Non-current assets and liabilities held for sale and discontinued operations

| | | | June 30, 2017 | | | Dece | ember 31, 2016 |
|--|-------------|----------|---------------|-------------|--------|----------|----------------|
| | Fertilizers | Shipping | | Fertilizers | | Shipping | |
| | assets | assets | Total | assets | Nacala | assets | Total |
| Assets | | | | | | | |
| Accounts receivable | 84 | - | 84 | 86 | 6 | - | 92 |
| Inventories | 453 | - | 453 | 387 | 2 | - | 389 |
| Other current assets | 102 | - | 102 | 107 | 114 | - | 221 |
| Investments in associates and joint ventures | 89 | - | 89 | 90 | - | - | 90 |
| Property, plant and equipment and Intangible | 2,467 | 357 | 2,824 | 2,694 | 4,064 | 357 | 7,115 |
| Other non-current assets | 878 | - | 878 | 679 | 3 | - | 682 |
| Total assets | 4,073 | 357 | 4,430 | 4,043 | 4,189 | 357 | 8,589 |
| | | | | | | | |
| Liabilities | | | | | | | |
| Suppliers and contractors | 239 | - | 239 | 280 | 41 | - | 321 |
| Other current liabilities | 229 | - | 229 | 192 | 13 | - | 205 |
| Other non-current liabilities | 621 | - | 621 | 559 | 5 | - | 564 |
| Total liabilities | 1,089 | - | 1,089 | 1,031 | 59 | _ | 1,090 |
| Net non-current assets held for sale | 2,984 | 357 | 3,341 | 3,012 | 4,130 | 357 | 7,499 |

a) Discontinued operations (Fertilizers assets)

In December 2016, the Company entered into an agreement with The Mosaic Company ("Mosaic") to sell (i) the phosphate assets located in Brazil, except those mainly related to nitrogen assets located in Cubatão (Brazil); (ii) the control of Compañia Minera Miski Mayo S.A.C., in Peru; (iii) the potassium assets located in Brazil; and (iv) the potash projects in Canada.

In December 2016, the agreed transaction price was US\$2.5 billion, of which US\$1.25 billion will be paid in cash and US\$1.25 billion with 42.3 million common shares to be issued by Mosaic, which at the agreement signature date represented around 11% of Mosaic's total outstanding common shares.

The spin-off of the nitrogen assets located in Cubatão from the remaining Vale Fertilizantes S.A.'s assets was concluded in July 2017 (subsequent event). The completion of this milestone was one of the requirement for the conclusion of the transaction, which is expected to be completed until the end of 2017 and, still, is subject to the fulfillment of usual precedent conditions, including the approval of the Administrative Council of Economic Defense (CADE) and other antitrust authorities; and other operational and regulatory matters.

The fertilizer segment, including Cubatão, is presented as a discontinued operation and the related assets and liabilities were classified as assets and liabilities held for sale.

On June 30, 2017, the net assets of the fertilizers segment were adjusted to reflect the fair value less cost to sell and a loss of US\$377 was recognized in the income statement as "Impairment of non-current assets" from discontinued operations for the six-month period ended June 30, 2017. The loss derived basically from the variation of the market value of Mosaic shares that will be received on the closing.



(56)

The results for the period and the cash flows of discontinued operations of the Fertilizer segment for the period ended June 30, 2017 are presented as follows, and includes the corresponding restated period ended June 30, 2016, as described in note 2(b).

| | Three month period e | Three month period ended June 30, | | ended June 30 |
|--|---------------------------------------|--|----------------------|------------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Discontinued operations | | <u>'</u> | | |
| Net operating revenue | 401 | 464 | 771 | 848 |
| Cost of goods sold and services rendered | (371) | (482) | (710) | (842 |
| Operating expenses | (34) | (41) | (62) | (62 |
| Impairment of non-current assets | (266) | | (377) | - |
| Operating loss | (270) | (59) | (378) | (56 |
| Financial Results, net | (6) | 16 | (10) | 30 |
| Equity results in associates and joint ventures | - | - | - | 1 |
| Loss before income taxes | (276) | (43) | (388) | (25 |
| Income taxes | 151 | 22 | 181 | 15 |
| Loss from discontinued operations | (125) | (21) | (207) | (10 |
| Net income attributable to noncontrolling interests | 3 | - | 4 | |
| Loss attributable to Vale's stockholders | (128) | (21) | (211) | (15 |
| Discontinued enerations | 2017 | 2010 | 2017 | 201 |
| | 2017 | 2016 | 2017 | 201 |
| Discontinued operations | | | | |
| Cash flow from operating activities | | | | |
| | (076) | (40) | (200) | 10.5 |
| Loss before income taxes | (276) | (43) | (388) | (25 |
| Loss before income taxes Adjustments: | (276) | (43) | (388) | |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures | (276) | - | (388) | (: |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion | · · · · · · · · · · · · · · · · · · · | - 88 | - - | (1 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets | - - 266 | - 88 - | - - 377 | (: 15! |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities | - - 266 12 | - 88 - 5 | - - 377 105 | (1 155 (75 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets | - - 266 | - 88 - | - - 377 | (1 155 (75 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities | - - 266 12 | - 88 - 5 | - - 377 105 | (1 155 (75 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities | 266 12 2 | - 88 - 5 50 | 377 105 94 | (: 15! (7! 54 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment | - - 266 12 | - 88 - 5 50 (68) | - - 377 105 | (107 (107 (107 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment Others | 266 12 2 | 5 5 50 (68) | 377 105 94 | (107 (107 (107 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment | 266 12 2 | - 88 - 5 50 (68) | 377 105 94 | (107 (107 (107 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment Others | 266 12 2 | 5 5 50 (68) | 377 105 94 | (105) |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment Others Net cash used in investing activities | 266 12 2 | 5 5 50 (68) | 377 105 94 | (107 (107 (107 |
| Loss before income taxes Adjustments: Equity results in associates and joint ventures Depreciation, amortization and depletion Impairment of non-current assets Increase (decrease) in assets and liabilities Net cash provided by operating activities Cash flow from investing activities Additions to property, plant and equipment Others Net cash used in investing activities Cash flow from financing activities | 266 12 2 | 5 5 50 (68) | 377 105 94 | (107 54 |

12. **Acquisitions and divestitures**

a) Coal - Nacala Logistic Corridor

Net cash used in discontinued operations

In December 2014 and as amended in November 2016, the Company signed an agreement with Mitsui & Co., Ltd. ("Mitsui") to transfer 50% of its stake of 66.7% in Nacala Logistic Corridor, which comprises entities that holds railroads and port concessions located in Mozambique and Malawi. Also, Mitsui committed to acquire 15% participation in the entity that owns Vale Moçambique, which hold the Moatize Coal Project.

(45)

(12)

(50)

In March 2017, the transaction was concluded, and consideration of US\$690 was received by Vale. After the completion of the transaction, the Company (i) holds 81% of Vale Moçambique and retains the control of the Moatize Coal Project and (ii) shares control of the Nacala Logistic Corridor structure (Nacala BV), with Mitsui.

Nacala Logistic Corridor is in negotiations for a project finance, which the completion is expected to occur during the course of 2017. Upon the completion an additional amount of US\$57 will be paid by Mitsui. Mitsui has certain rights, based on the execution of the project finance, to sell their participation in the Moatize Coal Project and Nacala BV, back to Vale, based on the original amounts and the same number of shares. The fair value of these put options is non-significant.



As a consequence of sharing control of Nacala BV, the Company:

- (i) derecognized the assets and liabilities classified as held for sale in the total amount of US\$4,144, from which US\$4,063 refers to property, plant and equipment and intangibles;
- (ii) derecognized US\$14 related to cash and cash equivalents;
- (iii) recognized a gain of US\$504 in the income statement related to the sale and the re-measurement at fair value, of its remaining interest at Nacala BV based on the consideration received;
- (iv) reclassified the gain related to cumulative translation adjustments to income statements in the amount of US\$11;

The result of the transaction regarding the assets from Nacala's corridor was recognized in the income statement as "Impairment and other results on non-current assets".

The results of the transaction with the Moatize Coal Project was recognized in "Results from operation with noncontrolling interest" in the amount of US\$105, directly in Stockholders' Equity.

The consideration received was recognized in the statement of cash flows in "Proceeds from disposal of assets and investments" in the amount of US\$435 and "Transactions with noncontrolling stockholders" in the amount of US\$255.

Due to deconsolidation of Nacala Logistic Corridor, Vale has after the transaction, outstanding loan balances with Nacala BV and Pangea Emirates Ltd stated as Related parties, as described in note 25. The use of proceeds of the project finance is expected to settle part of this debt.

b) Floating Transfer Stations ("FTS")

In June 2017, the Company completed the sale of one of its Floating Transfer Stations in Philippines in the amount of US\$15. In this transaction, Vale recognized a loss of US\$55 as "Impairment and other results on non-current assets".

13. Investments in associates and joint ventures

a) Changes during the period

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

| | 2017 | | | | | |
|------------------------------------|------------|----------------|-------|------------|----------------|-------|
| | Associates | Joint ventures | Total | Associates | Joint ventures | Total |
| Balance at March 31, | 1,457 | 2,426 | 3,883 | 1,399 | 1,998 | 3,397 |
| Additions | - | 2 | 2 | - | 136 | 136 |
| Translation adjustment | (49) | (90) | (139) | 108 | 219 | 327 |
| Equity results in income statement | 26 | (50) | (24) | 36 | 154 | 190 |
| Dividends declared | (34) | (83) | (117) | (4) | (83) | (87) |
| Others | - | - | - | (2) | 2 | |
| Balance at June 30, | 1,400 | 2,205 | 3,605 | 1,537 | 2,426 | 3,963 |

| | | 2017 | | | 2016 |
|------------|---------------------------------------|--|---|--|---|
| Associates | Joint ventures | Total | Associates | Joint ventures | Total |
| 1,437 | 2,259 | 3,696 | 1,323 | 1,617 | 2,940 |
| - | 33 | 33 | - | 219 | 219 |
| (16) | (32) | (48) | 207 | 379 | 586 |
| 21 | 28 | 49 | 33 | 312 | 345 |
| - | - | - | 1 | - | 1 |
| (42) | (83) | (125) | (25) | (91) | (116) |
| - | - | - | (2) | (10) | (12) |
| 1,400 | 2,205 | 3,605 | 1,537 | 2,426 | 3,963 |
| | 1,437 - (16) 21 - (42) | 1,437 2,259 - 33 (16) (32) 21 28 - - (42) (83) - - | Associates Joint ventures Total 1,437 2,259 3,696 - 33 33 (16) (32) (48) 21 28 49 - - - (42) (83) (125) - - - | Associates Joint ventures Total Associates 1,437 2,259 3,696 1,323 - 33 33 - (16) (32) (48) 207 21 28 49 33 - - - 1 (42) (83) (125) (25) - - (2) | 1,437 2,259 3,696 1,323 1,617 - 33 33 - 219 (16) (32) (48) 207 379 21 28 49 33 312 - - - 1 - (42) (83) (125) (25) (91) - - (2) (10) |

The investments by segments are presented in note 3(b).



Investments in associates and joint ventures (continued)

California Steel Industries, Inc.

Others

Total

Companhia Siderúrgica do Pecém

Mineração Rio Grande do Norte S.A.

| | | | Investmen | nts in associates | | | | | | | | |
|---|-------------|----------|---------------|-------------------|-------------|----------------------|-----------------|------------|-------------|------------|-------------|-------------|
| | | | and | d joint ventures | | Equity result | s in the income | statement | | | Dividend | ls received |
| | | | | | Th | ree month | | Six month | Th | ree month | | Six month |
| | | | | | period ende | ed June 30, | period ende | d June 30, | period ende | d June 30, | period ende | d June 30, |
| | | % voting | | December 31, | | | | | | | | |
| Associates and joint ventures | % ownership | capital | June 30, 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| Ferrous minerals | | | | | | | | | | | | |
| Baovale Mineração S.A. | 50.00 | 50.00 | 30 | 26 | 2 | - | 4 | (1) | - | - | - | - |
| Companhia Coreano-Brasileira de Pelotização | 50.00 | 50.00 | 76 | 68 | 13 | 4 | 25 | 9 | - | 13 | - | 13 |
| Companhia Hispano-Brasileira de Pelotização (i) | 50.89 | 51.00 | 73 | 59 | 11 | 2 | 21 | 6 | 5 | 18 | 5 | 18 |
| Companhia Ítalo-Brasileira de Pelotização (i) | 50.90 | 51.00 | 78 | 69 | 13 | 2 | 20 | 6 | 17 | 9 | 17 | 9 |
| Companhia Nipo-Brasileira de Pelotização (i) | 51.00 | 51.11 | 136 | 108 | 24 | (4) | 46 | 7 | 15 | 20 | 15 | 20 |
| MRS Logística S.A. | 48.16 | 46.75 | 503 | 488 | 22 | 12 | 37 | 32 | - | - | - | - |
| VLI S.A. | 37.60 | 37.60 | 953 | 969 | 19 | 21 | 6 | 16 | - | - | - | - |
| Zhuhai YPM Pellet Co. | 25.00 | 25.00 | 20 | 21 | - | - | - | - | - | - | - | - |
| | | | 1,869 | 1,808 | 104 | 37 | 159 | 75 | 37 | 60 | 37 | 60 |
| Coal | | | | | | | | | | | | |
| Henan Longyu Energy Resources Co., Ltd. | 25.00 | 25.00 | 301 | 285 | 6 | - | 16 | (9) | - | - | - | - |
| | | | 301 | 285 | 6 | - | 16 | (9) | - | - " | - ' | - |
| Base metals | | | | | | | | | | | | |
| Korea Nickel Corp. | 25.00 | 25.00 | 13 | 12 | - | - | - | (1) | - | - | - | - |
| | | | 13 | 12 | - | - | - | (1) | - | - | - | - |
| Others | | | | | | | | | | | | |
| Aliança Geração de Energia S.A. (i) | 55.00 | 55.00 | 576 | 582 | 8 | 19 | 15 | 22 | 11 | 22 | 11 | 22 |
| Aliança Norte Energia Participações S.A. (i) | 51.00 | 51.00 | 160 | 148 | - | (2) | 3 | (3) | - | - | - | - |

1,591

3,696

(131)

(28)

(134)

(28)

(126)

(142)

(7)

1,422

3,605

50.00

50.00

40.00

50.00

50.00

40.00

⁽i) Although the Company held majority of the voting capital, the entities are accounted under equity method due to the stockholders' agreement where relevant decisions are shared with other parties.



14. Intangibles

Changes in intangibles are as follows:

| Balance at March 31, 2017 3,131 3,702 149 324 7,306 Additions 145 10 155 150 1 | | Goodwill | Concessions | Right of use | Software | Total |
|--|------------------------------|------------|-------------|--------------|----------|---------|
| Disposals | Balance at March 31, 2017 | 3,131 | 3,702 | 149 | 324 | 7,306 |
| Amortization Goodwill Concessions Right of use Content of use Concessions Right of use Content of use Concessions Right of use Content of | Additions | - | 145 | - | 10 | 155 |
| Amortization Goodwill Concessions Right of use Content of use Concessions Right of use Content of use Concessions Right of use Content of | Disposals | - | (1) | - | - | (1) |
| Translation adjustment (9) (153) - (11) (173) Balance at June 30, 2017 3,122 3,633 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,561) 2,559 Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at March 31, 2016 3,095 2,354 149 420 6,018 Additions - 444 - 4 448 448 Disposals - (5) - 444 - 4 448 Disposals - (5) - 422 - (40) (82) Translation adjustment 124 295 (9) 47 457 Translation 30, 2016 3,219 3,123 140 431 6,913 Oct 3,219 3,123 140 431 6,913 Cot 3,219 3,123 140 431 6,913 Accumul | Amortization | - | (40) | - | (36) | |
| Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 | Translation adjustment | (9) | | - | (11) | |
| Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization 3,122 3,633 149 287 7,211 Balance at June 30, 2017 3,122 3,633 149 287 7,211 Balance at June 30, 2016 3,095 2,334 149 420 6,018 Additions - 444 - 4 448 Disposals - (5) - - (5) Amortization 124 295 (9) 47 447 Amortization adjustment 1124 295 (9) 47 457 Transfers - 77 - - 77 Balance at June 30, 2016 3,219 4,230 222 1,580 9,251 Accumulated amortization 3,219 4,230 222 1,580 9,251 Accumulated amortization 3,219 3,123 140 431 6,913 Balance at June 30, 2016 3,081 3,301 | Balance at June 30, 2017 | 3,122 | 3,653 | 149 | 287 | |
| National Accumulated amortization 3,122 3,653 149 287 7,211 | | 3,122 | 4,870 | 230 | 1,548 | 9,770 |
| Salance at June 30, 2017 Salance at March 31, 2016 Solivare Solivare Total Balance at March 31, 2016 Salance at June 30, 2017 Sa | Accumulated amortization | , <u> </u> | · | | • | • |
| Balance at March 31, 2016 Goodwill Concessions Right of use Software Total (50) Balance at March 31, 2016 3,095 2,354 149 420 6,018 Additions - 444 - 4 448 Disposals - (5) - - (40) (82) Amortization - (42) - (40) (82) Translation adjustment 124 295 (9) 47 457 Translation 30,2016 3,219 3,123 140 431 6,913 Scot 3,219 3,213 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,38) Balance at June 30, 2016 3,081 3,081 3,081 444 95 6,913 Additions - (1,107) (82) (1,149) 6,813 Balance at June 30, 2016 3,081 3,081 3,081 3,081 3,081 3,081 | Balance at June 30, 2017 | 3.122 | | · ' / | <u> </u> | |
| Balance at March 31, 2016 3,095 2,354 149 420 6,018 Additions - 444 - 4 448 Disposals (5) - (40) (82) Amortization - (42) - (40) (82) Translation adjustment 124 295 (9) 47 457 Translation 30,2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,081 3,021 140 431 6,913 Additions - 5 10 - 18 528 Balance at December 31, 2016 3,081 3,301 147 32 6,871 Additions - (8) | , | | | | | · |
| Balance at March 31, 2016 3,095 2,354 149 420 6,018 Additions - 444 - 4 448 Disposals (5) - (40) (82) Amortization - (42) - (40) (82) Translation adjustment 124 295 (9) 47 457 Translation 30,2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,081 3,021 140 431 6,913 Additions - 5 10 - 18 528 Balance at December 31, 2016 3,081 3,301 147 32 6,871 Additions - (8) | | Goodwill | Concessions | Right of use | Software | Total |
| Additions - | Balance at March 31, 2016 | | | | | |
| Disposals - (5) - - (5) Amortization - (42) - (40) (82) Translation adjustment 124 295 (9) 47 457 Transfers - 77 - - 77 Balance at June 30, 2016 3,219 3,223 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,081 3,011 147 342 6,871 Additions - (12) - - (2) Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 2 | | - | | | | |
| Amortization - (42) - (40) (82) Translation adjustment 124 295 (9) 47 457 Transfers - 77 - - 77 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Combination adjustment 600dill Concessions Right of use Software Total Additions - 510 - 18 528 Disposals - (2) - 12 (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 4,870 | | - | | - | | |
| Translation adjustment 124 295 (9) 47 457 Transfers - 77 - - 77 Balance at June 30, 2016 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Coodwill Concessions Right of use Software Translation of Cooking Social | · | <u>-</u> | | - | (40) | |
| Transfers - 77 - - 77 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Balance at December 31, 2016 3,081 3,301 147 342 6,871 Additions - 510 - 18 528 Disposals - (2) - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,553 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at December 31, 2015 2,956 1,814 | | 124 | | | ` ' | |
| Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,123 140 431 6,913 Goodwill Concessions Right of use Software Total Balance at December 31, 2016 3,081 3,301 147 342 6,871 Additions - 510 - 18 528 510 - 18 528 Disposals - (2) - 18 528 163 149 173 163 Translation adjustment 41 (67) 3 - 22 23 149 287 7,211 Cost 3,122 3,533 149 287 7,211 23 1,548 9,770 23 1,548 9,770 24 2,559 3,122 3,653 149 287 7,211 2,559< | • | - | | | - | |
| Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,219 3,123 140 431 6,913 Balance at December 31, 2016 3,081 3,301 147 342 6,871 Additions - 510 - 18 528 Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2017 | | 3.219 | | 140 | 431 | |
| Accumulated amortization - (1,107) (82) (1,149) (2,338) Balance at June 30, 2016 3,219 3,213 140 431 6,913 Balance at December 31, 2016 3,081 3,301 147 342 6,871 Additions 510 - 18 528 Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (2) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at December 31, 2015 2,956 | • | | | | | |
| Balance at June 30, 2016 3,219 3,123 140 431 6,913 Balance at December 31, 2016 3,081 3,001 147 342 6,871 Additions - 510 - 18 528 Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,553 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 600dwill Concessions Right of use Software Total Balance at Decemb | | - | · · | | • | |
| Goodwill Concessions Right of use Software Total Balance at December 31, 2016 3,081 3,301 147 342 6,871 Additions - 510 - 18 528 Disposals - (2) - - (2) Amortization - (89) (1) (73) 1633 Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 4,870 230 1,548 9,770 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions 9 2,956 1,814 207 347 5,324 Additions 9 2,956 | | 3 219 | | <u>`</u> | | |
| Additions - 510 - 18 528 Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 60odwill Concessions Right of use Software Total Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (5) - - | | | | | | |
| Disposals - (2) - - (2) Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (7) (1) | | 3,081 | | | | |
| Amortization - (89) (1) (73) (163) Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,77 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at June 30, 2017 600 Concessions Right of use Software Total Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151 Translation adjustment 263 502 - 82 847 Transfers - 77 | | - | | - | 18 | |
| Translation adjustment 41 (67) 3 - (23) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Company of the co | • | - | | | | |
| Balance at June 30, 2017 3,122 3,653 149 287 7,211 Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (| | - | . , | | (73) | |
| Cost 3,122 4,870 230 1,548 9,770 Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | • | | | | | |
| Accumulated amortization - (1,217) (81) (1,261) (2,559) Balance at June 30, 2017 3,122 3,653 149 287 7,211 Goodwill Concessions Right of use Software Total Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Balance at June 30, 2017 | | 3,653 | | | |
| Balance at June 30, 2017 3,122 3,653 149 287 7,211 Goodwill Concessions Right of use Software Total Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Cost | 3,122 | 4,870 | 230 | 1,548 | • |
| Goodwill Concessions Right of use Software Total Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Accumulated amortization | | (1,217) | (81) | (1,261) | (2,559) |
| Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Balance at June 30, 2017 | 3,122 | 3,653 | 149 | 287 | 7,211 |
| Balance at December 31, 2015 2,956 1,814 207 347 5,324 Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | | | | | | |
| Additions - 808 1 5 814 Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | | Goodwill | Concessions | Right of use | Software | Total |
| Disposals - (5) - - (5) Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Balance at December 31, 2015 | 2,956 | 1,814 | 207 | | 5,324 |
| Amortization - (73) (1) (77) (151) Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Additions | - | 808 | 1 | 5 | 814 |
| Translation adjustment 263 502 - 82 847 Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Disposals | - | | - | - | (5) |
| Transfers - 77 (67) 74 84 Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Amortization | - | (73) | (1) | (77) | (151) |
| Balance at June 30, 2016 3,219 3,123 140 431 6,913 Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Translation adjustment | 263 | 502 | - | 82 | 847 |
| Cost 3,219 4,230 222 1,580 9,251 Accumulated amortization - (1,107) (82) (1,149) (2,338) | Transfers | | 77 | (67) | 74 | 84 |
| Accumulated amortization - (1,107) (82) (1,149) (2,338) | Balance at June 30, 2016 | 3,219 | 3,123 | 140 | 431 | 6,913 |
| | Cost | 3,219 | 4,230 | 222 | 1,580 | 9,251 |
| Balance at June 30, 2016 3,219 3,123 140 431 6,913 | Accumulated amortization | <u> </u> | (1,107) | (82) | (1,149) | (2,338) |
| | Balance at June 30, 2016 | 3,219 | 3,123 | 140 | 431 | 6,913 |



15. Property, plant and equipment

Changes in property, plant and equipment are as follows:

| | Land | Building | Facilities | Equipment | Mineral properties | Others | Constructions in progress | Total |
|--|------|----------|------------|-----------|--------------------|---------|---------------------------|----------|
| Balance at March 31, 2017 | 755 | 11,587 | 10,924 | 6,968 | 9,011 | 8,306 | 8,722 | 56,273 |
| Additions (i) | - | - | - | - | - | - | 782 | 782 |
| Disposals | - | - | (29) | (3) | (122) | (75) | (10) | (239) |
| Assets retirement obligation | - | - | - | - | (34) | - | - | (34) |
| Depreciation, amortization and depletion | - | (119) | (178) | (203) | (158) | (173) | - | (831) |
| Translation adjustment | (25) | (320) | (317) | (137) | 27 | (215) | (305) | (1,292) |
| Transfers | 3 | 365 | 238 | 435 | 21 | 306 | (1,368) | - |
| Balance at June 30, 2017 | 733 | 11,513 | 10,638 | 7,060 | 8,745 | 8,149 | 7,821 | 54,659 |
| Cost | 733 | 17,968 | 16,949 | 12,605 | 16,729 | 12,139 | 7,821 | 84,944 |
| Accumulated depreciation | - | (6,455) | (6,311) | (5,545) | (7,984) | (3,990) | - | (30,285) |
| Balance at June 30, 2017 | 733 | 11,513 | 10,638 | 7,060 | 8,745 | 8,149 | 7,821 | 54,659 |

| | | | | | Mineral | | Constructions | |
|---|------|----------|------------|-----------|------------|---------|---------------|----------|
| | Land | Building | Facilities | Equipment | properties | Others | in progress | Total |
| Balance at March 31, 2016 | 821 | 9,841 | 8,712 | 7,684 | 10,938 | 7,645 | 12,284 | 57,925 |
| Additions (i) | - | - | - | - | - | - | 1,096 | 1,096 |
| Disposals | - | - | - | (2) | - | (335) | (20) | (357) |
| Assets retirement obligation | - | - | - | - | 17 | - | - | 17 |
| Depreciation, amortization and depletion | - | (115) | (149) | (236) | (228) | (169) | - | (897) |
| Translation adjustment | 64 | 255 | 570 | 341 | 321 | 465 | 1,733 | 3,749 |
| Transfers | 6 | 339 | 99 | 196 | 118 | (261) | (574) | (77) |
| Transfers to non-current assets held for sale | - | - | - | - | - | (497) | - | (497) |
| Balance at June 30, 2016 | 891 | 10,320 | 9,232 | 7,983 | 11,166 | 6,848 | 14,519 | 60,959 |
| Cost | 891 | 16,082 | 15,013 | 14,050 | 18,876 | 10,450 | 14,519 | 89,881 |
| Accumulated depreciation | - | (5,762) | (5,781) | (6,067) | (7,710) | (3,602) | - | (28,922) |
| Balance at June 30, 2016 | 891 | 10,320 | 9,232 | 7,983 | 11,166 | 6,848 | 14,519 | 60,959 |

| | | | | | Mineral | | Constructions | |
|--|------|----------|------------|-----------|------------|---------|---------------|----------|
| | Land | Building | Facilities | Equipment | properties | Others | in progress | Total |
| Balance at December 31, 2016 | 724 | 10,674 | 9,471 | 6,794 | 8,380 | 7,515 | 11,861 | 55,419 |
| Additions (i) | - | - | - | - | - | - | 1,285 | 1,285 |
| Disposals | - | - | (35) | (6) | (122) | (77) | (16) | (256) |
| Assets retirement obligation | - | - | - | - | 2 | - | - | 2 |
| Depreciation, amortization and depletion | - | (266) | (345) | (396) | (311) | (347) | - | (1,665) |
| Translation adjustment | (8) | (91) | (123) | (40) | 137 | (19) | 18 | (126) |
| Transfers | 17 | 1,196 | 1,670 | 708 | 659 | 1,077 | (5,327) | - |
| Balance at June 30, 2017 | 733 | 11,513 | 10,638 | 7,060 | 8,745 | 8,149 | 7,821 | 54,659 |
| Cost | 733 | 17,968 | 16,949 | 12,605 | 16,729 | 12,139 | 7,821 | 84,944 |
| Accumulated depreciation | | (6,455) | (6,311) | (5,545) | (7,984) | (3,990) | | (30,285) |
| Balance at June 30, 2017 | 733 | 11,513 | 10,638 | 7,060 | 8,745 | 8,149 | 7,821 | 54,659 |

| | | | | | Mineral | | Constructions | |
|---|------|----------|------------|-----------|------------|---------|---------------|----------|
| | Land | Building | Facilities | Equipment | properties | Others | in progress | Total |
| Balance at December 31, 2015 | 766 | 9,101 | 8,292 | 7,307 | 10,304 | 7,206 | 11,126 | 54,102 |
| Additions (i) | - | - | - | - 1 | - 1 | - | 1,895 | 1,895 |
| Disposals | - | (1) | (1) | (13) | (3) | (343) | (21) | (382) |
| Assets retirement obligation | - | - | - | - | 55 | - | - | 55 |
| Depreciation, amortization and depletion | - | (229) | (289) | (450) | (405) | (310) | - | (1,683) |
| Translation adjustment | 122 | 882 | 1,083 | 713 | 1,003 | 1,024 | 2,726 | 7,553 |
| Transfers | 3 | 567 | 147 | 426 | 212 | (232) | (1,207) | (84) |
| Transfers to non-current assets held for sale | - | - | - | - | = | (497) | - | (497) |
| Balance at June 30, 2016 | 891 | 10,320 | 9,232 | 7,983 | 11,166 | 6,848 | 14,519 | 60,959 |
| Cost | 891 | 16,082 | 15,013 | 14,050 | 18,876 | 10,450 | 14,519 | 89,881 |
| Accumulated depreciation | - | (5,762) | (5,781) | (6,067) | (7,710) | (3,602) | - | (28,922) |
| Balance at June 30, 2016 | 891 | 10,320 | 9,232 | 7,983 | 11,166 | 6,848 | 14,519 | 60,959 |

⁽i) Includes capitalized borrowing costs, see cash flow.



There are no material changes to the net book value of consolidated property, plant and equipment pledged to secure judicial claims and loans and borrowings (note 16(c)) compared to those disclosed in the financial statements as at December 31, 2016.

a) Impairment of non-financial assets

During the quarter Vale, placed an underground mine, which is part of Sudbury operations, on care and maintenance. Parts of the mine, affected by seismic activity, for which repairs would be uneconomical, are not expected to resume operations in the future, was derecognized from property, plant and equipment. As a result, the Company recognized a loss of US\$133 in the income statement as "Impairment and other results on non-current assets". As other parts of the mine are subject to resume operation in the future, a net book value in the amount of US\$232 remains as part of the cost of the mine.

16. Loans, borrowings, cash and cash equivalents and financial investments

a) Net debt

The Company evaluates the net debt with the objective of ensuring the continuity of its business in the long term, being able to generate value to its stockholders, through the payment of dividends and capital gain.

| | June 30, 2017 | December 31, 2016 |
|---|---------------|-------------------|
| Debt contracts in the international markets | 20,475 | 21,130 |
| Debt contracts in Brazil | 7,377 | 8,192 |
| Total of loans and borrowings | 27,852 | 29,322 |
| | | |
| (-) Cash and cash equivalents | 5,720 | 4,262 |
| (-) Financial investments | 10 | 18 |
| Net debt | 22,122 | 25,042 |

b) Cash and cash equivalents

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.

c) Loans and borrowings

i) Total debt

| | | Current liabilities | ļ | Non-current liabilities |
|--|---------------|---------------------|---------------|-------------------------|
| | June 30, 2017 | December 31, 2016 | June 30, 2017 | December 31, 2016 |
| Debt contracts in the international markets | | | | |
| Floating rates in: | | | | |
| US\$ | 295 | 234 | 4,495 | 5,489 |
| EUR | - | - | 228 | 211 |
| Fixed rates in: | | | | |
| US\$ | - | - | 14,084 | 13,083 |
| EUR | - | - | 856 | 1,583 |
| Other currencies | 16 | 17 | 205 | 209 |
| Accrued charges | 296 | 304 | - | - |
| | 607 | 555 | 19,868 | 20,575 |
| Debt contracts in Brazil | | | | |
| Floating rates in: | | | | |
| R\$, indexed to TJLP, TR, IPCA, IGP-M and CDI | 747 | 402 | 4,677 | 5,621 |
| Basket of currencies and US\$ indexed to LIBOR | 360 | 343 | 1,034 | 1,217 |
| Fixed rates in: | | | | |
| R\$ | 69 | 66 | 207 | 216 |
| Accrued charges | 280 | 294 | 3 | 33 |
| | 1,456 | 1,105 | 5,921 | 7,087 |
| | 2,063 | 1,660 | 25,789 | 27,662 |
| | | | | |



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

| | | | | Principal | |
|-----------------------|------------|-----------------|-------------|-----------|-----------------------|
| | | | Development | | Estimated future |
| | Bank loans | Capital markets | agencies | Total | interest payments (i) |
| 2017 | 36 | - | 501 | 537 | 1,656 |
| 2018 | 527 | - | 1,086 | 1,613 | 1,528 |
| 2019 | 1,526 | 1,000 | 930 | 3,456 | 1,408 |
| 2020 | 1,860 | 1,333 | 795 | 3,988 | 1,258 |
| 2021 | 929 | 1,341 | 742 | 3,012 | 1,058 |
| Between 2022 and 2025 | 1,300 | 3,353 | 1,182 | 5,835 | 2,834 |
| 2026 onwards | 102 | 8,489 | 241 | 8,832 | 5,929 |
| | 6,280 | 15,516 | 5,477 | 27,273 | 15,671 |

⁽i) Estimated future payments of interest, calculated based on interest rate curves and foreign exchange rates applicable as at June 30, 2017 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 June 30, 2017, the average annual interest rates by currency are as follows:

| Loans and borrowings | Average interest rate (i) | Total debt |
|----------------------|---------------------------|------------|
| US\$ | 5.20% | 20,554 |
| R\$ (ii) | 8.81% | 5,974 |
| EUR (iii) | 3.35% | 1,101 |
| Other currencies | 3.12% | 223 |
| | | 27,852 |

- (i) In order to determine the average interest rate for debt contracts with floating rates, the Company used the rate applicable at June 30, 2017.
- (ii) R\$ denominated debt that bears interest at IPCA, CDI, TR or TJLP, plus spread. For a total of US\$4,094 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 2.44% 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 4.29% per year in US\$.

ii) Credit and financing lines

| | | | | | Available amount |
|-------------------------------|-------------|-------------------|---------------|--------------|------------------|
| | Contractual | | Period of the | | |
| Туре | currency | Date of agreement | agreement | Total amount | June 30, 2017 |
| Credit lines | | | | | |
| Revolving credit facilities | US\$ | May 2015 | 5 years | 3,000 | 3,000 |
| Revolving credit facilities | US\$ | June 2017 | 5 years | 2,000 | 2,000 |
| Financing lines | | | | | |
| BNDES (i) | R\$ | April 2008 | 10 years | 2,249 | 89 |
| BNDES - CLN 150 | R\$ | September 2012 | 10 years | 1,196 | 6 |
| BNDES - S11D e S11D Logística | R\$ | May 2014 | 10 years | 1,899 | 647 |

⁽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 pelletizing plant VIII, Onça Puma, Salobo I and II and capital expenditure of Itabira projects.

In June 2017, the Company signed a US\$2,000 revolving credit facility, which will be available for five years, to replace the US\$2,000 line that was signed in 2013, which was cancelled. In June 2017, the total available amount in revolving credit facilities remains at US\$5,000.

iii) Funding

In February 2017, the Company issued through Vale Overseas Limited guaranteed notes due August 2026 totaling US\$1,000. The notes bears 6.250% coupon per year, payable semi-annually, and were sold at a price of 107.793% of the principal amount. The notes were consolidated with, and formed a single series with, Vale Overseas's US\$1,000 6.250% notes due 2026 issued on August, 2016.

iv) Guarantees

As at June 30, 2017 and December 31, 2016, loans and borrowings are secured by property, plant and equipment and receivables in the amount of US\$369 and US\$472, respectively.

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



v) Covenants

Some of the Company's debt agreements with lenders contain financial covenants. The primary financial covenants in those agreements require maintaining certain ratios, such as debt to EBITDA and interest coverage. The Company has not identified any instances of noncompliance as at June 30, 2017 and December 31, 2016.

vi) Hedge in foreign operations

Implementation of net investment hedge

As at January 1, 2017, Vale S.A., the functional currency of which is Reais, designated its debts in US\$ and Euro, as an instrument in a hedge of its investment in foreign operations (Vale International S.A. and Vale International Holding GmbH; hedging objects) for mitigating the foreign exchange risk on financial statements.

At June 30, 2017 the carrying value of the designated debts are US\$6,668 and EUR750. The foreign exchange losses of US\$392 and US\$128 (US\$258 and US\$84, net taxes), was recognized in the "Cumulative translation adjustments" in stockholders' equity for the three and six month periods ended June 30, 2017, respectively. This hedge was highly effective throughout the period ended on June 30, 2017.

Accounting policy

Foreign currency differences arising on the translation of a financial liability designated as a hedge of a net investment in a foreign operation are recognized in other comprehensive income to the extent that the hedge is effective and regardless of whether the net investment is held directly or through an intermediate parent.

The hedging instrument is accounted for in the same way as a cash flow hedge, i.e. translated at the closing rate with the gain or loss on the effective hedge being recognized in equity. Gains or losses in the reserves will only be realized when the foreign operation is disposed of.

17. Liabilities related to associates and joint ventures

Refers to the provision to comply with the obligations under the agreement related to the dam failure of Samarco Mineração S.A. ("Samarco"), which is a Brazilian joint venture between Vale S.A. and BHP Billiton Brasil Ltda. ("BHPB"), as follows:

a) Framework agreement

On November 5, 2015, Samarco experienced the failure of an iron ore tailings dam ("Fundão") in the state of Minas Gerais.

Samarco and its shareholders, Vale S.A. and BHPB, entered into an Agreement ("Framework Agreement") on March 2, 2016 with the Brazilian federal government, the two Brazilian states affected by the failure (Espírito Santo and Minas Gerais) and other governmental authorities in order to implement the programs for remediation and compensation of the areas and communities affected by Samarco's dam failure.

The Framework Agreement does not contemplate admission of civil, criminal or administrative liability for the Fundão dam failure.

The Framework Agreement has a 15-year term, renewable for successive one-year periods until all the obligations under the Framework Agreement have been performed.

On June 24, 2016, the Renova Foundation ("Foundation") was established, under the Framework Agreement, to develop and implement the socio-economic restoration and compensation programs. The Foundation began its operations in August of 2016.

To the extent that Samarco does not meet its funding obligations to the foundation, each of Vale S.A. and BHPB will provide, under the terms of the Framework Agreement, funds to the Foundation in proportion to its 50% equity interest in Samarco.

As the consequence of the dam failure, governmental authorities ordered the suspension of Samarco's operations.



b) Estimates used for the provision

In light of the uncertainties related to the Samarco's future cash flow, Vale S.A. recognized a provision on its interim financial statements as of June 30, 2016, for estimated costs in the amount of US\$1,163 (R\$3,733) provision, which represents Vale S.A.'s best estimate of the obligation to comply with the reparation and compensation programs under the Framework Agreement, equivalent to its 50% equity interest in Samarco.

In August 2016 and January 2017, Samarco issued non-convertible private debentures, which were subscribed equally by Vale S.A., and BHPB, being the resources contributed by Vale S.A., in the first semester of 2017, allocated as follows:

- (i) US\$71 (R\$224), being US\$11 (R\$37) in the second quarter of 2017, used in the reparation programs in accordance with the Framework Agreement, and therefore, applied against the provision mentioned above;
- (ii) US\$92 (R\$292), being US\$31 (R\$101) in the second quarter of 2017, applied by Samarco to fund its working capital, and recognized in Vale's income statement as "Impairment and other results in associates and joint ventures".

Vale S.A intends to provide short term credit line of up to US\$76 (R\$251) to support Samarco operations in the second half of 2017, without undertaking an obligation to Samarco. Funds for working capital requirements will be released as needed by the shareholders subject to achieving certain milestone, on the same basis.

As a result of the establishment of the Foundation, most of the reparation and compensation programs were transferred from Samarco. Therefore, Vale S.A. made contributions to the Foundation totaling US\$68 (R\$217) in 2017, being US\$45 (R\$142) in the second quarter of 2017, to be used in the programs in accordance with the Framework Agreement.

As a result of the above mentioned, the movements of the provision in the three and six month periods ended in June 30, 2017 are as follows:

| | 2017 |
|-------------------------|-------|
| Balance at March 31, | 1,071 |
| Payments | (56) |
| Interests | 43 |
| Translation adjustment | (39) |
| Balance at June 30, | 1,019 |
| | |
| | 2017 |
| Balance at January 1st, | 1,077 |
| Payments | (139) |
| Interests | 90 |
| Translation adjustment | (9) |
| Balance at June 30, | 1,019 |
| | |
| Current liabilities | 295 |
| Non-current liabilities | 724 |
| Liabilities | 1,019 |
| | |

At each reporting period, Vale S.A. will reassess the key assumptions used by Samarco in the preparation of the projected future cash flows and will adjust the provision, if required.

c) Contingencies related to Samarco accident

(i) Public civil lawsuit filed by the Federal Government and others

The federal government, the two Brazilian states affected by the failure (Espirito Santo and Minas Gerais) and other governmental authorities have initiated a public civil lawsuit against Samarco and its shareholders, Vale S.A. and BHPB, with an estimated value indicated by the plaintiffs of US\$6.1 billion (R\$20.2 billion).

On May 5, 2016, the Framework Agreement, which was signed on March 2, 2016, was ratified by the Federal Regional Court ("TRF"), 1st Region. In June 2016 the Superior Court of Justice ("STJ") in Brazil issued an interim order, suspending the decision of TRF, which ratified the Framework Agreement until the final judgments of the claim.



On August 17, 2016, the TRF of the 1st Region rejected the appeal presented by Samarco, Vale S.A. and BHPB against the interim order, and overruled the judicial decision that ratified the Framework Agreement. This decision of the TRF of the 1st Region, among other measures, confirmed a prior injunction that prohibited the defendants from transferring or conveying any of their interest in its Brazilian iron ore concessions, without, however, limiting their production and commercial activities and ordered a deposit with the court of US\$363 (R\$1.2 billion) by January 2017. This US\$363 (R\$1.2 billion) cash deposit was provisionally replaced by the guarantees provided for under the agreements with MPF, as detailed in the item (ii) below.

(ii) Public civil lawsuit filed by Federal Prosecution Office

On May 3, 2016, the Federal Prosecution Office (MPF) filed a public civil lawsuit against Samarco and its shareholders and presented several demands, including: (i) the adoption of measures for mitigating the social, economic and environmental impacts resulting from the Fundão dam failure and other emergency measures; (ii) the payment of compensation to the community; and (iii) payments for the collective moral damage. The estimated action value indicated by the Federal Prosecution Office (MPF) is US\$47 billion (R\$155 billion). The first conciliatory hearing was held on September 13, 2016. On November 21, 2016, the court ordered that the defendants be served, and the defendants submitted their defense.

In January 2017 Samarco, Vale S.A. and BHPB entered into two preliminary agreements with the Federal Prosecutor's Office in Brazil (MPF).

The first agreement ("First Agreement") aims to outline the process and timeline for negotiations of a Final Agreement ("Final Agreement"), initially expected to occur by June 30th, 2017 and now expected to occur by October 30, 2017. This First Agreement establishes a timeline and actions to set the ground for conciliation of two public civil lawsuits which aim to establish socio-economic and socio-environmental remediation and compensation programs for the impacts of the Fundão dam failure, respectively: claim nº 023863-07.2016.4.01.3800, filed by the Federal Prosecutors, as mentioned in this item, and claim nº 0069758-61.2015.4.01.3400, filed by the Federal Government, the states of Minas Gerais and Espírito Santo and other governmental authorities, as mentioned in the item (i) above. Both claims were filed with the 12th Judicial Federal Court of Belo Horizonte and are suspended as requested by the parties.

In addition, the First Agreement provides for: (i) the appointment of experts to give support the Federal Prosecutors and paid for by the companies to conduct a diagnosis and monitor the progress of the 41 programs under the Framework Agreement signed on March 2nd, 2016 by the companies and the Federal Government and the states of Minas Gerais and Espírito Santo and other governmental authorities and (ii) holding at least eleven public hearings, five of which are to be held in Minas Gerais, three in Espírito Santo and the remainder in the indigenous territories of the Krenak, Comboios and Caieiras Velhas, in order to allow these communities to take part in the definition of the content of the Final Agreement.

Samarco, Vale S.A. and BHPB has agreed to provide the 12th Judicial Federal Court of Belo Horizonte with a guarantee for fulfillment of the obligations regarding the financing and payment of the socio-environmental and socio-economic remediation programs resulting from the Fundão dam failure, pursuant to the two public civil actions, until the signing of the Final Agreement, amounting to US\$665 (R\$2.2 billion), of which (i) US\$30 (R\$100) in financial investments; (ii) US\$393 (R\$1.3 billion) in insurance bonds; and (iii) US\$242 (R\$800) in assets of Samarco. In order to implement the First Agreement, it has been requested that the 12th Judicial Federal Court of Belo Horizonte accept such guarantees until the completion of the negotiations and the signing of the Final Agreement, or until October 30, 2017, whichever comes first; or until the parties reach a new agreement regarding the guarantees. If, by October 30th, the negotiations have not been completed, the Federal Prosecutor's Office may require that the 12th Judicial Federal Court of Belo Horizonte re-institute the order for the deposit of US\$363 (R\$1.2 billion) in relation to the US\$6.1 billion (R\$20.2 billion) public civil action, which is currently suspended. The parties requested the partially ratification of the First Agreement, excluding only the engagement of the socio-economic expert condition.

On March 16, 2017, the 12th Judicial Federal Court of Belo Horizonte partially ratified the First Agreement, being that this decision includes: (i) ratification of the engagement of experts to perform a socio-environmental impact assessment and assessment of programs under the Framework Agreement signed on March 2nd, 2016 and a period for the companies to engage an expert to perform the socio-economic impact assessment; (ii) the consolidation and suspension of related claims aiming to avoid contradictory or conflicting decisions and to establish a unified judicial procedure in order for the parties to be able to reach a final agreement; (iii) accepted the guarantees proposed by Samarco and its shareholders under the Preliminary Agreement on a temporary basis. Parties are still negotiating an agreement regarding the choice of the expert to perform the socio-economic impact assessment.

In addition, the Second Agreement (Second Agreement) was signed, which establishes a timetable to make funds available to remediate the social, economic and environmental damages caused by the Fundão dam failure in the municipalities of Barra Longa, Rio Doce, Santa Cruz do Escalvado and Ponte Nova, amounting to US\$60 (R\$200). The 12th Judicial Federal Court of Belo Horizonte ratified this Second Agreement.



(iii) U.S. Securities class action suits

Related to the Vale's American Depositary Receipts

On May 2, 2016, Vale S.A. and certain of its officers were named as defendants in securities class action suits in the Federal Court in New York brought by holders of Vale's American Depositary Receipts under U.S. federal securities laws. The lawsuits allege that Vale S.A. made false and misleading statements or did not make disclosures concerning the risks and dangers of the operations of Samarco's Fundão dam and the adequacy of related programs and procedures. The plaintiffs have not specified an amount of alleged damages or indemnities in these actions.

In July 2016, Vale S.A. and the individual defendants filed a motion to dismiss the Amended Complaint.

On March 23, 2017 the judge issued a decision rejecting a significant portion of the claims against Vale S.A. and the individual defendants, and determining the prosecution of the action with respect to more limited claims. The portion of plaintiffs' case that remains is related to certain statements about procedures, policies and risk mitigation plans contained in Vale S.A.'s sustainability reports in 2013 and 2014, and certain statements regarding to the responsibility of Vale S.A. for the Fundão dam failure made in a conference call in November 2015.

Vale S.A. continues to contest the lawsuit and the outstanding points.

Related to the Samarco bonds

In March 2017, holders of bonds issued by Samarco, filed a class action suit in the Federal Court in New York against Samarco, Vale S.A. and BHPB under U.S. federal securities laws demanding for indemnification for alleged violation of U.S. federal securities laws. The plaintiffs allege that false and misleading statements were made or disclosures omitted concerning the risks and dangers of the operations of Samarco's Fundão dam and the adequacy of related programs and procedures.

It is alleged that with the Fundão dam collapse, the securities have dramatically decreased, in order that the investors who have purchased such securities in a misleading way should be compensated, without, however, specifying an amount for the alleged damages or indemnities in this action.

In June 2017, Vale S.A. and the other defendants have jointly filed a Motion to Dismiss the Complaint.

Vale S.A. continues to contest this lawsuit.

(iv) Criminal lawsuit

On October 20, 2016, the MPF brought a criminal lawsuit in the Brazilian Federal Justice Court against Vale S.A., BHPB, Samarco, VogBr Recursos Hídricos e Geotecnia Ltda. and 22 individuals for alleged crimes against the environment, urban planning and cultural heritage, flooding, landslide, as well as for alleged crimes against the victims of the Fundão dam failure.

On November 16, 2016, the judge received the Federal Prosecutors Office criminal lawsuit and determined the summons of all defendants, granting 30 days each to file their defenses, to count from the day they receive the summon. Vale has already been served and its defense was presented in March 3, 2017.

On May 8th, 2017, Vale presented its manifestation against the Federal Prosecutors Office dismemberment requests and on June 6th, 2017, the Federal Prosecutors Office presented its reply to the defenses, where it requested for the action to be regularly processed.

Currently, the case awaits the judge's decision.

(v) Other lawsuits

In addition, Samarco and its shareholders were named as a defendant in several other lawsuits brought by individuals, corporations, governmental entities or public prosecutor seeking personal and property damages.

These lawsuits and petitions are at early stages, so it is not possible to determine a range of outcomes or reliable estimates of the potential exposure at this time. No contingent liability has been quantified and no provision was recognized for lawsuits related to Samarco's dam failure.



18. Financial instruments classification

| At fair value through profit or loss 159 159 | | Loans and receivables or amortized cost 4,262 18 - 3,663 71 8,014 - 180 2 | At fair value through profit or loss | Total 4,262 18 274 3,663 71 8,288 446 180 |
|---|---|--|---------------------------------------|---|
| 159 495 | 5,720 10 159 1,709 2,024 9,622 495 180 2,659 | 4,262 18 - 3,663 71 8,014 - 180 2 | 274 | 4,262 18 274 3,663 71 8,288 446 |
| 159 - - 159 495 | 5,720 10 159 1,709 2,024 9,622 495 180 2,659 | 4,262 18 - 3,663 71 8,014 - 180 2 | 274 - - - - 274 446 | 4,262 18 274 3,663 71 8,288 446 |
| - 159 - - 159 495 - | 10 159 1,709 2,024 9,622 495 180 2,659 | 18 3,663 71 8,014 - 180 2 | 274 446 | 18 274 3,663 71 8,288 446 180 |
| - 159 - - 159 495 - | 10 159 1,709 2,024 9,622 495 180 2,659 | 18 3,663 71 8,014 - 180 2 | 274 446 | 18 274 3,663 71 8,288 446 180 |
| 159 - - 1 59 495 - | 159 1,709 2,024 9,622 495 180 2,659 | 3,663 71 8,014 - 180 2 | 274 446 | 274 3,663 71 8,288 446 180 |
| - - 159 495 - - | 1,709 2,024 9,622 495 180 2,659 | 71 8,014 - 180 2 | 274 446 | 3,663 71 8,288 446 180 |
| 159 495 - | 2,024 9,622 495 180 2,659 | 71 8,014 - 180 2 | 274 446 | 71 8,288 446 180 |
| 159 495 - | 9,622 495 180 2,659 | 8,014 - 180 2 | 274 446 | 8,288 446 180 |
| 495 - - | 495 180 2,659 | 180 | 446 - | 446 180 |
| - - | 180 2,659 | 2 | - | 180 |
| - - | 180 2,659 | 2 | - | 180 |
| - | 2,659 | 2 | - | |
| _ | <u> </u> | | - | _ |
| | 3 334 | | | 2 |
| 495 | | 182 | 446 | 628 |
| 654 | 12,956 | 8,196 | 720 | 8,916 |
| | | | | |
| | | | | |
| - | 3,746 | 3,630 | _ | 3,630 |
| 362 | 362 | - | 414 | 414 |
| - | 2,063 | 1,660 | | 1,660 |
| - | 514 | 672 | - | 672 |
| 362 | 6,685 | 5,962 | 414 | 6,376 |
| 502 | 0,005 | 3,302 | 747 | 0,070 |
| 075 | 975 | - | 1,225 | 1,225 |
| 9/5 | | 27 662 | | 27,662 |
| | • | • | _ | 127 |
| - | | | 775 | 775 |
| - | -,-,5 | | | 29,789 |
| - - 1,175 | 28 933 | 27 789 | | 36,165 |
| | - 975 - 1,175 | 9 - 25,789 1 - 994 - 1,175 1,175 | - 25,789 27,662 - 994 127 | 9 - 25,789 27,662 - 4 - 994 127 - - 1,175 - 775 |

19. Fair value estimate

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

| | | | June 30, 2017 | | | December 31, 2016 |
|--|---------|---------|---------------|---------|---------|-------------------|
| | Level 2 | Level 3 | Total | Level 2 | Level 3 | Total |
| Financial assets | | | | | | |
| Derivative financial instruments | 282 | 372 | 654 | 405 | 315 | 720 |
| Total | 282 | 372 | 654 | 405 | 315 | 720 |
| | | | | | | |
| Financial liabilities | | | | | | |
| Derivative financial instruments | 894 | 443 | 1,337 | 1,190 | 449 | 1,639 |
| Participative stockholders' debentures | 1,175 | - | 1,175 | 775 | - | 775 |
| Total | 2,069 | 443 | 2,512 | 1,965 | 449 | 2,414 |
| | | | | | | |

In June 2017, the Company recognized in the financial results, the amount of US\$63 and US\$(3) related to the measurement of the fair value and US\$(6) and US\$9 related to cumulative translation adjustment of derivative financial instruments assets and liabilities classified as level 3, respectively.

There were no transfers between Level 1 and Level 2, or between Level 2 and Level 3 in the period ended June 30, 2017.



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 Reais 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.

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

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

| Financial liabilities | Balance | Fair value | Level 1 | Level 2 |
|-----------------------|---------|------------|---------|---------|
| June 30, 2017 | | | | |
| Debt principal | 27,273 | 27,299 | 15,298 | 12,001 |
| | | | | |
| December 31, 2016 | | | | |
| Debt principal | 28,691 | 27,375 | 13,874 | 13,501 |

Due to the short-term cycle, the fair value of cash and cash equivalents balances, financial investments, accounts receivable and accounts payable approximate their book values.

20. Derivative financial instruments

a) Derivatives effects on statement of financial position

| | | | Assets |
|---------|---------------------------------------|--|--|
| | June 30, 2017 | | December 31, 2016 |
| Current | Non-current | Current | Non-current |
| | | | |
| | | | |
| 96 | 1 | 132 | 1 |
| 6 | 66 | 7 | 61 |
| 22 | 10 | 1_ | 23 |
| 124 | 77 | 140 | 85 |
| | | | |
| 1 | - | 4 | 2 |
| 34 | - | 130 | - |
| 35 | - | 134 | 2 |
| | | | |
| | 418 | | 359 |
| - | 418 | - | 359 |
| 159 | 495 | 274 | 446 |
| | 96 6 22 124 1 34 35 | Current Non-current 96 1 6 66 22 10 124 77 1 - 34 - 35 - - 418 - 418 | Current Non-current Current 96 1 132 6 66 7 22 10 1 124 77 140 1 - 4 34 - 130 35 - 134 - 418 - - 418 - |



| | | | | Liabilities |
|--|---------|---------------|---------|-------------------|
| | | June 30, 2017 | | December 31, 2016 |
| | Current | Non-current | Current | Non-current |
| Derivatives not designated as hedge accounting | | | | |
| Foreign exchange and interest rate risk | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | 325 | 435 | 293 | 638 |
| IPCA swap | 19 | 58 | 20 | 57 |
| Eurobonds swap | 5 | 6 | 7 | 45 |
| Euro Forward | - | - | 46 | - |
| Pré-dolar swap | 4 | 30 | 5 | 32 |
| | 353 | 529 | 371 | 772 |
| Commodities price risk | | | | |
| Nickel | - | - | 5 | 2 |
| Bunker oil | 9 | | 38 | - |
| | 9 | - | 43 | 2 |
| | | | | |
| Others | | 446 | | 451 |
| | - | 446 | - | 451 |
| Total | 362 | 975 | 414 | 1,225 |

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

| Three month period ended June 30, | | | | | | | | |
|-----------------------------------|--|---|--|---|---|--|--|--|
| • | | | | Gain (loss) recognized in other comprehensive income | | | | |
| 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | | | |
| | | | | | | | | |
| | | | | | | | | |
| (94) | 444 | 3 | (49) | - | - | | | |
| (18) | 31 | - | - | - | - | | | |
| 29 | (20) | - | - | - | - | | | |
| - | (14) | - | - | - | - | | | |
| (13) | 42 | (1) | (1) | - | - | | | |
| (96) | 483 | 2 | (50) | _ | - | | | |
| | | | | | | | | |
| (4) | (13) | (5) | (9) | - | - | | | |
| (18) | 148 | - | (294) | - | - | | | |
| (22) | 135 | (5) | (303) | | - | | | |
| | | | | | | | | |
| 27 | 141 | =. | = | - | - | | | |
| | | | | | | | | |
| (91) | 759 | (3) | (353) | - | - | | | |
| | (94) (18) 29 - (13) (96) (4) (18) (22) | (94) 444 (18) 31 29 (20) - (14) (13) 42 (96) 483 (4) (13) (18) 148 (22) 135 | In the income statement 2017 2016 2017 2016 2017 2017 2016 2017 2017 2016 2017 2017 2016 2017 20 | Gain (loss) recognized in the income statement Financial settlement inflows (outflows) 2017 2016 2017 2016 (94) 444 3 (49) (18) 31 - - 29 (20) - - - (14) - - (13) 42 (1) (1) (96) 483 2 (50) (4) (13) (5) (9) (18) 148 - (294) (22) 135 (5) (303) 27 141 - - - | Gain (loss) recognized in the income statement Financial settlement inflows (outflows) Gain in other comprise in othe | | | |

| | | | | | Six month period ende | ed June 30, |
|--|---------------|-------------|-----------|--------------|-----------------------|-------------|
| | Gain (loss) | recognized | Financial | settlement | Gain (loss) | recognized |
| | in the income | e statement | inflows | s (outflows) | in other comprehens | ive income |
| | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| Derivatives not designated as hedge accounting | | | • | | | |
| Foreign exchange and interest rate risk | | | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | 87 | 838 | (41) | (92) | - | - |
| IPCA swap | 6 | 73 | - | 1 | - | - |
| Eurobonds swap | 2 | (6) | (39) | (142) | - | - |
| Euro forward | 46 | (12) | - | - | - | - |
| Pré-dolar swap | 10 | 76 | (1) | (74) | - | - |
| | 151 | 969 | (81) | (307) | = | - |
| Commodities price risk | | | | | | |
| Nickel | (4) | (37) | (6) | (26) | - | - |
| Bunker oil | (90) | 134 | (23) | (476) | - | - |
| | (94) | 97 | (29) | (502) | - | - |
| | | | | | | |
| Others | 61 | 136 | = | - | = | - |
| | | | | | | |
| Derivatives designated as cash flow hedge accounting | | | | | | |
| Bunker oil | - | - | - | (51) | - | - |
| Foreign exchange | <u>-</u> | (3) | - | (3) | | 2 |
| | - | (3) | - | (54) | - | 2 |
| Total | 118 | 1,199 | (110) | (863) | - | 2 |
| | | | | | | |



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

| | Last maturity dates |
|-------------------------------|---------------------|
| Currencies and interest rates | July 2023 |
| Bunker oil | December 2017 |
| Nickel | August 2019 |
| Others | December 2027 |

Additional information about derivatives financial instruments

In millions of United States dollars, except as otherwise stated

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 statistical 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 June 30, 2017. 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 June 30, 2017, 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) Derivative instruments 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.

| | | | | | | | Financial Settlement | | | | |
|-------------------------|-----------------|-------------------|---------|--------------|---------------|-------------------|----------------------|---------------|------|---------------|------------|
| | Not | ional | | | Fair | <i>r</i> alue | Inflows (Outflows) | Value at Risk | Fair | value by year | |
| Flow | June 30, 2017 | December 31, 2016 | Index | Average rate | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 | 2018 | 2019+ |
| | | | | | | | | | | | |
| CDI vs. US\$ fixed rate | e swap | | | | (99) | (121) | 66 | 26 | 38 | (101) | (36) |
| Receivable | R\$ 5.783 | R\$ 6.289 | CDI | 107,29% | | | | | | | |
| Payable | US\$ 1.858 | US\$ 2.105 | Fix | 3,95% | | | | | | | |
| | | | | | | () | 4 | | 41 | 4 | () |
| TJLP vs. US\$ fixed rat | • | | | | (508) | (622) | (106) | 57 | (96) | (90) | (323) |
| Receivable | R\$ 3.585 | R\$ 4.360 | TJLP + | 1,27% | | | | | | | |
| Payable | US\$ 1.623 | US\$ 2.030 | Fix | 1,62% | | | | | | | |
| TJLP vs. US\$ floating | rato swan | | | | (56) | (55) | (1) | 4 | (2) | (4) | (50) |
| Receivable | R\$ 230 | R\$ 242 | TJLP + | 0,89% | (50) | (55) | (-) | - | (-) | (4) | (50) |
| Payable | US\$ 131 | US\$ 140 | Libor + | -1,22% | | | | | | | |
| rayable | 035 131 | 033 140 | LIDOI T | -1,2270 | | | | | | | |
| R\$ fixed rate vs. US\$ | fixed rate swap | | | | (2) | (13) | (1) | 27 | (3) | 16 | (16) |
| Receivable | R\$ 1.198 | R\$ 1.031 | Fix | 7,04% | | | | | | | |
| Payable | US\$ 402 | US\$ 343 | Fix | -1,02% | | | | | | | |
| | | | | | | | | | | | |
| IPCA vs. US\$ fixed ra | • | | | | (53) | (51) | - | 11 | - | 6,3 | (59) |
| Receivable | R\$ 1.000 | R\$ 1.000 | IPCA+ | 6,55% | | | | | | | |
| Payable | US\$ 434 | US\$ 434 | Fix | 3,98% | | | | | | | |
| IPCA vs. CDI swap | | | | | 48 | 42 | _ | 0,4 | (19) | (3) | 70 |
| Receivable | R\$ 1.350 | R\$ 1.350 | IPCA+ | 6,62% | 40 | 42 | • | 0,4 | (19) | (5) | 70 |
| Payable | R\$ 1.350 | R\$ 1.350 | CDI | 98,59% | | | | | | | |
| i a yabic | Ν 1.330 | N 1.330 | CDI | 20,2370 | | | | | | | |

(ii) Derivative instruments for EUR denominated debt instruments

In order to reduce the cash flow volatility, swap and forward 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\$. In those forwards only the principal amount of the debt is converted from EUR to US\$.



The swap and forward 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.

| | | | | | | | Financial Settlement | | | | |
|----------------------|----------------------|-------------------|-------|--------------|---------------|-------------------|----------------------|---------------|------|-----------------|-------|
| | Notional | | | | | <i>r</i> alue | Inflows (Outflows) | Value at Risk | Fair | r value by year | |
| Flow | June 30, 2017 | December 31, 2016 | Index | Average rate | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 | 2018 | 2019+ |
| | | | | | | | | | | | |
| EUR fixed rate vs. U | IS\$ fixed rate swap | | | | (11) | (52) | (7) | 6 | - | (5) | (6) |
| Receivable | €500 | €500 | Fix | 3,75% | | | | | | | |
| Payable | US\$ 613 | US\$ 613 | Fix | 4,29% | | | | | | | |
| | | | | | | | | | | | |

| | | | | | | | Financial Settlement | | Fair value |
|----------|---------------|-------------------|----------|--------------|---------------|-------------------|----------------------|---------------|------------|
| | Noti | ional | | | | <i>r</i> alue | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average rate | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (USD/EUR) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 |
| | | | | | | | | | |
| Forwards | €0 | €500 | В | 1,143 | - | (46) | (32) | - | - |

b) Commodities derivative positions

(i) Bunker Oil purchase cash flows derivatives

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.

| | | | | | | | Financial settlement | | Fair value |
|------------------------------|---------------|-------------------|----------|----------------|---------------|-------------------|----------------------|---------------|------------|
| | Notiona | al (ton) | | | Fair v | alue | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (US\$/ton) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 |
| | | | | | | | | | |
| Bunker Oil protection | | | | | | | | | |
| Call options | 2.499.996 | 2.856.000 | В | 327 | 34 | 130 | 1 | 11 | 34 |
| Put options | 2.499.996 | 2.856.000 | S | 220 | (9) | (14) | - | 3 | (9) |
| Total | | | | | 25 | 116 | | | 25 |

As at December 31, 2016, excludes US\$24, of transactions in which the financial settlement occurs subsequently of the closing month.

(ii) Derivative instruments for base metals raw materials and products

Derivative instruments 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.

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.

| | | | | | | rinanciai settiement | | | |
|---------------|--|-------------------------------|--|--|--|---|--|--|---|
| Notiona | l (ton) | | | Fairv | alue | Inflows (Outflows) | Value at Risk | Fair value by | y year |
| | | Bought / | Average strike | | | | | | |
| June 30, 2017 | December 31, 2016 | Sold | (US\$/ton) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 | 2018 |
| | | | | | | | | | |
| | | | | | | | | | |
| 11.941 | 11.615 | В | 9.463 | 0 | (1) | (7) | 3 | (1) | 1 |
| | | | | | | | | | |
| tion | | | | | | | | | |
| 814 | 134 | S | 9.020 | (0,26) | 0,11 | 0,64 | 0,24 | (0,26) | - |
| 419 | 441 | S | 5.885 | (0,03) | (0,14) | (0,22) | 0,03 | (0,03) | - |
| | | | | (0,29) | (0,03) | | | (0,29) | - |
| | June 30, 2017 11.941 tion 814 | 11.941 11.615 tion 814 134 | June 30, 2017 December 31, 2016 Bought / Sold 11.941 11.615 B tion 814 134 S | June 30, 2017 December 31, 2016 Bought / Sold Average strike (US\$/ton) 11.941 11.615 B 9.463 tion 814 134 S 9.020 | June 30, 2017 December 31, 2016 Sold Outsold O | June 30, 2017 December 31, 2016 Sold (US\$/ton) June 30, 2017 December 31, 2016 | Notional (ton) Fair value Inflows (Outflows) | Notional (ton) Fair value Inflows (Outflows) Value at Risk | Notional (ton) Fair value Inflows (Outflows) Value at Risk Inflows (Outflows) Value at Risk |

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 part of gold payable flows produced as a sub product from Salobo copper mine and some nickel mines in Sudbury.



| | | | | | | | Financial settlement | | Fair value |
|--------------|---------------|-------------------|----------|----------------|---------------|-------------------|----------------------|---------------|------------|
| | Notional (| quantity) | | | Fairv | ralue | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (US\$/share) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2023 |
| | | | | | | | | | |
| Call options | 10.000.000 | 10.000.000 | В | 44 | 46 | 44 | - | 5 | 46 |

d) Debentures convertible into shares of Valor da Logística Integrada ("VLI")

The company has debentures in which lenders have the option to convert the outstanding debt into a specified quantity of shares of VLI owned by the company.

| | | | | | | | Financial settlement | | Fair value |
|--------------------|---------------|-------------------|----------|----------------|---------------|-------------------|----------------------|---------------|------------|
| | Notional (| quantity) | | | Fair value | | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (R\$/share) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2027 |
| | | | | | | | | | |
| Conversion options | 140.239 | 140.239 | S | 8.469 | (68) | (72) | - | 5 | (68) |

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.

| | | | | | | | Financial settlement | | Fair value |
|----------------------------------|---------------|-------------------|----------|----------------|---------------|--------------------|----------------------|---------------|------------|
| Notional (quantity, in millions) | | | | Fairv | ralue | Inflows (Outflows) | Value at Risk | by year | |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (R\$/share) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017+ |
| | | | | | | | | | |
| Options | 2.139 | 2.139 | B/S | 1,7 | 173 | 121 | - | 11 | 173 |

f) Embedded derivatives in 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.

| | | | | | | | Financial settlement | | Fair value |
|-----------------|---------------|-------------------|----------|----------------|---------------|-------------------|----------------------|---------------|------------|
| | Notiona | al (ton) | | | Fairv | alue | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (US\$/ton) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 |
| | | | | | | | | | |
| Nickel forwards | 3.062 | 5.626 | S | 9.312 | (1,17) | 0,35 | | | (1,17) |
| Copper forwards | 2.718 | 3.684 | S | 5.652 | 0,12 | 1,54 | | | 0,12 |
| Total | | | | | (1,05) | 1,88 | | 1,19 | (1,05) |

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.

| | | | | | | | Financial settlement | | | |
|-------------------------|---------------|-------------------|----------|----------------|---------------|--------------------|----------------------|---------------|--------|-------|
| Notional (volume/month) | | | | Fair value | | Inflows (Outflows) | Value at Risk | Fair value b | y year | |
| | | | Bought / | Average strike | | | | | 2017 | 2040. |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (US\$/ton) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2017 | 2018+ |
| Call options | 746.667 | 746.667 | S | 233 | (3,4) | (2,0) | | 2,1 | (0,13) | (3,3) |

In August 2014 the Company sold part of its stake in Valor da Logística Integrada ("VLI") to an investment fund managed by Brookfield Asset Management ("Brookfield"). The sales contract includes a clause that establishes, under certain conditions, a minimum return guarantee on Brookfield's investment. This clause is considered an embedded derivative, with payoff equivalent to that of a put option.

| | | | | | | | Financial settlement | | Fair value |
|------------|---------------|-------------------|----------|----------------|-----------------------|-------------------|----------------------|---------------|------------|
| | Notional (d | quantity) | | | Fair value Pair value | | Inflows (Outflows) | Value at Risk | by year |
| | | | Bought / | Average strike | | | | | |
| Flow | June 30, 2017 | December 31, 2016 | Sold | (R\$/share) | June 30, 2017 | December 31, 2016 | June 30, 2017 | June 30, 2017 | 2027 |
| | | | | | | | | | |
| Put option | 1.105.070.863 | 1.105.070.863 | S | 3,07 | (176) | (182) | - | 16 | (176) |

For sensitivity analysis of derivative financial instruments, Financial counterparties' ratings and market curves, see note 27.



21. Provisions

| | | Current liabilities | Non-current liabilities | | |
|---|---------------|----------------------------|-------------------------|-------------------|--|
| | June 30, 2017 | December 31, 2016 | June 30, 2017 | December 31, 2016 | |
| Payroll and related charges | 649 | 725 | - | - | |
| Onerous contracts | 56 | 101 | 443 | 473 | |
| Environment Restoration | 20 | 10 | 90 | 111 | |
| Asset retirement obligations | 37 | 47 | 2,565 | 2,472 | |
| Provisions for litigation (note 22 (a)) | - | - | 743 | 839 | |
| Employee postretirement obligations (note 23) | 72 | 69 | 2,212 | 1,853 | |
| Provisions | 834 | 952 | 6,053 | 5,748 | |

22. 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 | l otal of litigation provision |
|---------------------------|----------------|------------------|------------------|-----------------------------|--------------------------------|
| Balance at March 31, 2017 | 225 | 81 | 560 | 6 | 872 |
| Additions | 2 | 6 | 56 | 2 | 66 |
| Reversals | (13) | (7) | (29) | - | (49) |
| Payments | (90) | (1) | (28) | - | (119) |
| Indexation and interest | (9) | 3 | 2 | 1 | (3) |
| Translation adjustment | 4 | (3) | (24) | (1) | (24) |
| Balance at June 30, 2017 | 119 | 79 | 537 | 8 | 743 |

| | Tax litigation | Civil litigation | Labor litigation | Environmental litigation | Total of litigation provision |
|--|----------------|------------------|------------------|--------------------------|-------------------------------|
| Balance at March 31, 2016 | 218 | 103 | 507 | 23 | 851 |
| Additions | 18 | 44 | 50 | 3 | 115 |
| Reversals | (9) | (19) | (28) | (2) | (58) |
| Payments | (33) | (26) | (44) | - | (103) |
| Indexation and interest | 26 | (1) | 10 | (1) | 34 |
| Translation adjustment | 11 | 11 | 54 | 3 | 79 |
| Additions and reversals of discontinued operations | - | - | 6 | - | 6 |
| Balance at June 30, 2016 | 231 | 112 | 555 | 26 | 924 |

| | | | | Environmental | Total of litigation |
|------------------------------|----------------|------------------|------------------|---------------|---------------------|
| | Tax litigation | Civil litigation | Labor litigation | litigation | provision |
| Balance at December 31, 2016 | 214 | 84 | 534 | 7 | 839 |
| Additions | 2 | 20 | 100 | 5 | 127 |
| Reversals | (13) | (28) | (55) | (2) | (98) |
| Payments | (89) | (7) | (47) | - | (143) |
| Indexation and interest | (1) | 10 | 13 | (1) | 21 |
| Translation adjustment | 6 | - | (8) | (1) | (3) |
| Balance at June 30, 2017 | 119 | 79 | 537 | 8 | 743 |

| | | | | Environmental | Total of litigation |
|--|----------------|------------------|------------------|---------------|---------------------|
| | Tax litigation | Civil litigation | Labor litigation | litigation | provision |
| Balance at December 31, 2015 | 269 | 79 | 454 | 20 | 822 |
| Additions | 34 | 55 | 100 | 5 | 194 |
| Reversals | (17) | (22) | (46) | (3) | (88) |
| Payments | (88) | (44) | (66) | - | (198) |
| Indexation and interest | 9 | 22 | 8 | - | 39 |
| Translation adjustment | 22 | 21 | 91 | 4 | 138 |
| Additions and reversals of discontinued operations | 2 | 1 | 14 | - | 17 |
| Balance at June 30, 2016 | 231 | 112 | 555 | 26 | 924 |



b) Contingent liabilities

Contingent liabilities of administrative and judicial claims, with expectation of loss classified as possible, and for which the recognition of a provision is not considered necessary by the Company, based on legal advice are as follows:

| | June 30, 2017 | December 31, 2016 |
|--------------------------|---------------|-------------------|
| Tax litigation | 8,480 | 7,636 |
| Civil litigation | 2,349 | 1,502 |
| Labor litigation | 2,194 | 2,418 |
| Environmental litigation | 1,945 | 1,871 |
| Total | 14,968 | 13,427 |

- i Tax litigation Our most significant tax-related contingent liabilities result from disputes related to (i) the deductibility of our payments of social security contributions on the net income (CSLL) from our taxable income, (ii) challenges of certain tax credits we deducted from our PIS and COFINS payments, (iii) assessments of CFEM (royalties), and (iv) charges of value-added tax on services and circulation of goods (ICMS), especially relating to certain tax credits we claimed from the sale and transmission of energy, ICMS charges to anticipate the payment in the entrance of goods to Pará State, ICMS charges on our own transportation costs and challenges to other tax credits we claimed. The changes reported in the period resulted, mainly, from new proceedings related to PIS, COFINS, ICMS, CFEM; interest and inflation adjustments in the amounts in dispute.
- ii Civil litigation Most of those claims 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 related to contractual disputes regarding inflation index.
- iii Labor litigation Represents individual claims by employees and service providers, primarily involving demands for additional compensation for overtime work, time spent commuting or health and safety conditions; and 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.

| | June 30, 2017 | December 31, 2016 |
|--------------------------|---------------|-------------------|
| Tax litigation | 190 | 193 |
| Civil litigation | 57 | 62 |
| Labor litigation | 680 | 691 |
| Environmental litigation | 12 | 16 |
| Total | 939 | 962 |

d) Others

For contingencies related to Samarco Mineração S.A., see note 17.



23. Employee postretirement obligations

Reconciliation of net liabilities recognized in the statement of financial position

| | | | 2017 | | | 2016 |
|--|--|---|--------------------------------------|---|---|-----------------------------|
| | Overfunded | Underfunded | | Overfunded | Underfunded | |
| | pension plans | pension plans | Other benefits | pension plans | pension plans | Other benefits |
| Movements of assets ceiling | | | | | | |
| Balance at March 31, | 1,650 | = | = | 1,340 | - | = |
| Interest income | 37 | - | - | 39 | - | - |
| Changes on asset ceiling and onerous liability | (186) | - | - | 153 | - | - |
| Translation adjustment | (54) | - | - | 163 | - | - |
| Balance at June 30, | 1,447 | - | - | 1,695 | - | - |
| Amount recognized in the statement of financial position | | | | | | |
| Present value of actuarial liabilities | (3,296) | (4,504) | (1,448) | (3,075) | (4,064) | (1,398) |
| Fair value of assets | 4,743 | 3,668 | - | 4,770 | 3,235 | - |
| Effect of the asset ceiling | (1,447) | - | - | (1,695) | - | - |
| Liabilities | | (836) | (1,448) | - | (829) | (1,398) |
| | | | | | | |
| Current liabilities | - | (19) | (53) | - | (20) | (57) |
| Non-current liabilities | - | (817) | (1,395) | - | (809) | (1,341) |
| | | | | | | |
| Liabilities | - | (836) | (1,448) | - . | (829) | (1,398) |
| Liabilities | | | (1,448) | <u>-</u> | <u> </u> | (1,398) 2016 |
| Liabilities | Overfunded | (836) Underfunded | 2017 | - Overfunded | Underfunded | 2016 |
| | | | | Overfunded pension plans | Underfunded | 2016 |
| Movements of assets ceiling | Overfunded pension plans | Underfunded | 2017 | | Underfunded | 2016 |
| | Overfunded | Underfunded | 2017 | | Underfunded | 2016 |
| Movements of assets ceiling Balance at January 1st, Interest income | Overfunded pension plans 1,351 77 | Underfunded pension plans | 2017 Other benefits | pension plans 961 72 | Underfunded | 2016 |
| Movements of assets ceiling Balance at January 1st, | Overfunded pension plans 1,351 77 49 | Underfunded pension plans | 2017 Other benefits | pension plans | Underfunded | 2016 |
| Movements of assets ceiling Balance at January 1st, Interest income | Overfunded pension plans 1,351 77 | Underfunded pension plans | 2017 Other benefits | pension plans 961 72 | Underfunded | 2016 |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability | Overfunded pension plans 1,351 77 49 | Underfunded pension plans - - - | 2017 Other benefits | 961 72 381 | Underfunded | 2016 |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, | Overfunded pension plans 1,351 77 49 (30) | Underfunded pension plans - - - - | 2017 Other benefits | 961 72 381 281 | Underfunded pension plans - - - - | 2016 |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment | Overfunded pension plans 1,351 77 49 (30) 1,447 | Underfunded pension plans - - - - - | 2017 Other benefits | 961 72 381 281 1,695 | Underfunded pension plans - - - - - | 2016 Other benefits |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position | Overfunded pension plans 1,351 77 49 (30) 1,447 | Underfunded pension plans (4,504) | 2017 Other benefits | 961 72 381 281 1,695 | Underfunded pension plans (4,064) | 2016 Other benefits |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position Present value of actuarial liabilities Fair value of assets | Overfunded pension plans 1,351 77 49 (30) 1,447 (3,296) 4,743 | Underfunded pension plans - - - - - | 2017 Other benefits | 961 72 381 281 1,695 | Underfunded pension plans - - - - - | |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position Present value of actuarial liabilities | Overfunded pension plans 1,351 77 49 (30) 1,447 | Underfunded pension plans (4,504) | 2017 Other benefits | 961 72 381 281 1,695 | Underfunded pension plans (4,064) | 2016 Other benefits (1,398) |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position Present value of actuarial liabilities Fair value of assets Effect of the asset ceiling Liabilities | Overfunded pension plans 1,351 77 49 (30) 1,447 (3,296) 4,743 | Underfunded pension plans | 2017 Other benefits (1,448) (1,448) | 961 72 381 281 1,695 (3,075) 4,770 (1,695) - | Underfunded pension plans | 2016 Other benefits |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position Present value of actuarial liabilities Fair value of assets Effect of the asset ceiling Liabilities Current liabilities | Overfunded pension plans 1,351 77 49 (30) 1,447 (3,296) 4,743 | Underfunded pension plans | 2017 Other benefits (1,448) (1,448) | 961 72 381 281 1,695 | Underfunded pension plans | 2016 Other benefits |
| Movements of assets ceiling Balance at January 1st, Interest income Changes on asset ceiling and onerous liability Translation adjustment Balance at June 30, Amount recognized in the statement of financial position Present value of actuarial liabilities Fair value of assets Effect of the asset ceiling Liabilities | Overfunded pension plans 1,351 77 49 (30) 1,447 (3,296) 4,743 | Underfunded pension plans | 2017 Other benefits (1,448) (1,448) | 961 72 381 281 1,695 (3,075) 4,770 (1,695) - | Underfunded pension plans | 2016 Other benefits |



24. Stockholders' equity

a) Share capital

At June 30, 2017 and December 31, 2016, the share capital was US\$61,614 corresponding to 5,244,316,120 shares issued and fully paid without par value.

| | | | June 30, 2017 |
|---|---------------|---------------|----------------|
| Stockholders | 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 | 769,357,504 | 584,202,865 | 1,353,560,369 |
| FMP - FGTS | 65,855,336 | - | 65,855,336 |
| PIBB - Fund | 785,064 | 1,627,176 | 2,412,240 |
| BNDESPar | 206,378,882 | 66,185,272 | 272,564,154 |
| Foreign institutional investors in local market | 273,887,689 | 829,336,231 | 1,103,223,920 |
| Institutional investors | 111,858,158 | 156,477,855 | 268,336,013 |
| Retail investors in Brazil | 41,095,322 | 309,552,515 | 350,647,837 |
| Shares outstanding | 3,185,653,000 | 1,967,721,926 | 5,153,374,926 |
| Shares in treasury | 31,535,402 | 59,405,792 | 90,941,194 |
| Total issued shares | 3,217,188,402 | 2,027,127,718 | 5,244,316,120 |
| Share capital - Amounts per class of shares (in millions) | 38,525 | 23,089 | 61,614 |
| Total authorized shares | 3,600,000,000 | 7,200,000,000 | 10,800,000,000 |

PNA - Preferred shares ON - Common shares

b) New stockholders' agreement

On February 20, 2017 the Company announced that a new shareholders' agreement was filed at the Company's headquarters, executed by Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co., Ltd. and BNDES Participações S.A. – BNDESPAR, as shareholders of Valepar S.A. ("Valepar"), jointly referred to as "Shareholders", which entered into force after the expiration of Valepar's Shareholders' Agreement on May 10, 2017.

The Valepar Agreement, along with the standard provisions in connection with voting rights and right of first refusal for the acquisition of the Shareholders' shares, provides for the submission to the Company of a proposal for the purpose of enabling the listing of Vale on B3 S.A. New Market segment (Brazil) and making Vale a company without defined control ("Proposal").

The transaction envisaged by the Proposal is composed of a series of indivisible and interdependent steps, whose effectiveness is subject to the successful performance of the other steps. The Proposal comprises, beyond the performance of all acts and procedures imposed by the applicable legal provisions and rules:

- (i) Voluntary conversion of Vale class A preferred shares into common shares, based on the conversion rate of 0.9342 common shares for each Vale class A preferred share, based on the average closing price of the common shares and preferred shares over the last 30 trading sessions on the B3 S.A. prior to February 17, 2017 (inclusive), weighted by the volume of shares traded in such trading sessions;
- (ii) Amendment of Vale's bylaws, so as to adjust it, as much as possible, to B3 S.A. New Market segment rules so Vale may be effectively listed on such special segment;
- (iii) The merger of Valepar into Vale at an exchange ratio that contemplates a 10% increase in the number of shares held by the shareholders of Valepar compared to Valepar's current shareholding interest, and represents a dilution of approximately 3% of the shareholding interest held by the other shareholders in Vale.

In line with the provisions of item "iii" above, Valepar's shareholders will receive 1.2065 Vale common shares for each Valepar share held by them. As a result, Vale will issue 173,543,667 new common shares, all registered and without par value, in favor of Valepar's shareholders. Consequently, Valepar's shareholders will own a total of 1,908,980,340 Vale common shares after the merger of Valepar.

At the General Extraordinary Shareholders' Meeting, held on June 27, 2017, all resolutions related to the proposal for corporate restructuring of the Company listed above were approved.



The completion of the Voluntary Conversion and, consequently, of the other stages of the transaction which are the object of the Proposal is now subject to the voluntary conversion by at least 54.09% of class A preferred shares, as mentioned in item "i" above. The conversion period commenced on June 28, 2017 and ends on August 11, 2017, during which the holders may, if they so wish, join the Voluntary Conversion.

On the date of effectiveness of the merger of Valepar into Vale, if the merger is completed, the Shareholders will execute a new shareholders' agreement ("Vale Agreement") that will bind only 20% of the totality of Vale's common shares, and will be in force until November 9, 2020, with no provision for renewal.

For 6 months from the date of entry into force of the Vale Agreement, the Shareholders will be obligated not to transfer, by any means, either directly or indirectly, Vale shares they receive as a result of the implementation of the Proposal ("Lock-Up"), except for (i) the transfer of Vale's shares by the Shareholders to their affiliates and their current shareholders, provided that such transferred shares shall remain subject to the Lock-Up, and (ii) the transfer of shares held by the Shareholders prior to the merger of Valepar.

c) Remuneration to the Company's stockholders

In April 2017, the Annual General Meeting approved the payment of shareholder remuneration for the year of 2016, in the amount of R\$4,667 (US\$1,459). Accordingly, the amount of R\$2,065 (US\$646) related to the Profit Reserve "Additional Remuneration Reserve", that was recorded in December 31, 2016, was used to the payment of dividends in the form of interest on shareholders' equity, in addition to the amount of R\$2,602 (US\$813), already recorded in the current liabilities.

25. 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. The definition of related party is based on applicable accounting standards and our internal policies, which may be more restrictive than applicable laws and regulations under certain circumstances.

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

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

| | | | | | | | | Assets |
|--|-------------|-------------|------------|--------------|-------------|-------------|------------|--------------|
| | | | Ju | ıne 30, 2017 | | | Deceml | oer 31, 2016 |
| | Cash and | Derivative | | | Cash and | Derivative | | |
| | cash | financial | Accounts | Related | cash | financial | Accounts | Related |
| | equivalents | instruments | receivable | parties | equivalents | instruments | receivable | parties |
| Banco Bradesco S.A. | 209 | 382 | - | - | 522 | 324 | - | - |
| Banco do Brasil S.A. | 957 | 24 | - | - | 57 | 34 | - | - |
| Companhia Coreano-Brasileira de Pelotização | - | - | - | 19 | - | - | - | 5 |
| Companhia Hispano-Brasileira de Pelotização | - | - | - | - | - | - | 1 | - |
| Companhia Ítalo-Brasileira de Pelotização | - | - | - | - | - | - | - | 8 |
| Companhia Nipo-Brasileira de Pelotização | - | - | - | 14 | - | - | - | 15 |
| Companhia Siderúrgica do Pecém | - | - | 48 | - | - | - | 37 | - |
| Consórcio de Rebocadores da Baia de São Marcos | - | - | 8 | - | - | - | 10 | - |
| Mitsui & Co., Ltd. | - | - | 3 | - | - | - | 4 | - |
| MRS Logística S.A. | - | - | - | 38 | - | - | - | 24 |
| Nacala BV (i) | - | - | - | 4,570 | - | - | - | - |
| VLI | - | - | 8 | 19 | - | - | 9 | 12 |
| Others | - | - | 36 | 23 | - | - | 46 | 9 |
| Total | 1,166 | 406 | 103 | 4,683 | 579 | 358 | 107 | 73 |

(i) Refers to the balances after the sale of Nacala Corridor business (note 11).



| | | | | | | | | Liabilities |
|---|----------------------------------|-----------------------|-----------------|----------------------|----------------------------------|-----------------------|-----------------|----------------------|
| | | | | June 30, 2017 | | | Decen | nber 31, 2016 |
| | Derivative financial instruments | Others liabilities | Related parties | Loans and borrowings | Derivative financial instruments | Others liabilities | Related parties | Loans and borrowings |
| Aliança Geração de Energia S.A. | - | 62 | - | - | - | 16 | 38 | - |
| Banco Bradesco S.A. | 240 | - | - | - | 250 | - | - | 6 |
| Banco do Brasil S.A. | 37 | - | - | 2,127 | 45 | - | - | 2,568 |
| BNDES | 68 | - | - | 4,117 | 72 | - | - | 4,432 |
| BNDES Participações S.A. | - | - | - | 391 | - | - | - | 414 |
| Companhia Coreano-Brasileira de Pelotização | - | 75 | 38 | - | - | 3 | 59 | - |
| Companhia Hispano-Brasileira de Pelotização | - | 61 | 40 | - | - | 39 | 14 | - |
| Companhia Ítalo-Brasileira de Pelotização | - | 49 | 49 | - | - | - | 99 | - |
| Companhia Nipo-Brasileira de Pelotização | - | 132 | 79 | - | - | 3 | 146 | - |
| Ferrovia Centro-Atlântica S.A. | - | 1 | 82 | - | - | - | 83 | - |
| Mitsui & Co., Ltd. | - | 38 | - | - | - | 17 | - | - |
| MRS Logística S.A. | - | 24 | = | - | - | 25 | - | - |
| Nacala BV (i) | - | 107 | - | - | - | - | - | - |
| Pangea Emirates Ltd Mitsui (i) | - | - | 1,133 | - | - | - | - | - |
| Sumic Nickel Netherland B.V | - | - | - | - | - | - | 353 | - |
| VLI | - | 3 | 70 | - | - | 3 | - | - |
| Others | - | 53 | 17 | - | - | 38 | 7 | - |
| Total | 345 | 605 | 1,508 | 6,635 | 367 | 144 | 799 | 7,420 |

(i) Refers to the balances after the sale of Nacala Corridor business (note 11).

| | | | | Three | month period er | nded June 30, |
|---|---------------|-----------|-----------|---------------|-----------------|---------------|
| | | | 2017 | | | 2016 |
| | Net operating | Costs and | Financial | Net operating | Costs and | Financial |
| | revenue | expenses | result | revenue | expenses | result |
| Aliança Geração de Energia S.A. | 8 | (38) | - | - | - | - |
| Banco Bradesco S.A. (i) | - | - | 32 | - | - | 152 |
| Banco do Brasil S.A. (i) | - | - | (133) | - | - | (46) |
| Baovale Mineração S.A. | - | (4) | - | - | (5) | - |
| BNDES (i) | - | - | (113) | - | - | (105) |
| BNDES Participações S.A. (i) | - | - | (14) | - | - | (14) |
| Companhia Coreano-Brasileira de Pelotização | - | (39) | (1) | - | (18) | - |
| Companhia Hispano-Brasileira de Pelotização | - | (30) | (1) | - | (9) | - |
| Companhia Ítalo-Brasileira de Pelotização | - | (36) | (2) | - | (12) | - |
| Companhia Nipo-Brasileira de Pelotização | - | (67) | (3) | - | (20) | - |
| Companhia Siderúrgica do Atlântico | - | - | - | - | (6) | - |
| Companhia Siderúrgica do Pecém | 52 | (41) | - | 15 | - | - |
| Ferrovia Centro-Atlântica S.A. | 12 | (7) | - | 11 | (7) | - |
| Ferrovia Norte Sul S.A. | 7 | - | - | 6 | - | - |
| Mitsui & Co., Ltd. | 35 | (6) | - | 42 | - | - |
| MRS Logística S.A. | - | (147) | - | - | (139) | - |
| Nacala BV (i) | - | (94) | 67 | - | - | - |
| Pangea Emirates Ltd Mitsui (i) | - | - | (48) | - | - | - |
| Samarco Mineração S.A. | - | - | 14 | - | - | - |
| VLI | 61 | - | - | 71 | (3) | - |
| Others | 8 | (1) | (2) | 1 | (8) | - |
| Total | 183 | (510) | (204) | 146 | (227) | (13) |



Six month period ended June 30,

| | | | | • | idea Julie 30, |
|---------------|---------------------------|--|---|--|--|
| | | | | | 2016 |
| Net operating | Costs and | Financial | Net operating | Costs and | Financial |
| revenue | expenses | result | revenue | expenses | result |
| 11 | (62) | - | - | - | - |
| - | - | 74 | - | - | 134 |
| - | - | (199) | - | - | (82) |
| - | (8) | - | - | (8) | - |
| - | - | (167) | - | - | (151) |
| - | - | (21) | - | - | (20) |
| 36 | - | - | - | - | - |
| - | (74) | (3) | - | (35) | - |
| - | (59) | (3) | - | (19) | - |
| - | (54) | (5) | - | (22) | - |
| - | (128) | (7) | - | (52) | - |
| - | - | - | - | (6) | - |
| 128 | (88) | - | 32 | - | - |
| 20 | (15) | - | 19 | (12) | - |
| 12 | - | - | 11 | - | - |
| 65 | (12) | - | 62 | - | - |
| - | (259) | - | - | (202) | - |
| - | (94) | 67 | - | - | - |
| - | - | (48) | - | - | - |
| 14 | - | 12 | - | - | - |
| 131 | - | - | 127 | (3) | - |
| 13 | (2) | (9) | 10 | (18) | - |
| 430 | (855) | (309) | 261 | (377) | (119) |
| | 11 36 128 20 12 65 14 131 | revenue expenses 11 (62) - - - (8) - - - - 36 - - (59) - (54) - (128) - - 128 (88) 20 (15) 12 - 65 (12) - (259) - (94) - - 14 - 131 - 13 (2) | revenue expenses result 11 (62) - - - 74 - - (199) - (8) - - (167) - - - (21) 36 - - - (74) (3) - (59) (3) - (59) (3) - (54) (5) - (128) (7) - - - - (128) (7) - - - - (128) - - - - - (128) - - - - - (129) - - (94) 67 - (48) 14 - 12 131 - - - - - < | Net operating revenue Costs and expenses Financial result Net operating revenue 11 (62) - - - - 74 - - - (199) - - (8) - - - (167) - - (21) - - (74) (3) - - (59) (3) - - (59) (3) - - (54) (5) - - (128) (7) - - (128) (7) - - (128) (7) - - (128) - 32 20 (15) - 19 12 - - 11 65 (12) - 62 - (259) - - - (94) 67 - - | Net operating revenue Costs and expenses Financial result Net operating revenue Costs and expenses 11 (62) - - - - - (199) - - - (8) - - (8) - - (167) - - - - (167) - - - - (21) - - - - (21) - - - - (21) - - - - (21) - - - - (21) - - - (74) (3) - (35) - (59) (3) - (19) - (59) (3) - (19) - (128) (7) - (52) - - - - - - - - - |

⁽i) Does not include exchange rate variation.

26. Commitments

a) Participative stockholders' debentures

In April, 2017, the Company approved the semiannual remuneration to stockholders' debentures the amount of R\$241 (US\$77).

b) Guarantees provided

As of June 30, 2017, 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\$368 and US\$1,480, respectively and in December 31, 2016 totaled US\$361 and US\$1.450, respectively.



27. Additional information about derivatives financial instruments

a) 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 June 30, 2017
- 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 |
|--|---|----------------|----------------|--------------|
| | | | | |
| CDI vs. US\$ fixed rate swap | R\$ depreciation | (100) | (503) | (907) |
| | US\$ interest rate inside Brazil decrease | (100) | (113) | (127) |
| | Brazilian interest rate increase | (100) | (102) | (105) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | - | - |
| THE Date of the Control of the Contr | RS depreciation | (507) | (044) | (1.314) |
| TJLP vs. US\$ fixed rate swap | USS interest rate inside Brazil decrease | (507) (507) | (911) (525) | (543) |
| | Brazilian interest rate increase | | | |
| | TJLP interest rate increase | (507) | (543) | (575) |
| Protected item: RS denominated debt | | (507) | (536) | (564) |
| Protected Item: K\$ denominated debt | R\$ depreciation | n.a. | | - |
| TJLP vs. US\$ floating rate swap | RS depreciation | (56) | (87) | (119) |
| | US\$ interest rate inside Brazil decrease | (56) | (58) | (60) |
| | Brazilian interest rate increase | (56) | (59) | (61) |
| | TJLP interest rate decrease | (56) | (58) | (60) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | - | - |
| | | | | |
| R\$ fixed rate vs. US\$ fixed rate swap | R\$ depreciation | (1) | (88) | (175) |
| | US\$ interest rate inside Brazil decrease | (1) | (11) | (22) |
| | Brazilian interest rate increase | (1) | (25) | (47) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | - | - |
| | | | | |
| IPCA vs. US\$ fixed rate swap | R\$ depreciation | (53) | (167) | (282) |
| | US\$ interest rate inside Brazil decrease | (53) | (58) | (64) |
| | Brazilian interest rate increase | (53) | (73) | (92) |
| | IPCA index decrease | (53) | (63) | (72) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | - | - |
| IDCA CDI | Described interest and increase | 40 | | (22) |
| IPCA vs. CDI swap | Brazilian interest rate increase | 48 | 11 | (22) |
| Protected item: RS denominated debt linked to IPCA | IPCA index decrease | 48 | 30 | 13 |
| Protected Item: K\$ denominated debt linked to IPCA | IPCA index decrease | n.a. | (30) | (13) |
| EUR fixed rate vs. US\$ fixed rate swap | EUR depreciation | (11) | (183) | (355) |
| | Euribor increase | (11) | (19) | (27) |
| | US\$ Libor decrease | (11) | (28) | (46) |
| Protected item: EUR denominated debt | EUR depreciation | n.a. | 183 | 355 |



| Instrument | Instrument's main risk events | Scenario I | Scenario II | Scenario III |
|---|-------------------------------|---------------|-------------|--------------|
| | | | | |
| Bunker Oil protection | | | | |
| Forwards and options | Bunker Oil price decrease | 25 | (45) | (186) |
| Protected item: Part of costs linked to bunker oil prices | Bunker Oil price decrease | n.a. | 45 | 186 |
| | | | | |
| Nickel sales fixed price protection | | | | |
| Forwards | Nickel price decrease | 0 | (26) | (52) |
| Protected item: Part of nickel revenues with fixed prices | Nickel price fluctuation | n.a. | 26 | 52 |
| Purchase protection program | | | | |
| Nickel forwards | Nickel price increase | (0,3) | (2,2) | (4,1) |
| Protected item: Part of costs linked to nickel prices | Nickel price increase | (0,3) n.a. | 2,2 | 4,1 |
| Trotected item. Fait of costs linked to linker prices | Mickel price increase | 11.0. | 2,2 | 7,2 |
| Copper forwards | Copper price increase | (0,0) | (0,3) | (0,6) |
| Protected item: Part of costs linked to copper prices | Copper price increase | n.a. | 0,3 | 0,6 |
| | | | | |
| SLW warrants | SLW stock price decrease | 46 | 25 | 9 |
| | | | | |
| Conversion options - VLI | VLI stock value increase | (68) | (103) | (144) |
| | | | | |
| Options - MBR | MBR stock value decrease | 172 | 106 | 57 |

| Instrument | Main risks | Scenario I | Scenario II | Scenario III |
|--|--------------------------|------------|-------------|--------------|
| | | | | |
| Embedded derivatives - Raw material purchase (nickel) | Nickel price increase | (1,2) | (8) | (15) |
| Embedded derivatives - Raw material purchase (copper) | Copper price increase | 0 | (4) | (8) |
| Embedded derivatives - Gas purchase | Pellet price increase | (3) | (7) | (12) |
| Embedded derivatives - Guaranteed minimum return (VLI) | VLI stock value decrease | (176) | (314) | (500) |

b) 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 June 30, 2017.

| Long term ratings by counterparty | Moody's | S&P |
|---------------------------------------|---------|------|
| ANZ Australia and New Zealand Banking | Aa3 | AA- |
| Banco Bradesco | Ba3 | BB |
| Banco de Credito del Peru | Baa1 | BBB |
| Banco do Brasil | Ba3 | BB |
| Banco do Nordeste | Ba3 | BB |
| Banco Safra | Ba3 | BB |
| Banco Santander | A3 | A- |
| Banco Votorantim | Ba3 | BB |
| Bank of America | Baa1 | BBB+ |
| Bank of China | A1 | Α |
| Bank of Nova Scotia | A1 | A+ |
| Bank of Tokyo Mitsubishi UFJ | A1 | Α |
| Banpara | - | BB- |
| Barclays | Baa2 | BBB |
| BNP Paribas | A1 | Α |
| | | |

| Long term ratings by counterparty | Moody's | 5&P |
|-----------------------------------|---------|------|
| BTG Pactual | Ba3 | BB- |
| Caixa Economica Federal | Ba3 | BB |
| Citigroup | Baa1 | BBB+ |
| Deutsche Bank | A3 | A- |
| Goldman Sachs | A3 | BBB+ |
| HSBC | A1 | Α |
| Intesa Sanpaolo Spa | A3 | BBB- |
| Itau Unibanco | Ba3 | BB |
| JP Morgan Chase & Co | A3 | A- |
| Macquarie Group Ltd | A3 | BBB |
| Morgan Stanley | A3 | BBB+ |
| National Australia Bank NAB | Aa3 | AA- |
| Societe Generale | A2 | Α |
| Standard Bank Group | Ba1 | - |
| Standard Chartered | A2 | BBB+ |
| | | |



c) 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

| ı | |
|---|--|

| Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) |
|----------|------------------|----------|------------------|----------|------------------|
| SPOT | 9.280 | DEC17 | 9.449 | JUN18 | 9.554 |
| JUL17 | 9.363 | JAN18 | 9.468 | JUN19 | 9.750 |
| AUG17 | 9.379 | FEB18 | 9.485 | JUN20 | 9.911 |
| SEP17 | 9.393 | MAR18 | 9.504 | JUN21 | 10.043 |
| OCT17 | 9.412 | APR18 | 9.522 | | |
| NOV17 | 9.431 | MAY18 | 9.539 | | |

Copper

| Maturity | Price (US\$/lb) | Maturity | Price (US\$/lb) | Maturity | Price (US\$/lb) |
|----------|-----------------|----------|-----------------|----------|-----------------|
| SPOT | 2,70 | DEC17 | 2,70 | JUN18 | 2,71 |
| JUL17 | 2,69 | JAN18 | 2,71 | JUN19 | 2,72 |
| AUG17 | 2,69 | FEB18 | 2,71 | JUN20 | 2,72 |
| SEP17 | 2,70 | MAR18 | 2,71 | JUN21 | 2,72 |
| OCT17 | 2,70 | APR18 | 2,71 | | |
| NOV17 | 2,70 | MAY18 | 2,71 | | |

Bunker Oil

| Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) |
|----------|------------------|----------|------------------|----------|------------------|
| SPOT | 294 | DEC17 | 291 | JUN18 | 290 |
| JUL17 | 295 | JAN18 | 290 | JUN19 | 292 |
| AUG17 | 296 | FEB18 | 290 | JUN20 | 280 |
| SEP17 | 294 | MAR18 | 289 | JUN21 | 276 |
| OCT17 | 292 | APR18 | 290 | | |
| NOV17 | 291 | MAY18 | 290 | | |

(ii) Foreign exchange and interest rates

US\$-Brazil Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 08/01/17 | 2,58 | 06/01/18 | 2,37 | 10/01/20 | 3,18 |
| 09/01/17 | 2,17 | 07/02/18 | 2,38 | 01/04/21 | 3,29 |
| 10/02/17 | 2,20 | 10/01/18 | 2,48 | 04/01/21 | 3,36 |
| 11/01/17 | 2,19 | 01/02/19 | 2,59 | 07/01/21 | 3,45 |
| 12/01/17 | 2,19 | 04/01/19 | 2,65 | 10/01/21 | 3,51 |
| 01/02/18 | 2,25 | 07/01/19 | 2,72 | 01/03/22 | 3,65 |
| 02/01/18 | 2,22 | 10/01/19 | 2,80 | 04/01/22 | 3,73 |
| 03/01/18 | 2,27 | 01/02/20 | 2,91 | 07/01/22 | 3,86 |
| 04/02/18 | 2,30 | 04/01/20 | 2,99 | 01/02/23 | 4,09 |
| 05/02/18 | 2,32 | 07/01/20 | 3,09 | 01/02/24 | 4,49 |

US\$ Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 1M | 1,23 | 6M | 1,40 | 11M | 1,45 |
| 2M | 1,26 | 7M | 1,42 | 12M | 1,45 |
| 3M | 1,30 | 8M | 1,43 | 2Y | 1,64 |
| 4M | 1,35 | 9M | 1,44 | 3Y | 1,79 |
| 5M | 1.38 | 10M | 1.44 | 4Y | 1.93 |

TJLP

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 08/01/17 | 7,00 | 06/01/18 | 7,00 | 10/01/20 | 7,00 |
| 09/01/17 | 7,00 | 07/02/18 | 7,00 | 01/04/21 | 7,00 |
| 10/02/17 | 7,00 | 10/01/18 | 7,00 | 04/01/21 | 7,00 |
| 11/01/17 | 7,00 | 01/02/19 | 7,00 | 07/01/21 | 7,00 |
| 12/01/17 | 7,00 | 04/01/19 | 7,00 | 10/01/21 | 7,00 |
| 01/02/18 | 7,00 | 07/01/19 | 7,00 | 01/03/22 | 7,00 |
| 02/01/18 | 7,00 | 10/01/19 | 7,00 | 04/01/22 | 7,00 |
| 03/01/18 | 7,00 | 01/02/20 | 7,00 | 07/01/22 | 7,00 |
| 04/02/18 | 7,00 | 04/01/20 | 7,00 | 01/02/23 | 7,00 |
| 05/02/18 | 7,00 | 07/01/20 | 7,00 | 01/02/24 | 7,00 |



BRL Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 08/01/17 | 10,03 | 06/01/18 | 8,75 | 10/01/20 | 9,98 |
| 09/01/17 | 9,65 | 07/02/18 | 8,77 | 01/04/21 | 10,08 |
| 10/02/17 | 9,38 | 10/01/18 | 8,84 | 04/01/21 | 10,17 |
| 11/01/17 | 9,22 | 01/02/19 | 8,91 | 07/01/21 | 10,26 |
| 12/01/17 | 9,07 | 04/01/19 | 9,06 | 10/01/21 | 10,32 |
| 01/02/18 | 8,94 | 07/01/19 | 9,23 | 01/03/22 | 10,36 |
| 02/01/18 | 8,87 | 10/01/19 | 9,41 | 04/01/22 | 10,41 |
| 03/01/18 | 8,84 | 01/02/20 | 9,56 | 07/01/22 | 10,45 |
| 04/02/18 | 8,79 | 04/01/20 | 9,70 | 01/02/23 | 10,54 |
| 05/02/18 | 8,77 | 07/01/20 | 9,85 | 01/02/24 | 10,64 |

Implicit Inflation (IPCA)

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 08/01/17 | 4,88 | 06/01/18 | 3,66 | 10/01/20 | 4,43 |
| 09/01/17 | 4,52 | 07/02/18 | 3,68 | 01/04/21 | 4,45 |
| 10/02/17 | 4,26 | 10/01/18 | 3,94 | 04/01/21 | 4,49 |
| 11/01/17 | 4,11 | 01/02/19 | 4,14 | 07/01/21 | 4,52 |
| 12/01/17 | 3,96 | 04/01/19 | 4,19 | 10/01/21 | 4,54 |
| 01/02/18 | 3,84 | 07/01/19 | 4,28 | 01/03/22 | 4,54 |
| 02/01/18 | 3,78 | 10/01/19 | 4,30 | 04/01/22 | 4,57 |
| 03/01/18 | 3,75 | 01/02/20 | 4,33 | 07/01/22 | 4,59 |
| 04/02/18 | 3,70 | 04/01/20 | 4,34 | 01/02/23 | 4,65 |
| 05/02/18 | 3,68 | 07/01/20 | 4,39 | 01/02/24 | 4,72 |

EUR Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 1M | -0,40 | 6M | -0,28 | 11M | -0,24 |
| 2M | -0,39 | 7M | -0,27 | 12M | -0,23 |
| 3M | -0,37 | 8M | -0,26 | 2Y | -0,12 |
| 4M | -0,33 | 9M | -0,25 | 3Y | 0,01 |
| 5M | -0.30 | 10M | -0.24 | 4Y | 0.14 |

CAD Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a |
|-----------------|---------------|----------|---------------|----------|-------------|
| 1M | 0,98 | 6M | 1,25 | 11M | 0,69 |
| 2M | 1,03 | 7M | 1,08 | 12M | 0,64 |
| 3M | 1,07 | 8M | 0,96 | 2Y | 1,44 |
| 4M | 1,16 | 9M | 0,85 | 3Y | 1,59 |
| 5M | 1,22 | 10M | 0,76 | 4Y | 1,71 |
| rrencies - Endi | ng rates | | | | |
| CAD/US\$ | 0,7701 | US\$/BRL | 3,3082 | EUR/US\$ | 1,1430 |



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