

Nexa Resources S.A.
Limited assurance report from
independent auditors on the data
regarding the 2019 Greenhouse Gas
Emissions Inventory



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To the Directors and Shareholders
Nexa Resources S.A.
Alumínio - SP

Introduction

- 1 We were engaged by Nexa Resources S.A. (“NEXA” or “Company”) to present our limited assurance report on the data contained in the Company's 2019 Greenhouse Gas Emissions Inventory (“2019 GHG Inventory”) for the year ended December 31, 2019. This report contains, among other information, a description of the significant quantification procedures, the criteria, the methodology for preparing the 2019 GHG Inventory, and the organizational and operational limits related to the Company's activities.

Responsibility of the Company's Management

- 2 The Company's management is responsible for the preparation and adequate presentation of the data contained in the 2019 GHG Inventory, in accordance with the criteria defined in paragraph 3 and limits defined in paragraph 4 of this report, and for the internal controls that it has determined to be necessary to allow for the preparation of this information free from relevant distortions, regardless of whether caused by fraud or error.
- 3 The criteria for evaluating the data of the 2019 GHG Inventory of the activities performed by the Company, with regard to the measurement, acquisition, compilation, calculations, and estimates, and reporting of the 2019 emissions data, were based on the following documents:
 - (a) FGV-GVCes/WRI: *Brazilian GHG Protocol Program Specifications: Accounting, Quantification, and Publication of Corporate Greenhouse Gas Emissions Inventories*. 2nd edition and its technical notes.
 - (b) ABNT NBR ISO 14064-1: Part 1 "*Specification and guidance to organizations for quantification and reporting of emissions and removals of greenhouse gases*", 2007.
- 4 According to the FGV-GVCes/WRI criterion, mentioned in paragraph 3, the organizational limit of the 2019 GHG Inventory was defined considering the operational control approach. The operational limits considered include the emission sources from scopes 1 and 2 according to the Brazilian GHG Protocol Program, as well as the following scope 3 emission categories: Transportation and Distribution Upstream - road, rail, and sea transport of ores.



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Responsibility of the Independent Auditors

- 5 Our responsibility is to express a conclusion on the data contained in the Company's 2019 GHG Inventory, based on the limited assurance engagement conducted in accordance with Technical Notice CTO 01 - "Issuance of Assurance Report Related to Sustainability and Social Responsibility", issued by the Brazilian Federal Council of Accounting (CFC) based on the NBC TO 3000 - "Assurance Engagements Other than Audit and Review", also issued by the CFC, which is equivalent to the international standard ISAE 3000 - *Assurance Engagements Other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board (IAASB)*. These standards require compliance with ethical and independence requirements and other responsibilities contained in these standards, including the application of the Brazilian Standard of Quality Control (NBC PA 01) and, therefore, the maintenance of a comprehensive quality control system, including documented policies and procedures on compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.
- 6 Additionally, said standards require that the engagement be planned and performed for the purpose of obtaining limited assurance that the data contained in the 2019 GHG Inventory, taken together, are free from relevant distortions in relation to the criteria defined in paragraph 3 and limits defined in paragraph 4 above.
- 7 A limited assurance engagement conducted in accordance with NBC TO 3000 and ISAE 3000 consists mainly of inquiries to the Company's management and other professionals involved in preparing the information, as well as the application of analytical procedures to obtain evidence that allows for a conclusion in the form of a limited assurance on the information as a whole. A limited assurance engagement also requires the execution of additional procedures when the independent auditor becomes aware of matters that lead them to believe that the information, as a whole, may present relevant distortions.
- 8 The procedures selected were based on our understanding of the aspects related to the collection and presentation of the data contained in the 2019 GHG Inventory, other engagement circumstances, and our consideration of areas where relevant distortions could exist. The procedures consisted of:
 - (a) the planning of the work, considering the criteria defined in paragraph 3 and limits defined in paragraph 4 above, the relevance, the volume of quantitative and qualitative information, and the operational systems and internal controls that served as the basis for obtaining the data contained in the Company's 2019 GHG Inventory;
 - (b) the understanding of the calculation methodology and procedures for the compilation of emission data through interviews with managers responsible for preparing the information;
 - (a) technical visits to NEXA's units in Morro Agudo and Cajamarquilla, as well as conference calls with the other units, with the objective of conducting interviews with managers and collecting data and information; and
 - (d) application of analytical procedures and selective tests, as applicable, on the quantitative information, as well as inquiries about the qualitative information and its correlation to the data contained in the 2019 GHG Inventory.



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- 9 We believe that the evidence obtained in our engagement is sufficient and appropriate to substantiate our conclusion in a limited form.

Scope and Limitations

- 10 The procedures applied in a limited assurance engagement are substantially less extensive than those applied in a reasonable assurance engagement, which aims to issue an opinion regarding the data contained in the 2019 GHG Inventory. Therefore, we cannot ensure that we are aware of all the issues that would have been identified in a reasonable assurance engagement, which aims to issue an opinion. If we had performed an engagement with the purpose of issuing an opinion, we could have identified other issues and possible distortions that may exist in the data contained in the 2019 GHG Inventory. Therefore, we do not express an opinion about this information.
- 11 Non-financial data are subject to more inherent limitations than financial data, given the nature and diversity of the methods used to determine, calculate, or estimate such data. Qualitative interpretations of materiality, relevance, and accuracy of the data are subject to individual assumptions and judgments. In addition, we have not performed any work on data reported for previous periods nor in relation to future projections and targets.
- 12 The information and data related to sustainability actions and activities, general information, and points of view related to the topic of climate change, description of activities to manage the process of preparing the 2019 GHG Inventory, and description of operational activities, which are not the basis for the 2019 GHG Inventory, are not part of the scope of the work carried out and, therefore, were not the object of our limited assurance engagement.

Conclusion

- 13 Based on the procedures carried out, described in this report, nothing has come to our attention that leads us to believe that the data contained in the 2019 Greenhouse Gas Emissions Inventory of Nexa Resources S.A., for the year ended in December 31, 2019, are not presented, in all material respects, in accordance with the criteria described in paragraph 3 and limits defined in paragraph 4 above.

São Paulo, July 15, 2020

PricewaterhouseCoopers
Independent Auditors
CRC 2SP000160/O-5

Maurício Colombari
Accountant CRC 1SP195838/O-3



Inventory of Greenhouse Gas Emissions

Nexa Resources



Nexa Resources

Trade name: Nexa Resources

CNPJ (Corporate Taxpayer Registry): 42.416651/0016-93

Economic sector: Extractive Industries

Subsector: Extraction of non-ferrous metallic minerals

Address (administrative office): Engenheiro Luiz Carlos Berrini, 105 – 6th floor – São Paulo – Cidade Monções – SP - 04571-900

Person responsible for publishing the inventory: Elaine Notoya
(elaine.notoya@nexaresources.com)

Institutional Information:

Nexa Resources is a large-scale, integrated, and cost-efficient zinc producer with more than 60 years of experience in the development and operation of mining and metallurgy assets in Latin America. Our main shareholder is Votorantim S.A. (64.3%), which formed Nexa Resources three years ago from the integration of Brazilian and Peruvian operations.

Since October 2017, Nexa shares have been traded both on the New York (US) and Toronto (CA) stock exchanges. The headquarters is located in Luxembourg, and the administrative headquarters are located in the cities of São Paulo (Brazil) and Lima (Peru). Our commercial offices are located in Brazil, Peru, the United States, and Luxembourg (which now coordinate the commercial relations carried out by the Austrian and Chinese offices, which ended their activities in 2019)

Currently, we own and operate five long-life polymetallic mines, three located in the central region of the Andes, in Peru (Cerro Lindo, El Porvenir, and Atacocha), and two in the state of Minas Gerais, in Brazil (Vazante and Morro Agudo). Our operations produced 361,000 tonnes of zinc in 2019. Cerro Lindo and Vazante are among the 20 largest mines



of zinc in the world and, coupled with other mining operations, place us among the four largest zinc producers in the world in 2019, according to Wood Mackenzie.

As part of the production chain, we have three zinc *smelters*: one in Peru (Cajamarquilla) and two in Brazil (Três Marias and Juiz de Fora), which produce metallic zinc, zinc oxide, and other by-products. Cajamarquilla is the only zinc *smelter* operation in Peru and is among the seven largest in the world by volume produced, according to a survey by Wood Mackenzie using 2019 data. In 2019, our *smelters* produced a total of 621,000 tonnes, corresponding to 584,000 tonnes of metallic zinc and 37,000 tonnes of zinc oxide, sold to customers from different industrial segments worldwide, such as automotive, construction, food, agriculture, beauty and hygiene, pharmaceuticals, among others.



Inventory Data

Person responsible for preparing the inventory:

Elaine Notoya

Email of the person responsible:

elaine.notoya@nexaresources.com

Year of the inventory: 2019

Verification

The inventory has been verified by a third party: Yes

Verifying body: PwC – PricewaterhouseCoopers Brasil

Person responsible for verification: Ana Matzenbacher (ana.matzenbacher@pwc.com)

Inventory Type: Complete

1.0 Inventory Limits

Organizational Limits

Below is a list of the organization's units and subsidiaries included in this inventory. It is mandatory to report the disaggregated emissions of units that have emissions of scope 1 equal to or greater than 10,000 tCO₂e per year. The reporting of emissions from other units, as well as from subsidiaries, is optional. Emissions disaggregated by units can be found in Section 2.7 - Emissions by units of operation.

Reference:

 Parent Company

 Subsidiary

 Unit

[Does the parent company have operational control? | % of equity interest of the Parent company]

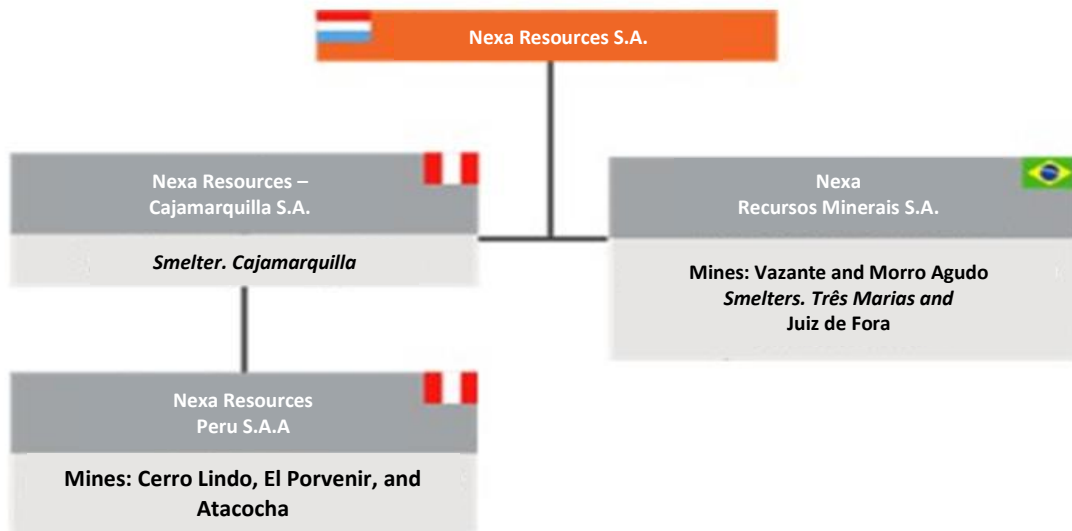
-  Nexa Resources
-  Vazante – Mining – Brazil
-  Morro Agudo – Mining - Brazil
-  Três Marias – Metallurgy – Brazil
-  Juiz de Fora – Metallurgy – Brazil
-  Atacocha - Mining - Peru
-  Cajamarquilla – Metallurgy - Peru
-  Cerro Lindo – Mining - Peru
-  El Povenir – Mining - Peru



1.1 Which consolidation approach was used in the inventory?

Reporting of emissions under the Operational Control approach.

1.2 Organization Chart





Operational Limits

1.3 Operational limits reported in the inventory

Scope 1

Mobile Combustion
Stationary Combustion
Solid Waste and Liquid Effluents

Scope 2

Indirect emissions from the purchase of electrical energy – Location Approach

Scope 3

Transportation and Distribution (upstream)



2. Emissions

Operational Control

2.1 Summary of Total Emissions

GHG	In tonnes of gas			In tonnes of CO ₂ equivalent (tCO ₂ e)		
	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3
CO ₂	143,024.364	114,853.316	123,529.008	142,159.034	114,853.316	123,529.008
CH ₄	2,038.387	0.000	0.000	42,806.125	0.000	0.000
N ₂ O	0.708	0.000	0.000	210.970	0.000	0.000
HFCs	0.000	0.000	0.000	0.000	0.000	0.000
			Total	185,176.130	114,853.316	123,529.008

2.2 Scope 1 Emissions Disaggregated by Category (tonnes)

Category	Emissions (tCO ₂ e)	Biogenic CO ₂ Emissions (t)	Biogenic CO ₂ Removals (t)
Mobile Combustion	23,255,197	2,489.089	0.000
Stationary Combustion	119,151.941	138.069	0.000
Solid Waste and Liquid Effluents	42,768.991	0.000	0.000
Total	185,176.130	2,627.158	0.000



2.3 Scope 2 Emissions Disaggregated by Category (tonnes)

Location-Based Approach

Category	Emissions (tCO ₂ e)	Biogenic CO ₂ Emissions (t)	Biogenic CO ₂ Removals (t)
Electrical Energy Acquisition	114,853.316	0.000	0.000
Total	114,853.316	0.000	0.000

2.4 Scope 3 Emissions Disaggregated by Category

Category	Emissions (tCO ₂ e)	Biogenic CO ₂ Emissions (t)	Biogenic CO ₂ Removals (t)
Transmission and Distribution (<i>upstream</i>)	123,529.008	3,814.564	0.000
Total	123,529.008	3,814.564	0.000

2.5. Other greenhouse gases not covered by the Kyoto Protocol

Has not been reported.

2.6 Emissions Outside of Brazil

The reported data consolidate the emissions of Nexa's 04 operating units located in Peru.

Unit	In tonnes of CO ₂ equivalent (tCO ₂ e)					
	Scope 1	Scope 2	Scope 3	Biogenic Scope 1	Biogenic Scope 2	Biogenic Scope 3
Peru Units	66,284.623	518,433.819	9,468.089	0.000	0.000	0.000



2.7 Emissions per Unit

The data below include all of Nexa Resources' mining and *smelter* units located in Brazil and Peru.

Unit	In tonnes of CO ₂ equivalent (tCO ₂ e)					
	Scope 1	Scope 2	Scope 3	Biogenic Scope 1	Biogenic Scope 2	Biogenic Scope 3
Juiz de Fora	89,333.677	32,546.223	92,955.314	195.356	0.000	458.647
Morro Agudo	52,250.941	4,990.851	1,465.012	1,012.024	0.000	217.815
Três Marias	35,803.731	58,751.788	17,831.268	591.988	0.000	1,935.020
Vazante	7,787.780	18,564.455	11,277.414	827.791	0.000	1,203.198
Cerro Lindo	31,390.075	64,152.680	0.000	0.000	0.000	0.000
Cajamarquilla	15,114.923	406,145.120	9,468.089	0.000	0.000	0.000
El Porvenir	10,218.134	29,397.620	0.000	0.000	0.000	0.000
Atacocha	9,561.491	18,738.260	0.000	0.000	0.000	0.000

3. Methods

3.1 Intersectoral Methods and/or Tools

Was any intersectoral method and/or tool used in addition to those provided by the Brazilian GHG Protocol Program?

It wasn't used.

3.2 Methods and/or Tools for Specific Sectors

Was any method and/or tool used for specific sectors?

It wasn't used.



3.3 Emission Factors

Was any emission factor other than those suggested by the Brazilian GHG Protocol Program used?

It wasn't used.

4. Other Elements

4.1 Information on the performance of the organization, compared to internal benchmarks (e.g. other units) or external benchmarks (e.g. organizations in the same sector).

In 2019, Nexa Resources emitted 251,460.753 tonnes of CO₂ equivalent from direct GHG emissions (Scope 1), 56% of which came from *smelter* units, and 73% from operations in Brazil. The Juiz de Fora *smelter* unit was responsible for the highest absolute emission, contributing with 36% of the total emissions from Nexa Resources, and the mining unit of Vazante was the operation with the lowest absolute emission, representing only 3%.

Regarding scope 2, 633,287.135 tonnes of CO₂ equivalent were emitted, with the *smelter* operation in Cajamarquilla accounting for 64% of the total emitted by Nexa Resources.

4.2 Description of GHG emission indicators for the organization's activities. For example, tCO₂e/manufactured products.

Nexa Resources has set the goal of reducing specific GHG emissions (tonnes of CO₂e / tonnes of products) by 5% by 2025, considering the emissions of 2014 as the base.

4.3 Description of strategies and projects for the management of GHG emissions.

Nexa Resources maintains as part of its management system several practices of continuous improvement of performance and competitiveness to maximize the value of existing operations through operational stability, increased capacity utilization, constant improvement of costs, productivity, and rationalization of collaborating capital. One of the company's strategies is



associated with investment in technology, innovation, and automation to improve productivity and competitiveness, expand its safety culture, and support the main sustainability objectives, such as increasing water recycling, reducing CO₂ emissions, waste generation, and energy flexibility.

In 2017, we implemented an energy flexibility project through a new Biomass boiler in the Três Marias *smelter* unit. With this project, we obtained a reduction of approximately 30% in the unit's greenhouse gas emissions, in addition to saving US\$3.8 million per year.

We also maintain Nexa's *open innovation* project, the Mining Lab, allowing for the rapid connection between sustainable start-up technologies and innovations from around the world to our environmental strategies. Some projects that are in the implementation phase:

- Use of residual biomass as fuel in boilers, allowing for the reduction of handling and consumption of fossil fuel through a technology that will replace up to 65% of the volume of natural gas used in the Juiz de Fora operation. The studies to date have validated potential financial gains. In environmental terms, we have a double advantage, because in addition to reducing GHG emissions from fossil fuels, it reduces the amount of waste to be disposed of in landfills. In addition, the project integrates the operation of Nexa Resources with local communities by generating jobs and local revenue.
- Implementation of a photovoltaic solar plant with silicon plate technology with a power rating of 17,000 kW connected to the main substation of the Vazante unit at 13.8 kV. The solar panels will occupy about 17 hectares of the Aroeira Dam reservoir in a floating system whose design will meet all the necessary safety criteria.

With regard to emissions from purchased energy, in 2019, Nexa Resources signed a contract with a Peruvian state-owned company for the supply of clean energy, aiming to ensure that a higher percentage of the energy matrix in Peru comes from renewable sources.



4.4 Information on contracts with customers and suppliers that include clauses linked to the preparation of GHG inventories and/or the submission of related information.

Has not been reported.

4.5 Information on uncertainties, exclusions from data sources, and other characteristics of inventory preparation.

As part of its management system, Nexa Resources continuously works to improve the management of GHG emissions. For the coming years, significant improvements are expected in database management routines, information records, collection flow, and emission estimates.

4.6 Description of internal actions to improve the quality of the GHG inventory. For example, systematization of data collection, hiring of external verification, etc.

Nexa Resources has made a public commitment to fight climate change and maintains the issue as the scope of its strategic planning. Year after year, the company has been working to improve the management of the issue, being committed to report the 2019 carbon inventory through internationally recognized protocols and continue with third-party verification as part of its strategy.

4.7 Information on the purchase of electrical energy from renewable sources.

In search of a cleaner energy matrix, we signed a new long-term energy contract with the Peruvian state-owned company, with an expected supply of 240 MW of energy for seven years, starting from January 2020. Thus, we achieved potential savings of up to US\$50 million during the term of the contract and ensured that 98% of



our energy needs in that country are met through a clean energy source. In Brazilian operations, clean energy already represents 74.1% of consumption.

4.8 Information on self-production of energy from renewable sources for self-consumption.

As a result of an energy flexibility project, the Três Marias unit has been operating a steam generation boiler powered by plant biomass since 2017, replacing fossil fuels. The equipment saves US\$3.8 million per year, with a 30% reduction in greenhouse gas emissions.

4.9 Information on the company's carbon stock, in tonnes, in December 31 of the year ended.

Has not been reported.

5. Compensation and Reductions

5.1 Compensation of Emissions

Does the organization have emission compensation projects?

Has not been reported.

5.2 Emission Reduction

Does the organization have emission reduction projects?

Yes.

Biomass boiler in the Três Marias unit: replacing boilers powered by petroleum-derived oil. The equipment saves US\$3.8 million per year, with a 30% reduction in greenhouse gas emissions and 46% in the cost of steam production. The structure uses eucalyptus chips produced in the region as fuel. The strategy that proved to be efficient in Três Marias can be implemented in other operational units.



We have projects in the implementation stage, with the potential to significantly reduce CO₂e emissions.

- Use of residual biomass to fuel boilers, allowing for a reduction of the handling and consumption of fossil fuel, from a technology that will replace up to 65% of the volume of natural gas used in the Juiz de Fora operation. The studies to date have validated potential financial gains. In environmental terms, we have a double advantage, because not only does it reduce GHG emissions from fossil fuels, but it also reduces the amount of waste to be disposed of in landfills. In addition, the project integrates the operation of Nexa Resources with local communities by generating jobs and local revenue.
- Implementation of a photovoltaic solar plant with silicon plate technology with a power rating of 17,000 kW connected to the main substation of the Vazante unit at 13.8 kV. The solar panels will occupy about 17 hectares of the Aroeira Dam reservoir in a floating system whose design will meet all the necessary safety criteria.