

Vale informs increase of 180% of its investments in the management of dams between 2015 and 2019

The amount is part of the R\$ 5 billion invested in dams maintenance and Health and Safety in Brazil in the period.

Rio de Janeiro, February 5th, 2019 – Vale S.A. (“Vale”) has been continuously investing in the maintenance and safety of its dams, with standards being updated and in continuous alignment with the most rigorous international practices.

The increasing and relevant investments in dam management and Health and Safety initiatives demonstrate Vale's commitment to providing the necessary resources to preserve the Health and Safety of its employees and the surrounding communities.

Investments in dam management

The investments in dam management in Brazil have been steadily strengthened and will amount to R\$ 256 million (approximately US\$ 70 million) in 2019 according to the budget approved by the company in 2018, reflecting an increase of around 180% when compared to R\$ 92 million (approximately US\$ 30 million) invested in 2015.

Investments in dam management

R\$ million	2015	2016	2017	2018 ¹	2019 ¹	2016 to 2019
Dam management	92	109	180	241	256	786

From 2016 to 2019, investments in dam management will total R\$ 786 million (approximately US\$ 220 million), being applied to initiatives related to the maintenance and safety of dams, such as maintenance services, monitoring, improvements, audits, risk analysis, revisions of the Emergency Action Plan for Mining Dams (PAEBM), implementation of alert systems, video monitoring and instrumentation, becoming the most significant category in relation to investments in dams and waste dumps, representing more than 30% of the total amount invested.

Investment in dams and waste dumps

R\$ million	2015	2016	2017	2018 ¹	2019 ¹	2016 to 2019
Dam management	92	109	180	241	256	786
New conventional dams	230	115	241	140	222	718
Heightening	139	94	96	188	203	581
Waste dumps	109	86	79	81	101	347
Others	6	52	12	4	63	131
Total in R\$ million	576	456	608	654	845	2,563
Total in US\$ million	174	131	191	178	225	725

¹ Realized amounts up to 3Q18, estimated amounts for 4Q18 and approved values in the company's business plan for 2019.

Vale's investments in new tailings dams, all built by the conventional method, reflect the company's operational needs and the implementation schedule of each of the projects in execution. Since 2015, Vale has conducted important tailings dams construction projects, such as the Brucutu Norte dam (2015) and Forquilha V dam (2016) in Minas Gerais, and new projects have been started, such as the Maravilhas III dam (2016), also in Minas Gerais.

It is important to emphasize that all of Vale's new dam constructions follow the conventional construction method, in line with the decision made in 2016, after the disruption of the Samarco dam in Mariana, to render inactive and decommission all upstream dams, which will be accelerated as per the Press Release issued on January 29th, 2019.

Vale's plan is to increase the share of dry processing in its production to 70% by 2023, and consequently reduce the use of dams in its operations. Furthermore, in order to treat the tailings from its wet processing, Vale informs that it plans to invest, starting in 2020, approximately R\$ 1.5 billion (about US\$ 390 million) in the implementation of dry stacking disposal technology. This initiative goes along with the acquisition of New Steel announced on December 11th, 2018, with innovative technologies for the dry beneficiation of iron ore.

Investments in Health and Safety

The investments in Health and Safety are primarily destined to the electrical rehabilitation, in line with Regulatory Norm 10 of the Ministry of Labor - Safety in Facilities and in Electrical Services (RN10), structural rehabilitation and operational adequacy, firefighting and prevention systems in line with Regulatory Norm 23 of the Ministry of Labor - Fire Protection (RN23), in addition to other actions aimed at risk mitigation and compliance with legal requirements.

In 2015, Vale executed important electrical rehabilitation projects in the Alegria mine, in Minas Gerais, and Carajás mines, in Pará, and the firefighting program of the Fábrica, Brucutu and Pico mines, in Minas Gerais, and Carajás mines, in Pará, in addition to the structural rehabilitation of the Brucutu plant, in Minas Gerais and, consequently, investments in 2016 were reduced to R\$ 435 million (about US\$ 125 million).

Since then, Vale has been increasing its investments in projects related to Health and Safety, and in 2019, R\$ 877 million (approximately US\$ 233 million) are planned to be used, representing a growth of 48% when compared to 2015.

Investment in Health and Safety

<i>R\$ million</i>	2015	2016	2017	2018 ¹	2019 ¹	2016 - 2019
Electrical rehabilitation - RN10	220	123	161	225	221	730
Firefighting plans	117	68	66	70	78	282
Structural rehabilitation	58	51	60	173	170	454
Others	198	193	192	205	408	998
Total in R\$ million	593	435	479	673	877	2,464
Total in US\$ million	178	125	151	184	233	693



Total investments in tailings dams, waste dumps and health and safety

R\$ million	2015	2016	2017	2018 ¹	2019 ¹	2016 - 2019
Tailings dams and waste dumps	576	456	608	654	845	2,563
Health and Safety	593	435	479	673	877	2,464
Total in R\$ million	1,169	891	1,087	1,327	1,722	5,027
Total in US\$ million	352	256	342	362	458	1,418

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