

“Heavy metal”:

From abuse-ridden mines to global consumer goods, the journey of Brazilian iron



fidh



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Glossary

ANM -	National Mining Agency
AVB -	Aço Verde do Brasil
BRBF -	<i>Brazilian blend fines</i>
CFEM -	Financial Compensation for Exploitation of Mineral Resources
CISA -	China Iron & Steel Association
COBHRA -	Community-Based Human Rights Impact Assessment
CPI -	Parliamentary Investigation Committee
EFC -	Carajás Railroad
ESG -	Environmental, Social and Governance
FIDH -	International Federation for Human Rights
IJF -	Tax Justice Institute
JnT -	Justiça nos Trilhos
MA -	Maranhão
MME -	Ministry of Mines and Energy
SDG -	Sustainable Development Goals
UN -	United Nations
PA -	Pará
UNGPs -	The UN Guiding Principles on Business and Human Rights

1. Introduction

Since 2010, FIDH (the International Federation for Human Rights) and Justiça nos Trilhos (JnT) have been working together on the human rights abuses of the steel industry in the state of Maranhão, in Brazil. In May 2011, FIDH and JnT, with Justiça Global, published the report “Brazil: How much are human rights worth? – The impacts on human rights related to the mining and steel industry in Açailândia,”¹ produced using the COBHRA methodology (Community-Based Human Rights Impact Assessment). The report documented the impacts of the steel industry on the human rights to health, a healthy environment, adequate housing, life, physical integrity, information and participation, and access to justice, and it formulated recommendations to all stakeholders. The organizations have since repeatedly urged the international community, including the United Nations (UN) Special Rapporteur on Toxics, to put pressure on Brazil and on the responsible companies and ask for prompt redress.² Eight years later, the persistence of the problems reported in 2011 and the impasses in the process of redressing violations of individual and collective rights led FIDH and JnT to update the analysis of the human rights violations scenario in Açailândia and publish a second report – “Piquiá Stood up for their rights: Assessing the fulfilment of recommendations to address human rights violations of the mining and steel industry in Açailândia, Brazil.”³

In September 2020, the UN Special Rapporteur on Toxics, Marcos Orellana, presented his report on Brazil before the UN Human Rights Council, calling for the necessary resources to be made available to resettle the community of Piquiá de Baixo, and he urged the government, Vale and other companies involved to issue a formal apology to the community and that remedy should be awarded to rights-holders.⁴

The human rights and environmental abuses happening in Piquiá de Baixo are not the only ones related to the Carajás mining project. Indeed, this project has led and still leads to a long list of severe human rights and environmental abuses along the Carajás Corridor as a result of the mining activities, the railway, the pig iron and steel industry, and the ports. These abuses include impacts on land rights of local and indigenous communities, rights of children, labour rights regarding health and safety, right to life, right to housing and to an adequate standard of living, right to a healthy environment, women’s rights and right to education. Justiça nos Trilhos supports these local communities affected by the Carajás mining project in the Brazilian states of Pará and Maranhão, by strengthening these groups through trainings, confronting human rights and environmental violations and institutional violence, acting in the social control of public policies and budgets and supporting initiatives for income generation and economic alternatives, among others.

In November 2020, The International Federation for Human Rights (FIDH) and JnT launched an international campaign alerting people around the world that they are unwittingly consuming mining and steel companies’ products that have, for over three decades, worsened the health and polluted the environment of people in the Piquiá de Baixo community in the Brazilian Amazon.⁵ Indeed, the iron and steel from the Carajás Corridor, tainted with the human rights and environmental abuses taking place there, is then exported internationally to steel companies around the world, which then sell the steel to a variety of industries, including the automotive industry, the appliance industries or the infrastructure industry.

1. International Federation for Human Rights, Justiça Global and Justiça nos Trilhos, (2011), “Brazil: How much are human rights worth in the Brazilian mining and steel industry?”, https://www.fidh.org/IMG/pdf/report_brazil_2012_english.pdf

2. FIDH (2019), *Brazil: UN expert Visit Prompts Renewed Hope for Amazon Community Suffering from Mining Abuses*, <https://www.fidh.org/en/region/americas/brazil/brazil-un-expert-visit-prompts-renewed-hope-for-amazon-community>

3. FIDH and Justiça nos Trilhos (2019), “Piquiá stood for their rights: Assessing the fulfilment of recommendations to address human rights violations of the mining and steel industry in Açailândia, Brazil,” <https://www.fidh.org/IMG/pdf/bresil734anglaisweb2019.pdf>

4. FIDH (2020), *Brazil: UN expert presents alarming findings following visit, calling for remedy and relocation for Piquiá*, <https://www.fidh.org/en/issues/globalisation-human-rights/brazil-special-rapporteur-report-presents-alarming-findings-following>

5. FIDH (2020), *Brazil: Campaign Calls Attention to Toxic Impact of Mining Activity on Health and Environment of Amazon Community*, <https://www.fidh.org/en/issues/globalisation-human-rights/brazil-campaign-calls-attention-to-toxic-impact-of-mining-activity-on>

In this policy brief, FIDH and JnT publish information regarding the companies which are part of the Carajás Corridor iron and steel value chain, in order to alert the buyers, and other companies that are part of the value chain, about the human rights risks and adverse impacts taking place in that area, in order to prompt them to examine their own human rights due diligence obligations and the extent to which their human rights due diligence practices are addressing these human rights impacts.⁶

The objective of the policy brief is not to suggest that the companies in the value chain are responsible for the abuses taking place in Carajás Corridor or failing in their due diligence responsibilities in relation to these abuses and violations, but to contribute to iron and steel buyers' processes of identification and assessment of their human rights risks and impacts, linked to the iron coming from the Carajás Corridor. FIDH and JnT plan to share this information as an appeal to companies in the steel and iron supply chain to carry out their due diligence for on-site verification of the situation reported. FIDH and JnT can contribute to this process.

6. The research on the supply chain was carried out by Repórter Brasil, based on trade data from the ports of that region.

2. Background

For more than 40 years, the Greater Carajás Project — which spreads from the southeast of Pará to the city of São Luís, capital of Maranhão, in the so-called Eastern Amazon — has established itself as “one of the largest flows of iron ore in global trade,” according to a recent publication by the Observatory of Mining Conflicts in Brazil.⁷ According to data from the Ministry of Economy of the Brazilian government,⁸ iron ore exports from the state of Pará alone have quadrupled in terms of volume (from 42.7 million tons in 2000 to 161.1 million tons from January to November 2021 alone) and multiplied more than 30 times in terms of value (from US\$ 681.6 million in 2000 to about US\$ 20.7 billion by November 2021 alone). 2021 was the “best year in the history” of national mining, as representatives of the sector’s entities⁹ have emphasized in public statements.

The participation of the Carajás Complex in the total amount exported by Brazil of “iron ore and its concentrates” corresponded, according to calculations made in an article on the subject,¹⁰ to 37.1% of what was exported in the period between 2002 and 2019, being 33.3% in the period 2002-2015, and reaching 46.7% in 2016-2019.¹¹

In terms of values (following the rise in price indices), the most recent surge in extractive industry exports was from US\$ 10 billion in the second quarter of 2020 to US\$ 24 billion in the third quarter of 2021, in a continuously increasing trend. Iron ore (agglomerated and non-agglomerated), according to the latest quarterly bulletin of the Foreign Trade Secretariat (Secex) of the Ministry of Economy,¹² “was the main highlight in the category with export revenues of US\$ 14.86 billion, as it grew 88.6% over the same quarter of the previous year and represents 62.5% of the total value of foreign sales in the quarter.”

Vale’s projections for the next 22 years indicate that iron ore extraction in the region will reach 6.5 billion tons. The milestone of the first billion tons of iron ore extracted from Carajás was celebrated in 2007, 23 years after the effective beginning, in 1985, of the actual operations of extraction, processing, transportation and loading of the ore for export. The initial projection was that the first billion would only come in 2025. In relation to this project, the Observatory of Mining Conflicts in Brazil lists a series of direct impacts: the appropriation of 27,000 hectares of land, deforestation of 4,100 hectares of native Amazon forest; the consumption of 13.7 million m³/year of water; and

7. Coordinated by the National Committee in Defence of Territories in the Face of Mining — a joint effort of civil society organisations, social movements, religious entities and research groups formed since 2014 — the Observatory maintains a Conflict Map (Accessible in: <http://conflitosdamineracao.org/>) not only with the location and description of cases involving mining, but also a tab with graphics referring to data such as types of affected people, violators, companies involved and respective reactions. The specific definition mentioned appears in the work: Wanderley and Coelho (2021) “Apresentação”, in Luiz Jardim Wanderley e Tádzio Peters Coelho (orgs.) *Quatro Décadas do Projeto Grande Carajás: Fraturas do Modelo Mineral Desigual na Amazônia*, Brasília: Comitê Nacional em Defesa dos Territórios Frente à Mineração Accessible in: <http://emdefesadosterritorios.org/wp-content/uploads/2021/09/Quatro-De%CC%81cadadas-do-Projeto-Grande-Caraja%CC%81s.pdf>

8. Retrieved from the public consultation system of the Comex Stat (Accessible in: <http://comexstat.mdic.gov.br/>), which aggregates monthly information from the Integrated Foreign Trade System (Siscomex) and based on declarations by exporters and importers.

9. The president of the board of the Brazilian Mining Institute (Ibram), Wilson Brumer, in a comment to the newspaper *Valor Econômico* (Ivo Ribeiro (2021), “Mineração tem melhor ano da história em 2021; expectativa é de acomodação em 2022”, *Valor Econômico*, Accessible in: <https://valor.globo.com/empresas/noticia/2021/12/06/mineracao-tem-melhor-ano-da-historia-em-2021-expectativa-e-de-acomodacao-em-2022.ghtml>), emphasized that 2021 will close as “the best of our history.” He recalled that in mid-May the price of a ton of iron reached almost US\$ 240 and that the sector’s revenues in the first three quarters of 2021 alone (R\$ 257.4 billion) had already exceeded by far those of the whole of 2020 (R\$ 209 billion).

10. MICHELOTTI, F.; MALHEIRO, B. (2020) “Questão agrária e acumulação por espoliação na Amazônia”. *Revista da ANPEGE*, v. 16. n. 29: p. 641 – 680

11. “This growth in the last period,” Michelotti and Malheiro (2020) assess, “is a consequence of both the start of operations of new mines in Pará, initiating the return on investments made in recent years, and the shifts in Vale’s extraction to its Northern system following the negative repercussions of the dam bursts in Mariana and Brumadinho in Minas Gerais.”

12. SECEX (2021): Brazilian Trade Balance – Quarterly Bulletin (3rd quarter 2021). Full document available at: https://www.gov.br/produtividade-e-comercio-exterior/pt-br/assuntos/comercio-exterior/publicacoes-secex/boletins-de-comercio-exterior/arquivos/boletim-de-comercio-exterior_3trim21.pdf

the disposal of 4.5 billion of tailings and waste rock. The centrality of Carajás means that this undertaking of gigantic dimensions has an influence that crosses time and space, occupying what the same research defines as “the past, present and future of Brazilian mining”:

“The relevance of Carajás lies both in the historical process of its conception and implementation, in the 1980s, during the civil-military dictatorship, and in its current centrality. The Vale S.A. mining and steel complex is today the largest mineral enterprise in the country. It is the largest extraction zone for metallic ores, houses the largest railroad in national territory, and is the main extraction area for Vale S.A. – the largest mining company in operation in Brazil. Carajás represents the opening of the Amazon occupation, inducing deforestation, attracting voluminous migratory fluxes, potentiating conflicts in the countryside and expressing the intensification of the urban-industrial project in the forest.” (Hall, 1991,¹³ in Wanderley and Coelho, 2021, p. 14¹⁴)

In terms of the concrete impacts of the “monstrosity of Carajás”, these can be synthesized, according to the same analysts of the Observatory of Mining Conflicts in Brazil, not only “in the accelerated, disorganized and excluding formation of urban centres marked by pockets of poverty, deficient public services, and growing urban violence,” but also “in the expansion of deforestation,¹⁵ land concentration,¹⁶ conflicts in the countryside,¹⁷ and violations against indigenous peoples.¹⁸” This list of negative, accumulated and neglected effects can also include “the running over and

13. Reference to the work of Anthony L. Hall: “Amazônia – desenvolvimento para quem? Desmatamento e conflito social no Programa Grande Carajás (PGC)” (Rio de Janeiro: Jorge Zahar Editor, 1991). The connection between large intervention/intense impact projects and urbanization processes can also be found in more recent works, such as that of Melo and Cardoso (2016): “contemporary forms of capital development in the Amazonian frontier (...) have transformed the scale and intensity of space production, extending the urban fabric over areas previously isolated or poorly integrated into global capitalism, with impact on both the built environment (buildings, infrastructure) and the representational and subjective sphere (practices and ways of life).” MELO, A. C. C. de; CARDOSO, A. C. D. (2016) “O papel da grande mineração e sua interação com a dinâmica urbana”. Nova Economia, v.26 n. especial: 1211-1243

14. WANDERLEY, F.; COELHO, T. (2021) “Apresentação”, in Luiz Jardim Wanderley e Tádzio Peters Coelho (orgs.) *Quatro Décadas do Projeto Grande Carajás: Fraturas do Modelo Mineral Desigual na Amazônia*,

15. Because of its relationship with deforestation and burning (but also with changes in the regime of use and occupation of the territory, silting up of water resources, erosion and soil pollution, as well as air and water pollution, and invasion/damage to protected areas or conservation units), the path of the Carajás Railroad is included in the Map of Conflicts Involving Environmental Injustice and Health in Brazil (Accessible in: <http://mapadeconflitos.ensp.fiocruz.br>), a tool created by a team at the Oswaldo Cruz Foundation (Fiocruz) which catalogues the accumulations of the Brazilian Network for Environmental Justice (RBJA), including the Map of Environmental Racism in Brazil. The health damages pointed out for the specific case are “non-transmissible or chronic diseases or worsening in the quality of life”. The synthesis states that “the Grande Carajás Project (PGC) has changed the Amazonian socio-environmental scenario, especially in the mountain range that lends its name to the project. The extraction of ore, the pig iron steel mills and the railway, together with all the energy logistics involved in the process – the construction and operation of hydroelectric plants and the production and burning of coal in the blast furnaces – have caused major impacts on the ecosystem in more than 27 municipalities impacted, besides the conservation units, indigenous lands, quilombolas and agrarian reform settlements”.

16. “The purchase of land by the company [Vale], in these terms, radically expanded its territories of direct influence and defines the mining company as a fundamental vector of land concentration in the region, ensuring the specific economic use of space and containing other uses and other flows. Vale’s mining projects in the early twenty-first century, expanded with the discovery of large nickel and copper deposits, resulted in an extensive appropriation of areas through land purchase by the company, in addition to the acquisition of mining titles [which is a mechanism for acquiring areas of mining interest, which the State defines as primarily of public interest, and may also overlap with the title areas, covering adjacent regions for the development of the activity]”, Malheiro *et al.* (2021) emphasize. Also on the mechanisms used by Vale to impose its domain over territories and expand its enterprises (land policy), see the thesis of Barros (2018).

17. On land and labour conflicts in the region involving Vale, see articles published in *Repórter Brasil* (2020), “Novo ataque de seguranças da Vale a agricultores acirra conflito pela terra no Pará”, accessible in: <https://reporterbrasil.org.br/2020/06/novo-ataque-de-seguranças-da-vale-a-agricultores-acirra-conflito-pela-terra-no-para/>; Repórter Brasil (2015), “Quer trabalhar na Vale? Cuidado com a Polícia Militar”, accessible in: <https://reporterbrasil.org.br/2015/09/quer-trabalhar-na-vale-cuidado-com-a-policia-militar/>; Repórter Brasil (2015), “Vale processa quem se manifesta por reparação e emprego”, accessible in: <https://reporterbrasil.org.br/2015/08/vale-processa-quem-se-manifesta-por-reparacao-e-emprego/>; Repórter Brasil (2015) “Vale é condenada a pagar R\$ 804 milhões por acidentes de trabalho”, accessible in: <https://reporterbrasil.org.br/2015/06/vale-e-condenada-em-800-milhoes-por-acidentes-de-trabalho/>, e Repórter Brasil, (2014) “Quilombolas do Maranhão bloqueiam ferrovia da Vale”, accessible in: <https://reporterbrasil.org.br/2014/09/quilombolas-do-maranhao-bloqueiam-ferrovia-da-vale/>.

18. In the case described in the Map of Conflicts on Environmental Injustice and Health in Brazil (Accessible in: <http://mapadeconflitos.ensp.fiocruz.br/conflito/pa-perversidades-sociais-e-ambientais-no-caminho-da-estrada-de-ferro-carajas/>), it is mentioned that the spaces of mines, steel mills, railroads, hydroelectric plants, production and burning of coal “confine and isolate local populations, making it difficult for them to make a living and attacking their way of life.” “There are many reports of illegal logging, illegal extraction of wood and clandestine mining on indigenous lands, such as those of the Xikrin, in Marabá/PA. In addition, the disintegrating effect of the financial resources of the ore directly interferes on the indigenous peoples”. More about the case in “Repórter Brasil (2021) “Empresa europeia compra metal que contamina rio no Pará”, Accessible in: <https://reporterbrasil.org.br/2021/02/empresa-europeia-compra-metal-que-contamina-rio-no-para/>

prohibitions of movement of populations along the path of the Carajás Railroad (EFC),¹⁹ the environmental and social impacts of the pig iron plants in Marabá (Pará-PA)²⁰ and Açailândia (Maranhão-MA),²¹ and the problems of the port structure in São Luís (MA),²² which gives vent to the rancorous sleep of ores."

In another article on the relationship between the impacts of mining and the guarantee of fundamental human rights in the Carajás region, Mathis (2016) records, somehow reinforcing the assessment already cited, that "in the actual practice of the population living around the mining-metallurgical projects in the region of Carajás/Pará, where the transnational Vale and other economic companies develop their mining activities, there are a series of situations involving human and social rights violations." Among them, the author highlights (Mathis, 2016, p. 9):

- (1) high incidence of homicidal violence among young, black and poor males in the city of Marabá/Pará,²³ notably due to the absence of or little investment in social public policies directed at this segment of the population;
- (2) criminalization of social movement leaders and the intimidation of associations in defense of human rights;
- (3) challenges to peoples' self-determination and self-management of the territories where mining activities take place, which are then used as merchandise, causing the intensification of social conflicts and the expropriation of common goods; and
- (4) affirmation of a development model based on the extraction of commodities, with expansion and intensification of extractive activities, generating serious environmental impacts for the population, lived in an unequal way, which makes it impossible to respect, promote, and guarantee human rights in the region.

19. See documentary RedeSeculo21, "Trilhos da Vida": Accessible in: https://www.youtube.com/watch?v=uAtoDrnsn_zc

20. A number of negative impacts of Vale in Marabá have led the City Council to decide to install a Parliamentary Inquiry Commission (CPI) to deal with the socio-environmental liabilities of the company's activities in the Salobo Project and Buritirama Mining. More details at: <http://maraba.pa.leg.br/institucional/noticias/camara-de-maraba-aprova-cpi-para-investigar-salobo-e-buritirama> e <http://maraba.pa.leg.br/institucional/noticias/camara-de-maraba-cria-cpi-da-vale>.

21. Part of the impacts is documented in Conectas, JnT, FIDH et al (2020) "Gaps in governance of Responsible Business Conduct in Brazil" Acessível em https://www.fidh.org/IMG/pdf/ngo_input_to_brazil_rbc_policy_review_june_2020.pdf. FIDH, JnT (2019) "Piquiá foi à luta: Um balanço do cumprimento das recomendações para abordar as violações aos direitos humanos relacionadas à indústria da mineração e da siderurgia em Açailândia, Brasil", desdobrados também em campanha FIDH (2020), *Brasil: Campanha destaca o impacto prejudicial da atividade mineradora sobre a saúde e o meio ambiente, impact-of-mining-activity-on*, com vídeo (<https://www.youtube.com/watch?v=-xE535lBtk>). See also: Repórter Brasil (2019) "A lama que queima: compradora de minério da Vale faz vítimas no interior do Maranhão" (Accessible in: <https://reporterbrasil.org.br/2019/04/a-lama-que-queima-compradora-de-minerio-da-vale-faz-vitimas-no-interior-do-maranhao/>).

22. See the study by the Study Group: Development, Modernity and Environment of the Federal University of Maranhão (Gedmma/UFMA, 2021).

23. See the master's dissertation: GOMES, L. M. S. L. (2014) *Violência homicida e a política de segurança pública no Brasil: um estudo de Marabá*. Dissertação (Mestrado) - Universidade Federal do Pará (UFPA), Instituto de Ciências Sociais Aplicadas (ICSA), Belém. PPG em Serviço Social. 164 f; and the article by Martins and Souza (2019), both on the topic of homicidal violence in the city of Marabá, Pará (MARTINS, A. K. M.; SOUZA, M. V. M. de (2019) "Violência homicida: uma análise dos índices de homicídios no núcleo Cidade Nova, Marabá (PA) nos anos de 2014 a 2016". *Revista Cerrados*, Montes Claros, v. 17, n. 1, p. 131-163.).



Resident of the community of Piquiá de Baixo shows the iron dust that accumulates in his house. © Marcelo Cruz

3. Supply chain (iron/pig iron/steel)

There are basically three subdivisions of supply chains related to the extraction of Carajás iron ore deposits:²⁴ the export of iron ore itself; a second one related to pig iron made from the extracted raw material; and a third one that has to do with the production of steel, referring to the companies Aço Verde do Brasil (AVB), in Açailândia/MA, and Sinobras, belonging to the Aço Cearense group, in Marabá/PA.²⁵

An analysis of data on exports of products from Carajás over the first nine months (January to September) of 2021, using international foreign trade databases, showed that the volume of

24. A consultation of Vale's documents (such as Form 20-F, annual report registered with the U.S. Securities and Exchange Commission, whose most recent edition, concerning the year 2020, was filed on March 23, 2021; all previous reports, since 2001, are available at: <http://www.vale.com/brasil/pt/investors/information-market/annual-reports/20f/paginas/default.aspx>). It reveals the huge weight of iron ore in the company's revenues. In 2020, for example, of the total US\$ 40 billion in net operating revenue, some US\$ 27.3 billion related specifically to iron ore. Compared to 2019, net operating revenue specific to that product in 2020 grew by 16.9%. Nickel and other products (US\$ 5 billion), iron ore pellets (US\$ 4.2 billion) and copper concentrate (US\$ 2.1 billion) appear in sequence on that list.

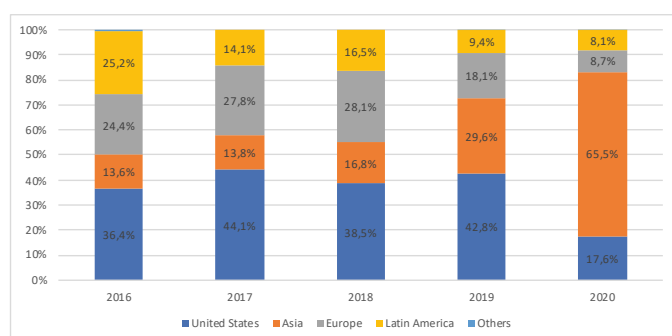
25. According to the Brazil Steel Institute, the Brazilian industrial park is formed by 15 private companies controlled by 12 business groups and 31 operating mills distributed in ten states; only AVB and Sinobras are more directly connected to Carajás iron. In CARNEIRO, M. S. (2019) "Mineração, siderurgia e desenvolvimento na Amazônia Oriental" Marcelo Carneiro in Celia Regina Congilio; Rosemayre Bezerra, R; Fernando Michelotti (orgs.) *Mineração, trabalho e conflitos amazônicos no sudeste do Pará* [livro eletrônico], v. 1. Marabá: iGuana: p. 98-121) Carneiro, Carneiro presents an ample historical overview on rises and falls of the pig iron industry in the Carajás region. Peak production was between 2004 and 2008. In 2004, pig iron production was 1.47 million tons, reaching 3.6 million t in 2007, succeeded by 1.8 million t in 2009, resulting in a drop of 49.54%. It was 456,274 t in 2010, with growth resuming in the following years, with production reaching 1 million t in 2013 and 2015. Subsequently, there was a further drop to 403,000 t in 2018, with a slight recovery to the 500,000 tons mark in 2019 and 2020. These flows affect employability in Açailândia in different ways, as also highlighted in the report "Four decades of the Great Carajás Project" (p. 264-265).

exports of both pig iron and steel produced in Brazil only residually absorbed²⁶ the mineral raw material extracted from Vale's Sistema Norte (Northern System).^{27 28}

PERCENTAGE SHARE OF PIG IRON IMPORTERS
ORIGIN: BRAZIL

Buyers	PERCENTAGE SHARE				
	2016	2017	2018	2019	2020
United States	36,4%	44,1%	38,5%	42,8%	17,6%
Asia	13,6%	13,8%	16,8%	29,6%	65,5%
Europe	24,4%	27,8%	28,1%	18,1%	8,7%
Latin America	25,2%	14,1%	16,5%	9,4%	8,1%
Others	0,4%	0,2%	0,0%	0,1%	0,1%
TOTAL	100,0%	100,0%	100,0%	100,0%	100,0%

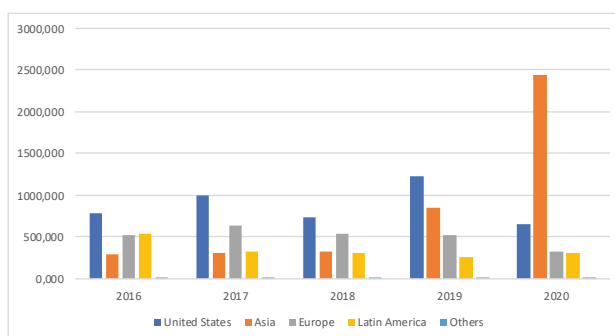
Sources: MDIC/SINDIFER



DESTINATIONS OF EXPORTED PIG IRON
ORIGIN: BRAZIL

IMPORTERS	IN. 1.000 t				
	2016	2017	2018	2019	2020
United States	792,000	1005,16	737,5	1227,00	655,98
Asia	297,5	315,8	320,63	849,21	2448,42
Europe	531,5	634,32	537,59	519,69	327,02
Latin America	548,1	321,21	316,14	267,73	303,8
Others	8,3	5,15	0,44	1,77	3,1
TOTAL	2177,400	2281,64	1912,3	2865,40	3738,32

Sources: MDIC/SINDIFER



The tables and graphs, with data from the Brazilian government and compiled by the Iron Industry Association of Minas Gerais (SINDIFER) in its Statistical Yearbook 2021,²⁹ clearly highlight two strong movements in 2020. The first is the increase in the percentage of participation of Asia (mainly driven by China) as an importer of pig iron from Brazil (not only from Pará and Maranhão) – displacing a leading position that was occupied by the U.S. for several years (with a peak of 44% in 2017, but always above 35% from 2016 to 2019), with significant participation also by the European market (which reached a level close to 30% in 2018). This movement is supported by the dramatic leap in the absorption of pig iron also by Asia based on volume, going from 297,000 tons purchased from Brazil in 2016 to 2.45 billion tons in 2020, almost four times more than the second largest buyer, the U.S., with 655,000 tons. Of particular note is the jump from 2019 to 2020, when Asia tripled the amount of pig iron purchased from Brazil.

26. In the case of pig iron, there were also two records of shipments from Maranhão to other countries during the third quarter (July to September) of 2021: one from Siderúrgica Viena, with an unknown buyer, to New Orleans, in the USA, of 76,200 tons; and another, of 35,000 tons of pig iron to Morehead, Kentucky (also in the USA), for an equally unidentified buyer, strangely enough, from a food company based in Fortaleza, Ceará. Besides the Viena and Nordeste pig iron plants in Açailândia/MA, there is also Margusa in Bacabeira/MA.

27. Vale's Northern System is structured in three major extraction sectors: the mines in the northern sector of Serra dos Carajás, with the N4 and N5 mining projects; the mine in the eastern sector, by the Serra Leste project; and the mine in the southern sector, S11D.

28. Vale, recalls Coelho (2015, p. 44), was the first company in Brazil to receive investment grade, a qualification given by rating agencies such as Standard & Poor's and Moody's. "Concomitantly to the financialization of commodities, two phenomena are important to understand the transformations that the company went through: its transnationalization and trade with China." See COELHO, T. P. (2015) "Projeto Grande Carajás: trinta anos de desenvolvimento frustrado". Marabá: Editorial iGuana.

29. Sindifer (2021), Anuário estatístico, Accessible in: http://sindifer.com.br/sndfr/anuario-estatistico/#dearflip-df_3881/1/

PIG IRON SALES BY STATE TONS

YEAR	DOMESTIC MARKET				TOTAL
	Minas Gerais	Maranhão & Pará	Espírito Santo	Mato Grosso do Sul	
2011	1.981.638	-	215.660	396.694	2.593.992
2012	1.950.422	-	154.267	429.116	2.533.805
2013	2.065.852	-	128.411	466.025	2.660.288
2014	1.941.816	-	72.839	433.000	2.447.655
2015	1.316.669	-	48.738	190.034	1.555.441
2016	1.187.019	-	54.880	131.673	1.373.572
2017	1.369.291	-	112.642	56.084	1.538.017
2018	1.931.109	-	77.000	189.336	2.197.445
2019	1.502.901	-	53.011	199.919	1.755.831
2020	1.158.647	-	15.420	114.639	1.288.706

Sources: Companies/SINDIFER

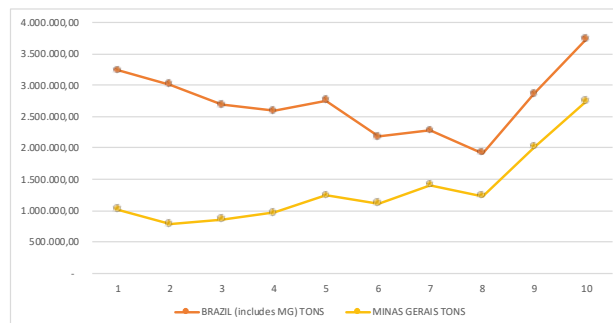
YEAR	EXTERNAL MARKET					TOTAL
	Minas Gerais	Maranhão & Pará	Espírito Santo	Mato Grosso do Sul	Others	
2011	1.016.362	2.019.004	141.340	53.306	-	3.230.012
2012	788.015	2.108.101	105.960	12.120	-	3.014.196
2013	859.106	1.763.104	67.577	2.000	-	2.691.787
2014	972.316	1.462.516	153.456	-	-	2.588.297
2015	1.245.658	1.291.440	167.238	47.221	-	2.751.557
2016	1.115.349	858.885	166.049	37.435	-	2.177.718
2017	1.406.102	553.016	234.048	88.470	-	2.281.636
2018	1.228.901	403.431	240.472	36.000	3.499	1.912.303
2019	2.017.241	525.963	210.896	110.631	647	2.865.378
2020	2.748.008	508.149	234.193	236.149	11.822	3.738.321

Sources: Companies/SINDIFER/ME- COMEX STAT

EXPORTS OF PIG IRON PRODUCED WITH CHARCOAL

YEAR	BRAZIL (includes MG)		MINAS GERAIS	
	TONS	US\$ 10 FOB	TONS	US\$ 10 FOB
2011	3.230.012,00	1.598.803,96	1.016.362,00	519.879,48
2012	3.014.196	1.344.593,52	788.015	389.243,49
2013	2.691.787	1.068.557,02	859.106	351.394,84
2014	2.588.297	1.031.245,90	972.316	394.442,04
2015	2.751.557	772.993,65	1.245.658	380.115,38
2016	2.177.718	523.670,18	1.115.349	275.551,80
2017	2.281.639	764.849,72	1.406.102	470.862,12
2018	1.912.303	750.522,82	1.228.901	478.146,57
2019	2.865.379	971.104,60	2.017.241	680.523,80
2020	3.738.321	1.132.938,28	2.748.008	831.252,83

Sources: COMEX STAT/SINDIFER



The second, longer movement concerns a substantial change in the internal origin of the pig iron exported by the country. In the last decade there was a steep drop in the share of pig iron produced in Maranhão and Pará (produced with iron ore from Carajás) for the export market, from about 2 million tons in 2011 to approximately 500,000 tons in 2020, that is, a quarter of what it used to produce a decade ago. On the other hand, the volume produced by steel mills in Minas Gerais increased from 1 million in 2011 to 2.75 million in 2021. Other complexes such as Espírito Santo (from 141,000 to 234,000 t) and Mato Grosso do Sul (from 53,000 to 110,000 t) have also increased their production of pig iron for export over the last decade. The table and graph available here depict the growth of exports of pig iron produced with charcoal from Minas Gerais and confirm this internal “turnaround”: the southeastern state went from less than 800,000 tons exported in 2016 to 2.75 billion tons sent abroad in 2020.

Given this set of data, the main focus of the research on the supply chain was on the operations involving iron ore extracted from the Carajás Complex by Vale. Data released by the company³⁰ (*table available*) reinforce that the participation of Asian countries, especially China, has been predominant in recent years. In 2020, China alone accounted for 57.8% of Vale’s net operating revenue, as a whole; considering all other countries in Asia (such as Japan, South Korea and Taiwan), this percentage rises to an overwhelming 71.5%. The entire European continent contributes to 3.8%, and North America (USA and Canada) to 3.2%.

30. From the same (most recent) Vale’s 2020 Form 20-F, accessible in: <http://www.vale.com/brasil/pt/investors/information-market/annual-reports/20f/paginas/default.aspx>

	Net operating revenue by destination			
	2020		2019	
	(in million US\$)	(% of total)	(in million US\$)	(% of total)
North America				
Canada	258	0,6	717	1,9
United States	1.041	2,6	1.335	3,6
Total	1.299	3,2	2.052	5,5
South and Central America				
Brazil	2.908	7,3	3.348	8,9
Others	362	0,9	641	1,7
Total	3.270	8,2	3.989	10,6
Asia				
China	23.140	57,8	18.242	48,6
Japan	2.213	5,5	2.603	6,8
South Korea	1.278	3,2	1.278	3,4
Taiwan	587	1,5	943	2,5
Others	1.391	3,5	1.091	2,9
Total	28.609	71,5	24.157	64,3
Europe				
Germany	1.666	4,2	1.683	4,5
England	637	1,6	168	0,4
Italy	270	0,7	356	0,9
France	269	0,7	517	1,4
Others	2.495	6,2	2.470	6,6
Total	5.337	13,3	5.194	13,8
Rest of the world	1.503	3,8	2.178	5,8
Total	40.018	100%	37.570	100%

Source: Vale

Based on this context, in which we can see a large presence of China as a buyer of iron ore from Carajás (and a drastic reduction in pig iron exports from Pará and Maranhão, as well as residual shipments of steel from the same states), a survey was carried out – using foreign trade database records as a base, and complemented by a series of other complementary surveys,³¹ – specifically in the aforementioned period of the first nine months (January to September) of 2021,³² on the main buying companies worldwide.

As much as the trend towards China's centrality in this trade has been consolidating for some time, the phenomenon of the hegemony of the giant Asian buyer seen mainly from 2020 onwards (and driven mainly by the economic reaction in the face of the brakes, uncertainties and readjustments imposed by the worsening and evolution of the COVID-19 pandemic) has gained an even more intense pace.

Of the 523 registered shipments of iron ore that departed from the port of Ponta da Madeira (which belongs to Vale and is located in São Luís, at the end of the Carajás Railroad) between January and September 2021, 310 went directly to China.³³ Malaysia, where Vale maintains its own maritime terminal, also stands out with 35 shipments recorded during the same period. The sum of these two destinations (345) represents practically two thirds of the 523 cargo ships loaded with iron ore originating in Carajás. Therefore, in these nine months, 178 shipments of the raw material were destined for other parts of the world.

76 shipments unloaded in Europe, with ArcelorMittal (with a total of 28 shipments to different ports in Germany, France, Spain and Italy), Tata Steel (4 to Den Haag in the Netherlands) and Acciaierie Ditalia (3 to the city of Taranto)³⁴ standing out among the identified buyers.

Taking the corporate information channels of these three companies as a reference,³⁵ it is possible to get an idea of how the steel produced from iron ore coming from Brazil is spread across multiple uses and supply chains, from infrastructure sectors (such as transportation/logistics and energy), to the strategic technological, automotive, and food industries, especially with regard to packaging for food and beverages.

Besides China and Malaysia, other Asian countries – such as Japan, namely via large steel mills like JFE Steel (16 shipments) and Nippon Steel (7 direct nominal shipments); as well as Posco (11 shipments), from South Korea³⁶ – appear on the list of buyers of iron ore from Carajás. Adding other countries of the same continent such as the Philippines (9), Asia stands out as the main

31. Examples of these platforms include Trade Map (Accessible in: <https://www.trademap.org>), maintained by the International Trade Centre (ITC), and other platforms specialized in international cargo movements, such as the Vessel Finder (Accessible in: <https://www.vesselfinder.com/>), and other more specific records of operations at the Ponta da Madeira port terminal, the base for iron ore exports used by Vale.

32. According Ibram, which also compiled data only on the first three quarters of 2021 (Accessible in: <https://ibram.org.br/mineracao-em-numeros>), the revenues of the mineral sector, heavily driven by the sales of iron ore, was BRL 257 billion, about BRL 50 billion higher than the total revenue for the full year of 2020 (BRL 208.9 billion).

33. Iron is the main raw material for the manufacture of steel, used in many economic segments, such as in the production of tools, machinery, motor vehicles, electric power transmission lines and, mainly, as a structural element for construction, as highlighted in the report on "Four decades of the Grande Carajás Project," by the Observatory of Mining Conflicts in Brazil. "Behind a dynamic of urbanization of the territory, which presupposes the installation of infrastructure and technical densification, is the use of immeasurable volumes of iron."

34. In addition to these three companies (which had three or more shipments recorded in the first three quarters of 2021), there are also occasional connections (less than three shipments) with ThyssenKrupp (to Holland) and Rogesa (to Germany). Trans Saar, based in the Netherlands, also appears as an importer in exactly five shipments in this period, positioning itself as an intermediary logistics company.

35. Pages and georeferenced maps such as the one in ArcelorMittal Europe's "Geographical overview" (Accessible in: https://europe.arcelormittal.com/europeprojectgallery/fol_geographicaloverview) list a number of projects not only in the continent itself but also in various other parts of the world, including uses that mark a "way back" to Latin America itself. The Tata Steel Europe website, in its products section (Accessible in: <https://www.tatasteeleurope.com/engineering/products>) emphasises, in addition to the varied application of steel in engineering (machinery, structures and production supports), three complementary areas: automotive, construction and packaging. The products page of the Acciaierie Ditalia website (Accessible in: <https://www.acciaierieditalia.com/it/prodotti/settori-e-applicazioni>) also highlights (in addition to those already mentioned) the use of the steel produced by the company precisely for the household appliances, mechanical and manufacturing and energy segments.

36. The South Korean company Hyundai also appears occasionally, with only two records.

destination continent of the product. Turkey³⁷ registers nine incoming shipments. The remaining shipments in the nine months of 2021 were distributed among destinations as diverse as the United States, Argentina, Romania, Oman, Mauritius, South Africa and Egypt.

Representing China, therefore, even though no direct purchasing company was identified by the databases analyzed, this research selected two of the largest companies³⁸ that notably maintain business relations with Vale³⁹ – Baowu/Baosteel, which recently became the largest steel producer on the planet, and HBIS/Hesteel, also a well-known business partner⁴⁰ of Brazil's largest mining company – for consultation on raw material purchases from Brazil and corporate responsibilities with social and environmental impacts in Carajás. In addition, a request for information was also sent to the main industry representative entity, the China Iron & Steel Association (Cisa).

Information from foreign trade databases indicates that steel made by Chinese companies reaches Europe in at least two different ways. Firstly, this steel supplies China's own consumer durables industry, which then sells these products to the overseas market. China is indeed known as the 'factory of the world'. The second channel connecting Chinese steel with Europe is through direct exports of this product. Data for the period between 2013 and 2018 indicate that Chinese steel from Baowu/Baosteel supplied several European countries, with the top twelve destinations being the following: Czech Republic, Hungary, the Netherlands, Poland, Italy, the United Kingdom, Germany, Belgium, Spain, Russia, France and Georgia. Once on European territory, the product is used by the construction, automotive and general consumer goods industries, among others.

It is worth noting that the existence of recurrent gaps in information about billionaire international negotiations involving Vale's iron ore, especially the large shipments to China, has been the subject of an investigation by a Parliamentary Inquiry Commission (CPI)⁴¹ installed in the Legislative Assembly of the State of Pará (Alepa). Several public agencies – such as the National Mining Agency (ANM), an agency linked to the Ministry of Mines and Energy (MME) – and also civil society

37. Mainly with steel producer Isdemir.

38. According to the World Steel ranking published in 2021 with data from 2020 (Accessible in: <https://www.worldsteel.org/en/dam/jcr:976723ed-74b3-47b4-92f6-81b6a452b86e/World%2520Steel%2520in%2520Figures%25202021.pdf>), seven Chinese companies are among the top 10 in the world by production quantity. In addition to Baowu and HBIS, the group includes Shagang, Ansteel, Jianlong, Shougang and Shandong Steel. Second place is Luxembourg-based ArcelorMittal, and the fifth and sixth ranks are Japan's Nippon Steel and South Korea's Posco, respectively. Except for ArcelorMittal, all are Asian.

39. According to news reports in the press and even statements from the company itself such as: "VALE (2021), "Vale e China Baowu assinam Memorando de Entendimento para desenvolver soluções de descarbonização para a siderurgia", (Accessible in: <http://www.vale.com/brasil/PT/aboutvale/news/Paginas/vale-e-china-baowu-assinam-memorando-de-entendimento-para-desenvolver-solucoes-de-descarbonizacao-para-a-siderurgia.aspx>), CNN,(2021) "Vale e gigante do aço China Baowu vão investir em projeto de níquel na Indonésia" (Accessible in: <https://www.cnnbrasil.com.br/business/vale-e-gigante-do-aco-china-baowu-vaoinvestir-em-projeto-de-niquel-na-indonesia/>), El Investidor (2021), "Vale avança na venda de minério de ferro por WeChat e blockchain", (Accessible in: <https://einvestidor.estadao.com.br/negocios/vale-venda-minerio-wechat-blockchain>)

40. See, for example: Reuters (2020) "Vale fecha acordo precificado em iuan para oferta de minério de ferro à chinesa HBIS", (Acessível em: <https://economia.uol.com.br/noticias/reuters/2020/01/22/vale-fecha-acordo-precificado-em-ian-para-oferta-de-minerio-de-ferro-a-chinesa-hbis.htm>).

41. Among the various news items published on the subject by the Alepa website, many of them highlighting the evasions of company representatives, are: Alepa (2021) "Executivos de geotecnia da Vale participam de oitivas, mas deixam muitas perguntas sem respostas", (Accessible in: <https://www.alepa.pa.gov.br/noticia/6678>); Alepa (2021), "CPI Vale - Funcionários da área ambiental se abstém de responder sobre responsabilidade" (Accessible in: <https://www.alepa.pa.gov.br/noticia/6544>); Alepa (2021), "CPI da Vale recebe executivos em terceira oitiva", (Acessível em: <https://www.alepa.pa.gov.br/noticia/5474/>), Alepa (2021), "CPI da Vale realiza oitivas com prefeito de Parauapebas e prorroga prazo dos trabalhos" (Accessible in: <https://www.alepa.pa.gov.br/noticia/6769/>), Alepa (2021), "Executivo da Vale presta esclarecimentos sobre suposta evasão de divisas e sonegação de impostos", (Accessible in: <https://www.alepa.pa.gov.br/noticia/5350>), Alepa (2021), "Tributos pagos pela Vale são questionados pelos deputados durante diligências em Carajás" (Accessible in: <https://www.alepa.pa.gov.br/noticia/5308>), Alepa (2021), "Iniciadas em Marabá diligências da CPI da Vale" (Acessível em <https://www.alepa.pa.gov.br/noticia/5290>) e Alepa (2021), "CPI da Vale no Pará tem a missão de desvendar muitas questões sobre mineradora", (Accessible in: <https://www.alepa.pa.gov.br/noticia/6506>). Ressalte-se ainda notícia publicada pela Veja sobre o "trunfo" da CPI da Vale, que conta com suporte do governo estadual do Pará, o ex-diretor de relações institucionais da Vale no Pará, José Fernando de Mendonça Gomes Júnior, que se tornou secretário estadual de desenvolvimento econômico e mineração (Josette Goulart (2021), "CPI da Vale no Pará teve apoio do governo e quer fazer devassa tributária", Accessible in: <https://veja.abril.com.br/blog/radar-economico/cpi-da-vale-no-para-teve-apoio-do-governo-e-quer-fazer-devassa-tributaria/>)

organizations — such as the Fiscal Justice Institute (IJF)⁴² — have accused the mining company Vale of “improper commercial gains” through “capital flight” manoeuvres using subsidiaries in Switzerland (Vale International) and the Cayman Islands (Vale Overseas). As a result, significant amounts to the public budget would be lost, according to critics, due to the lack of payment of the Financial Compensation for Exploitation of Mineral Resources (CFEM).

As demonstrated so far, the size, fragmentation, internationalization and complexity of the iron ore chain make it difficult for companies to be held accountable for the social and environmental impacts. There are legal gaps at the national and international levels, as well as public and private governance failures, which end up corroborating this lack of accountability. It is urgent to recognize the serious violations faced by impacted populations, such as the community of Piquiá de Baixo, so that full remediation, from the perspective of the UN's guiding principles for business and human rights, actually occurs. In this sense, the companies in the steel and iron chain also have their own responsibility. A recommendations section will follow later in this report.



Carajás Railroad passing close to the houses of the residents of Piquiá de Baixo. © Marcelo Cruz

42. In a specific report on the topic (INF (2017), “Extração de recursos no Brasil Faturamento comercial indevido no setor de mineração”, Accessible in: <https://ijf.org.br/wp-content/uploads/2020/09/Extracao-de-recursos-no-Brasil-versao-10-10-2017-2.pdf>), released in 2017, the IJF is categorical in stating that, in order to “circumvent” the tax legislation in force and not pay taxes in Brazil (eliminating the income tax adjustment), “companies adopted the mechanism of triangulation with themselves (self-intermediation), by creating subsidiaries in tax havens, commonly known as ‘rebilling companies’, which acquire the iron ore exported by the Brazilian parent company at a low price (cost + 15%), ‘rebilling’ it at market price to the actual purchaser of the product. In this way, the profit is transferred to the subsidiary of the Brazilian company located in a tax haven, where taxation is very low or nil. The survey conducted by the IJF (...) confirms this practice when it shows that Switzerland is the largest buyer of Brazilian iron ore, i.e., it purchases more than 80% of the total exported by Brazil (survey conducted by purchasing country). However, the destination of the ore is not Switzerland, but China, which is the main importer country of the Brazilian mineral, representing 66.5% of total exports, as revealed in this study (research by export destination country).” According to authors of the first study consulted for this report, a new analysis with more updated data from the last few years is being produced (with the maintenance of the main conclusions of the previous study, that is, the permanence of Switzerland as an intermediary and renewed evidence of abusive use of “transfer pricing”) and will be released soon.

HEAVY METAL

From abuse-ridden mines to global consumer goods, the journey of Brazilian iron

The Greater Carajás Project was launched in 1982, during the military dictatorship in Brazil. The objective was to occupy the Amazon, encouraging mineral extraction, agriculture and forestry extraction.



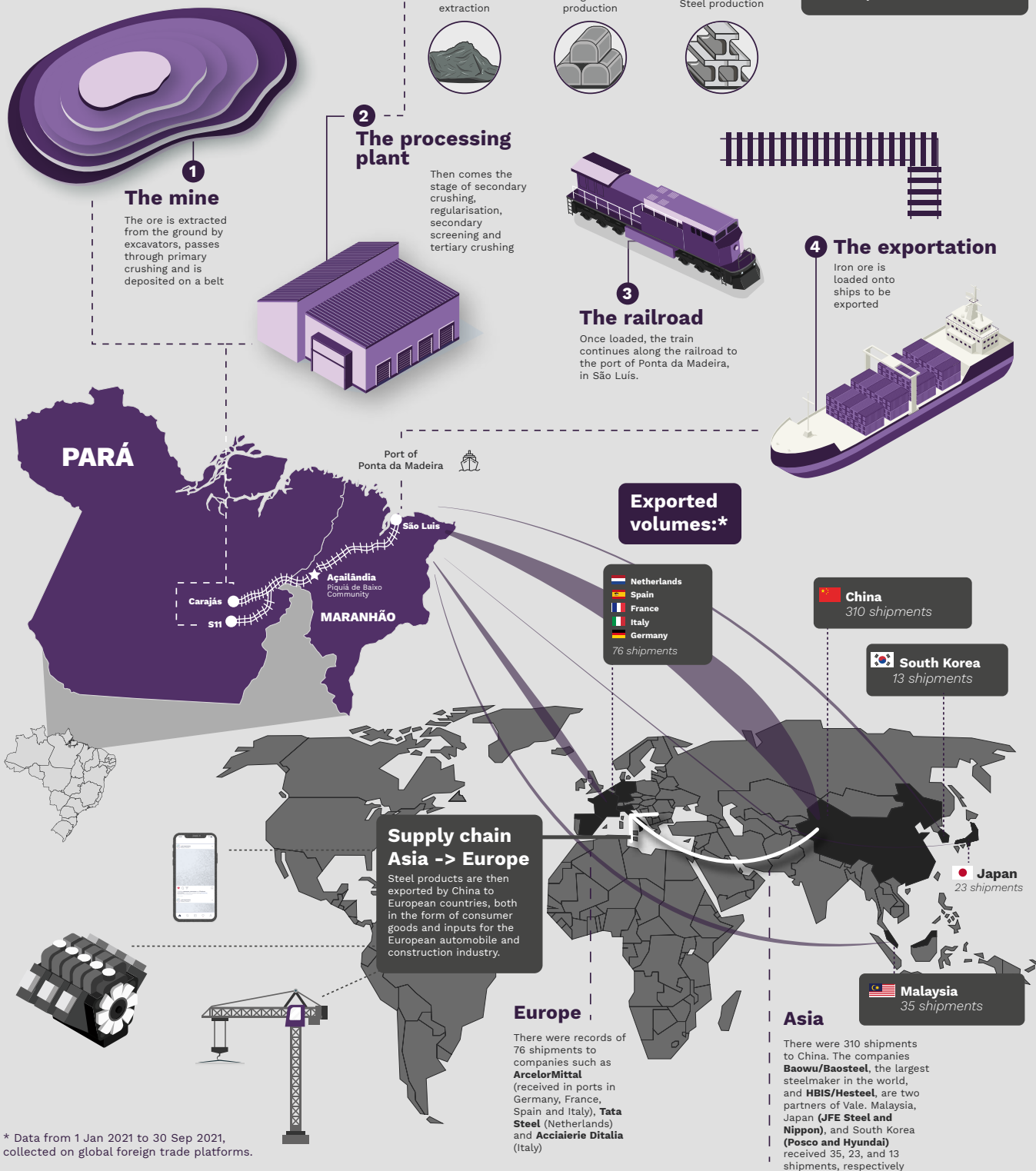
How the extraction and export process works:

There are **three subdivisions** in the supply chain:



Impacts of the steel industry

Several investigations **have documented** the impacts of the steel industry **on human rights**, health, environment, housing, life, **wellbeing**, information and participation, and access to justice.



* Data from 1 Jan 2021 to 30 Sep 2021, collected on global foreign trade platforms.

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4. The responsibilities of companies, including buyers that are part of the value chain

The UN Guiding Principles on Business and Human Rights (UNGPs) are the main international framework for defining the extent of business responsibilities to respect human rights. Principle 13 of the UNGP state that businesses responsibility to respect human rights requires businesses to⁴³:

- (a) “avoid causing or contributing to adverse human rights impacts through its own activities and address such impacts when they occur”;
- (b) “seek to prevent and mitigate adverse human rights impacts that are directly linked to their operations, products or services by their business relationships.”

If an enterprise is at risk of causing or contributing to an adverse human rights impact through its own activities, it should cease or change the activity that is responsible, in order to prevent or mitigate the chance of the impact occurring or recurring. If an impact nevertheless takes place, the enterprise should engage actively in its remediation either directly or in cooperation with others.⁴⁴ If an enterprise is at risk of involvement in an adverse impact because the impact is linked to its operations, products or services by a business relationship, the company has a responsibility to prevent and mitigate this impact, using its leverage with the entity that caused or contributed to the impact.⁴⁵

To meet these requirements, the Guidelines require business enterprises to put in place a human rights due diligence process “assessing actual and potential human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed.”⁴⁶

The UNGPs were included in 2011 to the OECD Guidelines Multinational Enterprises. Businesses operating in or from adhering OECD countries should comply with these guidelines and the responsibilities included in them and are subject to complaints to their National Contact Points.

With respect to the human rights and environmental abuses described in this policy brief, Vale S.A is the company operating the mines at the Carajás Pole, the Carajás railroad, as well as the port. Therefore, is the company causing the human rights abuses related to these activities and, as such, it has the responsibility to cease or change the activity that is responsible of the abuses, in order to prevent or mitigate the chance of the abuses occurring or recurring, and to remediate the abuses that have already taken place, including by providing guarantees of non repetition.

With respect to the human rights and environmental abuses happening as a result of the activities of the steel and pig iron industries operating in Açailândia, Siderurgica Viena S.A, Gusa Nordeste S.A and Aço Verde do Brasil (the two last ones belonging to the Ferroeste Group), these companies are the ones causing the abuses and therefore have the responsibility to prevent, mitigate and remediate the abuses. However, Vale “supplies ore to the plants by railway and is then responsible for the transport of pig iron to steel companies or for part of its export.”⁴⁷ Moreover, “beyond its role as principal coordinator of the implementation of the Grande Carajás Project”, it could be said

43. Office of the United Nations High Commissioner for Human Rights, Guiding Principles on Business and Human Rights: Implementing the United Nations Protect, Respect, Remedy Framework (2011), Fundamental principle 13.

44. Office of the United Nations High Commissioner for Human Rights, Guiding Principles on Business and Human Rights: Implementing the United Nations Protect, Respect, Remedy Framework (2011), Fundamental principle 13 Commentary

45. Office of the United Nations High Commissioner for Human Rights, Guiding Principles on Business and Human Rights: Implementing the United Nations Protect, Respect, Remedy Framework (2011), Fundamental principle 13 Commentary

46. Office of the United Nations High Commissioner for Human Rights, Guiding Principles on Business and Human Rights: Implementing the United Nations Protect, Respect, Remedy Framework (2011), Fundamental principle 17.

47. International Federation for Human Rights, Justiça Global and Justiça nos Trilhos, “Brazil: How much are human rights worth in the Brazilian mining and steel industry?”, page 77, link: https://www.fidh.org/IMG/pdf/report_brazil_2012_english.pdf

that Vale has “power, and crucial influence on these business partners.”⁴⁸ Therefore Vale is, at a minimum, contributing to the human rights impacts happening as a result of the activities of the steel and pig iron industries in Açailândia. Therefore, it has the responsibility to cease or change the activity that is responsible of the impacts, in order to prevent or mitigate the chance of the impact occurring or recurring, and to remediate the impacts that have already taken place.

The companies which are part of the Carajás iron value chain (both the steel companies and the companies buying from the steel companies), could be directly or indirectly linked with the human rights and environmental abuses happening along the Carajás Corridor. As per the UNGP and the OCED Guidelines for Multinational enterprises, these companies have the responsibility to assess their actual and potential human rights impacts in their own business and in their business relationships, including the ones happening at the beginning of the iron supply chain in Brazil. In order to do this, companies should first identify and map their steel and iron suppliers and sub-suppliers and business partners, up to the raw material (iron ore), to understand whether they are linked to the human rights impacts taking place in the Carajás Corridor. If they are linked to these impacts, companies in the value chain should integrate the findings and take action to prevent and mitigate potential impacts happening in the Carajás Corridor. Finally, these companies should use their leverage to ensure the companies causing the impact provide effective remediation to rights holders.

This international framework is complemented by certain relevant legal provisions in the companies’ home countries, specifically if they are based in the European Union.

Companies in the iron value chain, based in France, for example, need to comply with the Duty of Vigilance law governing parent and instructing companies, enacted on March 27, 2017. This law requires companies of a certain size to identify and prevent risks of violations of human rights and fundamental freedoms and of damage to health, safety, and the environment stemming from their operations and those of their subsidiaries and/or business partners (sub-contractors and suppliers) by drawing up, publishing, and effectively implementing a vigilance plan containing adequate preventive, mitigating, and remedial measures to address those risks and impacts.

In Germany, the Act on corporate due diligence in supply chains of 11 June, 2021, which will come into force on 1 January 2023, requires companies of a certain size registered or with their principle place of business in Germany, to establish due diligence procedures to assess human rights-related risks in line with the UNGPs, take measures to prevent and mitigate human rights abuses, and report on their due diligence activities. The due diligence obligation covers the companies own activities and those of direct suppliers. The risks and impacts of indirect suppliers are included insofar as the company has substantiated knowledge of human rights abuses in the context of lower tier suppliers (either through their own risk analysis or as a result of third-party substantiated complaints).

Moreover, in May 2020, the European Commissioner Didier Reynders announced the introduction of a mandatory human rights and environmental due diligence legislation in the European Union. On 10 March, the European Parliament adopted a legislative own initiative resolution recommending to the Commission to initiate a legislative proposal on corporate due diligence and corporate accountability.⁴⁹ The legislative proposal is expected for the first quarter of 2022, and it consolidates the transition to hard law of the different obligations and responsibilities set out in the UNGP.⁵⁰

From an international law perspective, the Intergovernmental Working Group (IGWG) on transnational corporations and other business enterprises and human rights at the UN is working

48. International Federation for Human Rights, Justiça Global and Justiça nos Trilhos, “Brazil: How much are human rights worth in the Brazilian mining and steel industry?”, page 77, link: https://www.fidh.org/IMG/pdf/report_brazil_2012_english.pdf

49. European Union, LEGAL AFFAIRS – JURI, “Corporate due diligence and corporate accountability- Legislative Train Schedule”, available at: <https://www.europarl.europa.eu/legislative-train/theme-legal-affairs-juri/file-corporate-due-diligence>

50. ECCJ, *Commissioner Reynders announces EU corporate due diligence legislation*, April 2020, <https://corporatejustice.org/news/16806-commissioner-reynders-announces-eu-corporate-due-diligence-legislation>

on drafting a binding international instrument to regulate, from the perspective of international human rights, in a more robust and effective way, the activities of transnational corporations. The development of this treaty should be regarded by companies as a further sign that business responsibility to respect human rights can become an international legal obligation.

5. What companies say

Among all the companies that are part of the direct supply chain of iron ore from Carajás that were contacted for this report (Cisa, as the representative entity, and the buyers Baowu/Baosteel and HBIS/Hesteel, from China; Nippon Steel and JFE Steel, from Japan; Posco, from South Korea; ArcelorMittal, from Luxembourg; Tata Steel Europe -family corporation of Indian origin, but with extensive operations in Europe: steel mills in the Netherlands and the UK- and Acciaierie Ditalia; and Brazil's Vale mining company as an exporter) – only Vale responded.

Regarding the issues concerning social and environmental impacts related to its activities in the region, Vale listed a series of initiatives that, according to the company, are aligned with the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda. “Vale’s operations in the region, as a relevant part of the mining economic activity, which prevails in the state, contribute to the growth of Pará. The sector boosts tax revenue, job generation and the supply chain of goods, inputs, equipment and services,” explains the company, which also mentions direct actions with the communities, such as the investment of R\$ 100 million in partnership with the state government of Pará to build structures (called “Peace Plants”) to provide sports activities and citizenship and health services. In addition, it mentions the projects supported by the Vale Cultural Institute, as well as maintaining an ESG (Environmental, Social and Governance) Portal.

Regarding the various questions that have been raised about the lack of transparency and deviations regarding its huge shipments to China, the company limited itself to responding that “it regularly pays taxes and duties.” And more specifically about their corporate responsibility regarding the human rights and environmental violations, including some extended to the supply chain, it stressed that it adopts the guiding principles on business and human rights of the United Nations (UN) and that it updated its own Global Human Rights Policy in 2019, training more than 73,000 of its own employees in 2021, undergoing external due diligence procedures in all the company’s operations in three-year cycles.

From a business strategy perspective, as Vale’s Form 20-F shows, a priority is to “maximize flight-to-quality in iron ore.” In order to honour the commitment to “deliver the highest possible margins in the current market environment, managing our extensive supply chain and flexible product portfolio to address near-term production constraints,” Vale is promoting what it calls Brazilian blend fines (BRBF): “a standard product with silica (SiO₂) content limited to 5% and lower alumina (1.5%), offering strong performance in any type of sintering operation.” This BRBF is produced, as explained by the mining company, by mixing “fines from the Carajás ores and the South and Southeast ores, which are complementary ores for our blending strategy,” a mixture that is carried out at Vale’s Teluk Rubiah Maritime Terminal in Malaysia, and at 17 ports in China. “This process reduces the time needed to reach Asian markets and increases our distribution capillarity by allowing the use of smaller vessels. Our blending strategy also allows the use of iron ore with lower iron concentration from the Southern and Southeastern Systems, allowing more efficient mining plans and increasing the use of dry processing methods [theoretically with lower environmental impacts],” he adds.

Another product launched in 2019 by the company is the GF88, which seeks to supply the growing pellet production market in China. This product, Vale explains, is composed of Carajás fines (IOCJ), obtained by grinding, which would help the company to open a new market for its high-quality

portfolio. In other words, through products such as BRBF (derived from a mixture of ores from Carajás and mines in the south and southeast of Brazil) and IOCJ, the company's commercial strategy is broadened, reaching buyers through processing carried out in Asia itself.

On the part of Chinese companies, as noted in the report on investments in Brazil (2007-2020)⁵¹ by the China-Brazil Business Council, the mining sector has been attracting large investments in metallic minerals exploration (equivalent to 7% of the investments confirmed in the country).

6. Recommendations

A) Vale S.A. and other companies operating in the Carajás Corridor, including the steel companies operating in the community of Piquiá de Baixo

- A.1) Exercise due diligence in operations management, which implies taking all necessary measures to identify, prevent, and remedy adverse impacts on human rights and the environment happening along the Carajás Corridor, particularly through human rights impact assessments carried out prior, during, and after the conduct of its activities and with the meaningful participation of communities affected by these activities
- A.2) Act with transparency, including through the dissemination to shareholders of complete and accurate information on environmental, social, and corporate governance matters, including the identified human rights and environmental risks and impacts, and the preventive and mitigating measures adopted.
- A.3) Strictly follow applicable Brazilian law on the environment and human rights and recognized international standards and norms regarding companies' responsibility to respect human rights.
- A.4) Collaborate with legal proceedings and comply with court rulings awarding remedy to affected people in the Carajás Corridor, without using legal subterfuges to postpone the execution of court rulings in favour of the victims
- A.5) Specifically, with respect to the community of Piquiá de Baixo:
 - Issue a formal apology to the Piquiá de Baixo community.
 - Adopt measures to remedy the impacts created by the pollution in the communities of Piquiá de Baixo .
 - Make the necessary resources available for the resettlement of the community of Piquiá de Baixo so that the families do not have to pay for the houses that they will receive through the government programme that financed the construction.
 - Compensate all the families in the community of Piquiá de Baixo

B) For companies in the Carajás iron ore, pig iron and steel's value chain, especially the ones highlighted in this report based in China, Japan, Malaysia, The European Union, South Korea and Philippines, among others.

- B.1) Identify, map and publish their steel and iron suppliers and sub-suppliers and business partners, up to the raw material (iron ore), to understand whether they are directly linked to the human rights impacts taking place in the Carajás Corridor.

51. CEBC (2021), "Investimentos Chineses no Brasil – Histórico, Tendências e Desafios Globais (2007-2020)", [Accessible in: https://www.cebc.org.br/2021/08/05/investimentos-chineses-no-brasil-historico-tendencias-e-desafios-globais-2007-2020/](https://www.cebc.org.br/2021/08/05/investimentos-chineses-no-brasil-historico-tendencias-e-desafios-globais-2007-2020/)

- B.2) Assess their actual and potential environmental and human rights impacts in their own business and in their business relationships, including the ones happening at the beginning of the iron supply chain in Brazil.
- B.3) If they are directly or indirectly linked to environmental and human rights abuses happening in the Carajás Corridor, companies in the value chain should disclose it and take action to prevent and mitigate potential environmental and human rights impacts.
- B.4) Track their performance on preventing and mitigating the environmental and human rights impacts happening in the Carajás Corridor and communicate publicly with stakeholders.
- B.5) Use their leverage to ensure that companies causing or contributing to the abuses (such as Vale S.A.) provide effective remediation to rights holders for the human rights violations.

In cases where exercising leverage is not an available course of action, or where companies are unable to use existing leverage to ensure compliance with human rights and environmental standards, companies should consider responsibly terminating the relationship with the enterprise in question

- B.6) Specifically, use their leverage to ensure that companies causing and contributing the human rights abuses in the community of Piquiá de Baixo (Vale S.A., Siderúrgica Viena S.A. and Grupo Ferroeste — which includes Gusa Nordeste S.A. and Aço Verde do Brasil):
 - Adopt measures to remedy the impacts created by the pollution in the communities of Piquiá de Baixo.
 - Provide the necessary resources for the resettlement of the community of Piquiá de Baixo, so that the families do not have to pay for the houses that they will receive through the government programme that financed the construction.
 - Compensate all the families in the community of Piquiá de Baixo.
 - Collaborate with legal proceedings and comply with court rulings awarding remedy to affected people.

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