

WWF-BRAZIL

Executive Director

Mauricio Voivodic

Conservation Director

Edegar de Oliveira Rosa

Conservation Specialist

Ana Carolina Crisostomo

Communication Analyst

Mônica Salles

CREDITS

Authors

Gabriela Russo Lopes (Diversa Socioenvironmental Consultancy) Ana Carolina Crisostomo (WWF-Brazil) Daniel Silva (WWF-Brazil) Danilo Farias (WWF-Brazil)

Suggested Citation

Russo Lopes, G., Crisostomo, A., Silva, D. & Farias, D. (2025). Human Rights Due Diligence in commodity supply-chains: An initial guide for companies operating in Brazil. Brasília: WWF-Brazil. Available at: https://wwfbrnew.awsassets.panda.org/downloads/humanrights-due-diligence-in-commodity-supply-chains.pdf

Technical Leads

Ana Carolina Crisostomo Gabriela Russo

Graphic and Editorial design

Laboota

Cover photo

Jacqueline Lisboa / WWF-Brazil

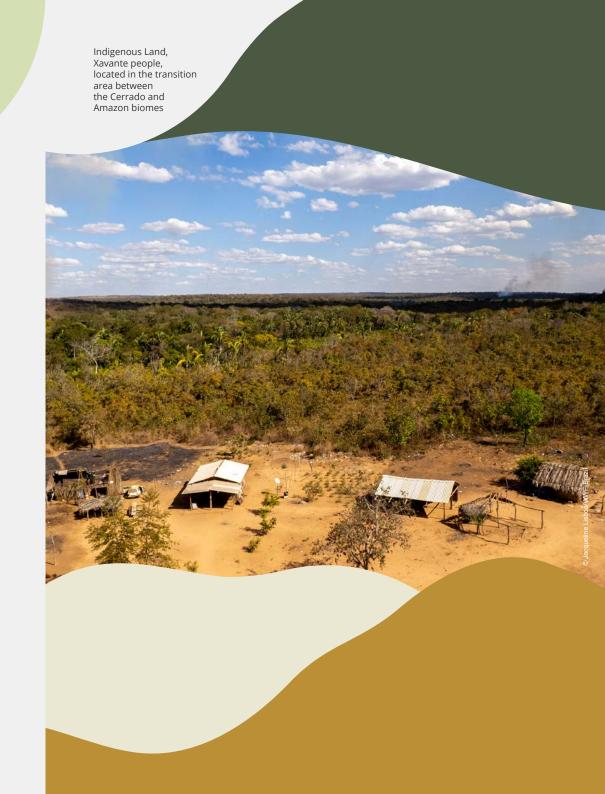
Design concept by WWF-Brazil

INDEX

	EXECUTIVE SUMMARY	4
01	INTRODUCTION	6
02	THE GROWING IMPORTANCE OF HUMAN RIGHTS DUE DILIGENCE	8
03	HUMAN RIGHTS DUE DILIGENCE IN UNDERPROTECTED BIOMES: THE CASE OF THE BRAZILIAN CERRADO	16
04	SUBSIDIZING HUMAN RIGHTS DUE DILIGENCE IN BRAZIL	20
05	FINAL CONSIDERATIONS	28
	REFERENCES	30

EXECUTIVE SUMMARY

- Human Rights Due Diligence (HRDD)
 is increasingly enshrined in guidelines,
 regulations, norms, and laws developed over
 the past few decades at different levels.
- Such instruments increasingly highlight the responsibility and accountability of private companies for the impacts of their business operations throughout the entire supply-chain.
- This is particularly critical for underprotected biomes, such as the Brazilian Cerrado.
- Several data sources are publicly available in Brazil to support the monitoring and risk assessment of human rights violations by private companies.
- With publicly available data and the growing legal obligations that hold companies accountable for their impacts on human rights, the private sector has both the means and the responsibility to act.
- Human Rights Due Diligence is a fundamental step to ensure sustainable and ethical supply-chains that are not only profitable for companies, but also respect the rights of Indigenous Peoples and Local Communities as well as the environment.



01 INTRODUCTION

The interlinkages between deforestation, land conversion, agricultural expansion, and human rights violations within commodity supply chains have become a growing area of concern. These dynamics are deeply intertwined and produce long-lasting impacts on individuals, communities, and landscapes that persist well beyond the moment of their occurrence. In many cases, the international trade of agricultural goods drives patterns of land clearing, environmental degradation, and violations of the rights of Indigenous Peoples and Local Communities (IPLC). Understanding the nexus between social and environmental dynamics is therefore essential to ensure the respect of human rights in agricultural production and commodity supply chains.

This is especially significant in the context of Global South countries. Those have unique and enduring legacies of colonization, appropriation, and exploitation of natural resources that are the underpinning foundations of contemporary inequalities. Global commodity supply chains can be an expression of that, when connecting in skewed ways producing regions—frequently located in the Global South—to consumer markets in the Global North. In these contexts, due diligence efforts take distinct contours, precisely because upholding the respect for human rights can be a key lever to acknowledge and address such structural inequalities.

Companies operating in these supply chains play a central role in shaping these outcomes. Large-scale agricultural production, which underpins most commodity supply chains, is associated with numerous socio-environmental risks and rights violations. These include illegal deforestation and land conversion, biodiversity loss, greenhouse gas emissions, disruption of water cycles, pesticide contamination, displacement of local communities, encroachment on traditional territories, and the weakening of local food systems. As awareness of these impacts grows, companies are facing mounting scrutiny and demands to address both the direct and indirect consequences of their activities in producing regions.

Human Rights is recognized as a fundamental principle of corporate conduct, requiring companies to track their impacts and demonstrate meaningful action to safeguard the rights of affected communities

As a result, corporations are increasingly expected to implement robust monitoring and accountability mechanisms to prevent, mitigate, and remediate human rights violations linked to their supply chains. While companies derive significant economic benefit from sourcing in Global South countries, they also bear responsibility for the adverse impacts associated with their operations. Respect for human rights is now recognized as a fundamental principle of corporate conduct, requiring companies not only to track their impacts but also to demonstrate meaningful action to safeguard the rights of affected communities.

THE GROWING IMPORTANCE OF HUMAN RIGHTS DUE DILIGENCE

Human rights are the fundamental guarantees inherent to all human beings.

Such rights are inalienable, meaning that all individuals are entitled to them independent of nationality, age, gender, ethnicity, race, political stances, social class or any other factor. Developed at the onset of the II World War, the international human rights regime was enshrined in the United Nations Universal Declaration on Human Rights¹ adopted by the United Nations member states in 1948. The human rights regime can be divided into different generations, continuously evolving over time. The first generation entails civil and political rights based on individual freedom, such as the right to vote, the right to participate in elections and the right of speech. The second generation consists of social, economic and cultural rights aimed at promoting equality at the societal level, such as the right to adequate food, education, health and development. The third generation refer to shared and common rights at a transnational scale, especially the right to a sound environment.

Historically, the respect for human rights has been regarded as a sole responsibility of States in promoting their observance or sanctioning their violations.

Nowadays, however, there is an increasing plea for a more prominent involvement from other societal actors – especially private companies.

The demands for a more active role of private companies has led to the emergence of the Human Rights Due Diligence (HRDD) regime. This is a thorough and continuous process of engagement and improvement through which private companies are made responsible and accountable for the impacts of their business operations on the ground. Hence, the consolidation of human rights is not merely figurative or voluntary. Various accountability mechanisms exist, both within countries and before international courts, indicating that due diligence is not limited to a monitoring tool. Rather, it is a legal mechanism to prevent violations, ensure accountability, manage reputation, and, in some cases, even generate financial gains and returns for the companies themselves. In this regard, private companies are required to adopt several Human Rights Due Diligence measures to ensure ethical practices, including:



- Adopt a human rights policy approved by senior leadership.
- Integrate respect for human rights into governance, management systems, procurement, and supplier codes of conduct.
- Train staff and suppliers on human rights guidelines.



- Map the supply chain to understand sourcing regions, suppliers, and intermediaries, ensuring meaningful traceability.
- Carry out prior informed consultations with Indigenous Peoples and Local Communities to identify risks.
- Conduct risk assessments focusing on specific types of violations (e.g., child labor, forced labor, land rights, working conditions) and vulnerable groups (e.g., indigenous peoples, traditional communities, family farmers).
- Use both desktop research and on-theground engagement (e.g., worker interviews, stakeholder input, audits, dialogue channels with Indigenous Peoples and Local Communities).



- Set Key Performance Indicators (e.g., number of suppliers remediating issues, audit results, worker feedback, Indigenous Peoples and Local Communities engagement).
- Monitor progress through site visits, independent audits, grievance mechanisms, communication channels, and technology tools (like satellite monitoring for deforestation or labor risk indicators).



- Work with suppliers to improve practices (e.g., training, remediation plans).
- Carry out prior informed consultations with Indigenous Peoples and Local Communities to find ways of preventing and mitigating risks.
- Consult key stakeholders in the area, such as social movements and civil society organizations on possible contextualized preventive measures.
- Adjust purchasing practices to avoid creating pressure that drives abuses (e.g., unrealistic deadlines that force overtime, large demand that pressures the purchase of deforestation-based commodities).
- Where severe risks are identified, decide whether to continue engagement with improvements or disengage responsibly if change isn't possible.



- Publicly report on due diligence efforts (e.g., annual sustainability or human rights reports).
- Share challenges, progress, and lessons learned, not just successes.
- Provide stakeholders with accessible information and open institutional channels of dialogue.



- Establish or participate in grievance mechanisms for workers and communities (hotlines, worker committees, online platforms).
- Ensure victims of abuses have access to effective remedy (compensation, reinstatement, corrective action).
- Collaborate with suppliers, Indigenous Peoples and Local Communities, social movements, civil society organizations, public authorities, and other relevant stakeholders to support remediation.

These Human Rights Due Diligence measures have been enshrined in a growing set of guidelines, regulations, norms, and laws developed at different levels in the past few decades. They require effective actions from commodity companies in relation to human rights, and often create sanctioning mechanisms for noncompliant actors. At the international level, key documents are:

UNITED NATIONS GUIDING PRINCIPLES FOR BUSINESS AND HUMAN RIGHTS² **OECD GUIDELINES FOR MULTINATIONAL** ENTERPRISES ON RESPONSIBLE BUSINESS CONDUCT³ **OECD GUIDELINES FOR MULTINATIONAL** ENTERPRISES ON RESPONSIBLE BUSINESS CONDUCT³ At the **European Union level**, there are: EUROPEAN UNION REGULATION ON **DEFORESTATION-FREE PRODUCTS⁴ CORPORATE SUSTAINABILITY DUE DILIGENCE DIRECTIVE**⁵ FORCED LABOUR DIRECTIVE®

At the **country level**, multiple governments such as Canada, Switzerland, Norway, China, Japan and Australia are also developing

DEVELOPING LEGISLATIONS THAT HOLD
COMPANIES ACCOUNTABLE FOR HUMAN
RIGHTS VIOLATIONS ASSOCIATED WITH THEIR
BUSINESS OPERATIONS AND VALUE CHAINS?

Likewise, many companies have already committed to responsible sourcing through private voluntary agreements⁸.

In broad terms, all these regulations reinstate "the role of business enterprises as specialized organs of society performing specialized functions, required to comply with all applicable laws and to respect human rights (...) regardless of their size, sector, location, ownership and structure", according to the <u>United Nations Guiding Principles for Business and Human Rights</u>. Human Rights Due Diligence ultimately highlights that companies are responsible not only for their profit-driven activities, but also for the potential negative impacts of their business operations on the ground, directly or indirectly across the entire supply chain.

The failure to observe due diligence standards can result in negative impacts on different dimensions. They include: (i) suspension of activities; (ii) implications for obtaining or maintaining operating licenses and other licenses necessary for the full operation of the company; (iii) reputational impacts;

(iv) imposition of fines and adoption of administrative measures, such as embargoes, inspections, seizure of materials and objects; (v) reduction in the value of the activity and/or product and consequent low customer reliability; (vi) civil liability, with reparations and compensation; (vii) criminalization of activities; (viii) intensification of socio-environmental conflicts; (ix) formal complaints to public agencies; (x) credit-restrictive measures; (xi) low adherence to Environmental, Social and Governance (ESG) guidelines; among other possible negative consequences.

Over the last few years, the consolidation of human rights has been increasingly aligned with the socioenvironmental agenda. This movement is reflected in the numerous advisory opinions, paradigmatic cases, and propositional decisions at both the Inter-American Court of Human Rights⁹ and the International Court of Justice¹⁰, in addition to the growing jurisprudence on socio-environmental legal cases. They show that companies are liable throughout their entire supply-chain, considering the scope of action of each segment involved. This encompasses from actors that are contracting, supplying, and producing, all the way to third-party contractors, financiers, beneficiaries, and other stakeholders. Therefore, the responsibility, liability and accountability of private companies cascades over their whole supply-chains. This is particularly acute in most vulnerable landscapes which are underprotected by alternative mechanisms, as is the case of the Brazilian Cerrado.



HUMAN RIGHTS DUE DILIGENCE IN UNDERPROTECTED BIOMES: THE CASE OF THE BRAZILIAN CERRADO

This growing body of regulations on Human Rights Due Diligence is particularly important for the biomes which lack adequate protection, being the Brazilian Cerrado a case in point. As the second-largest biome of Latin America, with approximately 2-million km², the Cerrado performs essential socio-ecological functions for the environment and for its peoples.

Ecologically, the Cerrado is critical for water recycling, feeding about 70% of Brazil's hydrographic basins¹¹, for biodiversity protection, hosting 5% of the world's biodiversity¹² and housing various endemic species of plants and animals¹³ that only occur in this particular ecosystem, and for carbon storage, with an important long-term carbon storage in its soils¹⁴, and an average CO2 storage of 41 t/ha as of 2021¹⁶.

Socially, the Cerrado is the home of diversified and culturally-rich Indigenous Peoples and Local Communities. Through their livelihoods, they depend on and care for Cerrado's native vegetation¹⁷ by holding and producing knowledge about native species and its multiple uses (e.g., medicinal, nutritional, aesthetic, spiritual)¹⁸, by conserving, restoring and enriching natural ecosystems through traditional practices of landscape management¹⁹,



and by **protecting and reproducing traditional food systems** based on Cerrado's sociobiodiversity²⁰.

Albeit its socio-ecological importance, the Cerrado remains strikingly underprotected.

The biome is recurrently excluded from various protective mechanisms²¹, including voluntary commitments such as the Soy Moratorium and trade regulations such as the European Union Deforestation Regulation exclude the Cerrado from their scope, and national environmental policies such as Brazil's Forest Code²² mandate private properties to conserve only 20% of their areas in the Cerrado, as opposed to 80% in the Amazon. As a result of the lack of protection, both legal and illegal deforestation have been intensified in the Cerrado over the past few decades²³.

As of 2021, about 33 million hectares could still be legally deforested in the Cerrado²⁴, and about 48% of the private properties in the biome are incompliant with the conservation requirements of the Forest Code²⁵.

Indigenous Peoples and Local Communities are the protagonists of Cerrado's protection; yet, their territories are seldom recognized by the government and only 8% of the biome's total area is located within protected areas²⁶. As a consequence, these groups are recurrently affected by human rights violations²⁷, including impaired access to water, land grabbing of their traditional territories, and rural violence through threats and assassinations²⁸. Such dynamics lead to the displacement of local communities through various forms²⁹, for instance, the overuse of economic power to buy off community lands, the harassment of local populations in what is locally called silent evictions, or even violent actions to threaten and expel local communities from their lands³⁰. This creates a supply of cheap land that is later incorporated in the land market and allows for the continued expansion of large-scale agriculture³¹. In such a context of vulnerability and invisibilization. IPLC groups are the most acutely impacted by human rights violations associated with commodity production in the biome³².

This continued neglect of the Cerrado and its peoples at multiple levels turned the biome into a sacrifice zone and an enduring deforestation and conversion frontier where structural human rights violations take place repeatedly³³. As a consequence, half of the biome's native vegetation has already been converted into agricultural land-uses³⁴ – a process largely driven by export-oriented grain production, such as soy, maize and cotton, mainly commercialized to China and the European Union³⁵. In fact, EU-driven deforestation and conversion of

natural ecosystems is largely concentrated in the Cerrado. In 2016, as much as 70% of soydriven deforestation and conversion, and 57% of beef-driven deforestation and conversion for EU imports originated from the Cerrado³⁶. Such numbers highlight the key role of EU trade on socioenvironmental degradation of the Cerrado, as well as the responsibility of private companies that operate in the region.

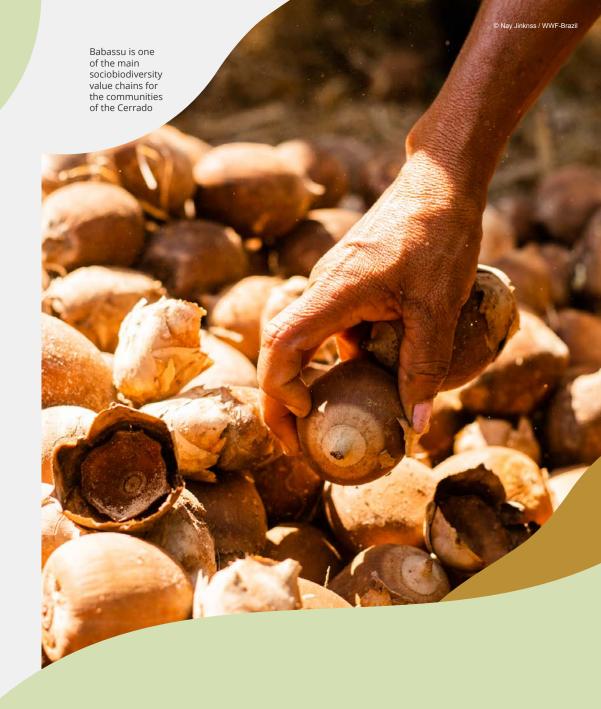
The emergent regulations on zero deforestation and conversion in supply-chains seek to break this cycle by reducing the incentives and profitability of deforestation- and conversion-based agricultural expansion. The inclusion of Human Rights Due Diligence requirements in such regulations is, therefore, a critical step to avoid the violation of human rights of Indigenous Peoples and Local Communities by companies operating in underprotected biomes such as the Cerrado.

In such a context, the main legislation used to assess due diligence are the domestic frameworks and liability, consequently, arises from the application of national law. On occasion, foreign jurisdictions may also be called upon to intervene in situations where domestic remedies have been exhausted, the length of proceedings is unreasonable, or the violations are insufficiently addressed or remedied. Therefore, the due diligence process is imperative not only from a reputational and business perspective, but also from an operational one, especially in biomes that remain underprotected. Failure to observe it, as well as the absence of meaningful instruments, can lead not only to financial impacts, but even the suspension of activities by incompliant companies. In the next session, we highlight existing and publicly available datasets that can help assess compliance with national legislations and international norms on human rights and subsidize the due diligence of companies operating in Brazil.

SUBSIDIZING HUMAN RIGHTS DUE DILIGENCE IN BRAZIL

Human Rights Due Diligence is composed of several dimensions, as detailed in section 2. A crucial first step, however, is the access to reliable data on human rights violations. Often described as scattered, unreliable, subjective, or overly dependent on case studies, the availability of social data has frequently been a justification to the lack of implementation of Human Rights Due Diligence mechanisms, particularly in underprotected biomes such as the Cerrado. Still, several data sources on human rights violations and social impacts are publicly available in Brazil, and remain significantly underused by companies. Those build on the environmental data sources, which are well-documented on the Guide of Minimum Monitoring Criteria for Deforestation and Conversion-Free (DCF) Products³⁷ for commodities originating in Brazil. This publication was organized by WWF-Brazil, Imaflora, TNC and WRI to subsidize analyses such as zero deforestation and conversion commitments as well as illegal deforestation and conversion embargoes.

The following table highlights key sources on social data that can serve as a starting point to support the identification of human rights violations and complement the assessment of environmental compliance by private companies that operate in Brazil in general and in the Cerrado in specific:



HR DIMENSIONS	VARIABLE	SECTOR	SOURCE	DESCRIPTION	SCOPE
	Slave labor	Government	Ministry of Work and Employment	Cases of slave labor associated with specific economic activities (CNAE)	Brazil
LABOUR ISSUES	Child labour	Government	Ministry of Work and Employment	Cases of child labor associated with specific economic activities (CNAE)	Brazil
	Labour infractions	Government	Ministry of Work and Employment	Cases of labour irregularities associated with specific economic activities (CNAE)	Brazil
RURAL	Conflicts over land	Social movement	Pastoral Land Commission (CPT)	Conflicts related to land rights, such as invasions, territorial disputes and rural violence	Brazil
CONFLICTS	Conflicts over water	Social movement	Pastoral Land Commission (CPT)	Conflicts related to water rights, such as contaminations, illegal irrigation and blocked access to water	Brazil
	Violence against individuals	Social movement	Pastoral Land Commission (CPT)	Cases of assassinations, assassinations attempts and death threats	Brazil
	Violence against indigenous peoples	Social movement	CACI Platform / CIMI	Cases of attacks against Indigenous Peoples	Brazil

HR DIMENSIONS	VARIABLE	SECTOR	SOURCE	DESCRIPTION	SCOPE
	Indigenous lands	Government	FUNAI / Ministry of Justice	Territories of indigenous peoples formally recognized	Brazil
LAND TENURE	Indigenous lands under study	Government	FUNAI / Ministry of Justice	Territories of indigenous peoples claiming recognition	Brazil
	Quilombola lands	Government	Fundação Palmares	Territories of afro-descendant communities	Brazil
	Quilombola lands under study	Government	Fundação Palmares	Territories of afro- descendant communities claiming recognition	Brazil
	Conservation units	Government	Ministry of Environment	Data on protected areas of full protection and sustainable use	Brazil
	Land Reform settlements	Government	INCRA / Ministry of Justice	Data on the territories of Land Reform designated for family farmers	Brazil
	Traditional territories platform	Government	Public Procurement's Office	Territories of traditional communities	Brazil
	Tô no mapa	Civil society organizations	IPAM, ISPN, Rede Cerrado, Instituto Cerrados	Territories of traditional peoples and local communities	Cerrado

HR DIMENSIONS	VARIABLE	SECTOR	SOURCE	DESCRIPTION	SCOPE
SOCIO- ENVIRONMENTAL IMPACTS	Socio- environmental platform	Civil society organizations	WWF-Brasil, ISPN, CPT, Mapbiomas, FERN, amongst others	Cases of human rights violations associated with deforestation and commodity expansion	Brazil
	Map of environmental conflicts	Research centers	Fiocruz / UFF	Cases of environmental injustices and health related issues	Brazil
	Map of conflicts	Civil society organizations	Agência Pública / Pastoral Land Commission (CPT)	Cases of rural violence related to land rights	Amazon
	Tamo de olho	Civil society organizations	WWF-Brasil, ISPN, Rede Cerrado, Instituto Cerrados	Cases of illegal activities based on the compounded analysis of other datasets	Cerrado
JUDICIAL ACTIONS	Sirenejud	Government	National Justice Commission	Environmental and land tenure court cases at federal and state levels as well as superior courts	Brazil

The available datasets listed above do not capture the full extent of existing databases in Brazil, nor does it encompass the entire universe of human rights violations occurring on the ground. The availability of data is a process in ongoing development and improvement, and should be closely followed by companies operating in the country. Still, these databases were selected for their reliability, which can help identify the most critical and visible cases of rights abuses linked to commodity production, offering important signals and potential red flags for further investigation. As such, they remain valuable resources for companies, providing an initial entry point to begin assessing their exposure to human rights risks within their supply chains.

05 FINAL CONSIDERATIONS

The issue of human rights violations in rural areas and its connection to commodity production is a reality in the tropics. International regulations increasingly recognize the role of private companies in this process and establish mechanisms to make them accountable. This initial guide provides insights on how companies can incorporate human rights elements into due diligence processes in meaningful ways. We show that there is a variety of reliable and available data sources in Brazil that can and should be consulted. Companies that have public commitments on addressing human rights violations in their supplychains, therefore, are in a position to take concrete action to effectively implement their stated goals.

The reliance on these data sources alone, however, is not sufficient. Companies bear a broader responsibility to move beyond initial assessments and to establish comprehensive human rights due diligence processes that allow for continuous improvements. This entails ongoing monitoring, mitigation, and transparent reporting of human rights risks, as well as proactive action to prevent and remedy violations across their projects, operations, and business relationships.

Databases should therefore be seen as a starting point, not a final result, in building meaningful and effective human rights due diligence systems. In this regard, the adoption of the minimum monitoring criteria for DCF



products is strongly recommended. This entails a basic check of transdisciplinary elements, including: (i) the effectiveness of reporting recommendations; (ii) the adoption of appropriate legal measures, such as contract terminations and the reallocation of commercial demands; (iii) the validation of business operations in light of verification results; and (iv) the recurrence and periodic updating of these Human Rights Due Diligence processes over time.

The case of the Brazilian Cerrado demonstrates that monitoring human rights violations in commodity supply chains is both possible, urgent and necessary. Sustainable agriculture cannot be achieved without safeguarding the rights of Indigenous Peoples and Local Communities who depend on and care for these landscapes. With publicly available data and the growing legal obligations that hold companies accountable for their human rights impacts throughout the entire supply chain, the private sector has both the means and the responsibility to act. By adopting robust monitoring systems that address deforestation, land conversion, and human rights violations in tandem, companies can contribute to a supply chain that respects people and the environment.

REFERENCES

- 1 United Nations. (1948). Universal Declaration of Human Rights. Available at: https://www.un.org/en/about-us/universal-declaration-of-human-rights
- 2 United Nations. (2012). Guiding Principles for Business and Human Rights. Available at: https://www.ohchr.org/sites/default/files/
 Documents/Publications/GuidingPrinciplesBusinessHR EN.pdf
- 3 OECD. (2023). Guidelines for Multinational Enterprises on Responsible Business Conduct. Available at: https://www.oecd.org/en/publications/oecd-guidelines-for-multinational-enterprises-on-responsible-business-conduct_81f92357-en.html
- 4 European Union. (2023). Regulation on Deforestation-free Products. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&qid=1687867231461
- European Union. (2024). Corporate Sustainability Due Diligence Directive. Available at: <a href="https://commission.europa.eu/business-economy-euro/doing-business-eu/sustainability-due-diligence-responsible-business/corporate-sustainability-due-diligence-en/sustainability-due-diligence
- 6 European Union. (Proposed in 2022, under negotiation). Forced Labour Directive. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022PC0453
- PwC. (2023). Integrate respect for human rights in your supply chains. Available at: https://www.pwc.com/gx/en/issues/esg/esg-asia-pacific/human-rights-in-your-supply-chains.html
- 8 Forest Trends. (2025). Supply change: commitments that count. Available at: https://supply-change.org/
- Inter-American Court of Human Rights. (n/d). Cases at the merit stage. Available at: https://www.corteidh.or.cr/

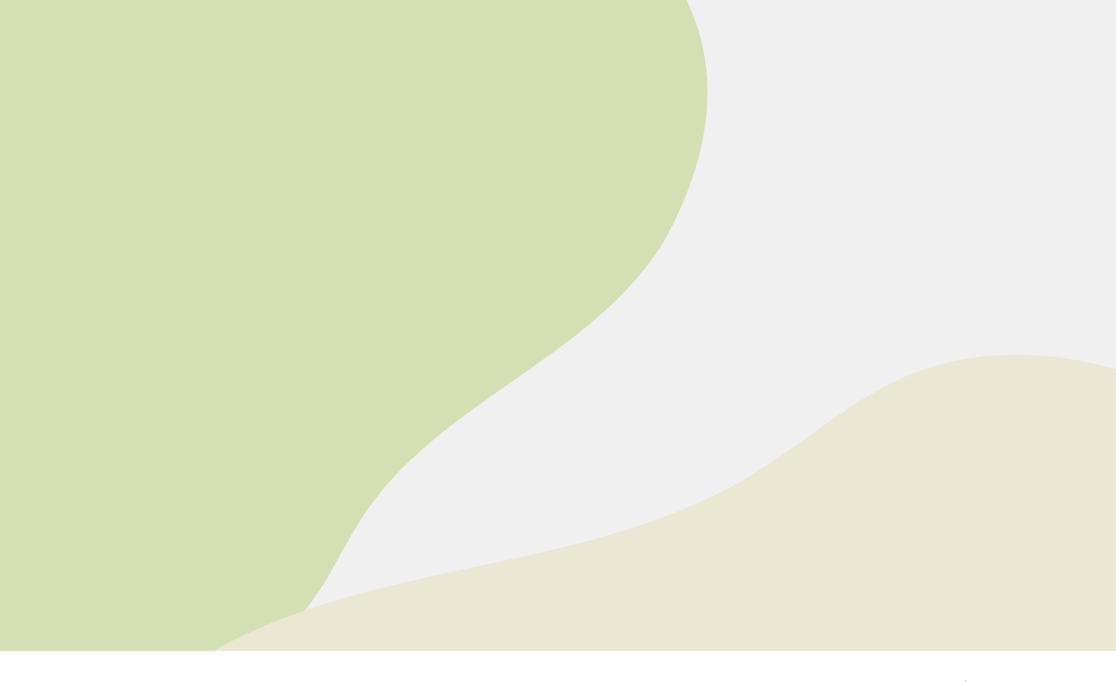
- 10 International Court of Justice. (n/d). Cases. Available at: https://www.icj-cij.org/
- 11 National Geographic Brasil. (2021). Por que o Cerrado é o bioma mais ameaçado do Brasil?. Available at: https://www.nationalgeographicbrasil.com/meio-ambiente/2021/11/por-que-o-cerrado-e-o-bioma-mais-ameacado-do-brasil
- CEPF. (2025). Cerrado: Species. Available at: https://www.cepf.net/our-work/biodiversity-hotspots/cerrado/species
- WWF-Brasil (2012). Factsheet: Cerrado birthplace of the waters Available at: https://wwfbrnew.awsassets.panda.org/downloads/wwf factsheet cerrado en web.pdf
- Schellekens, J., Justi, M., Macedo, R., Calegari, M. R., Buurman, P., Kuyper, T. W., ... & Vidal-Torrado, P. (2023). Long-term carbon storage in Brazilian Cerrado soils a conjunction of wildfires, bioturbation, and local edaphic controls on vegetation. *Plant Soil*, 484, 645–662. https://doi.org/10.1007/s11104-022-05824-4.
- Beer, F., Munhoz, C. B. R., Couwenberg, J., Horák-Terra, I., Fonseca, L. M. G., Bijos, N. R., ... & Wantzen, K. M. (2024). Peatlands in the Brazilian Cerrado: insights into knowledge, status and research needs. *Perspectives in Ecology and Conservation*, 22(3), 260-269. https://doi.org/10.1016/j.pecon.2024.07.003.
- Mapbiomas. (2023). Mapeamento anual do estoque de carbono orgânico do solo (Cos) No Brasil: 1985 2021. Available at: https://brasil.mapbiomas.org/wp-content/uploads/sites/4/2023/08/MapBiomas_Solo_JUNHO_2023_21.06_OK_Alta_1_.pdf
- 17 Guéneau, S., Diniz, J. D. D. A. S., Walverde, T., & Mendonça, S. D. (2019). Biodiversity-based supply chains of the Cerrado biome: opportunities and obstacles. In: Seminar of the European Association of Agricultural Economists: Governance of food chains and consumption dynamics: what are the impacts on food security and sustainability?. INRA. https://hal.science/hal-05174427/
- Bortolotto, I.M., Hiane, P.A., Ishii, I.H. et al. A knowledge network to promote the use and valorization of wild food plants in the Pantanal and Cerrado, Brazil. *Reg Environ Change* 17, 1329–1341 (2017). https://doi.org/10.1007/s10113-016-1088-y
- 19 Ferreira, M. J., Levis, C., Chaves, L., Clement, C. R., & Soldati, G. T. (2022). Indigenous and traditional management creates and maintains the diversity of ecosystems of South American tropical savannas. *Frontiers in Environmental Science*, 10, 809404. https://doi.org/10.3389/fenvs.2022.809404

- 20 Araujo, C. (2023). Central do cerrado supporting livelihoods while conserving traditions and ecosystems in brazil. Available at:

 https://sgp.undp.org/resources-155/our-stories/730-central-do-cerrado-supporting-livelihoods-while-conserving-traditions-and-ecosystems-in-brazil.html
- Brandão, J., Cardoso, F. C., & Garrett, R. (2025). Why has the Brazilian Cerrado been left behind by voluntary environmental policies?. *Global Environmental Change*, 92, 103005. https://doi.org/10.1016/j.gloenvcha.2025.103005
- Brazil. Forest Code, Law 12.651/2012. Available at: https://www2.camara.leg. br/legin/fed/lei/2012/lei-12651-25-maio-2012-613076-normaatualizada-pl.pdf
- 3 INPE. (2025). Terra Brasilis. Available at: https://terrabrasilis.dpi.inpe.br/app/map/deforestation?hl=en
- dos Reis, T. N., de Faria, V. G., Russo Lopes, G., Sparovek, G., West, C., Rajao, R., ... & do Valle, R. S. (2021). Trading deforestation—why the legality of forest-risk commodities is insufficient. *Environmental Research Letters*, 16(12), 124025. https://doi.org/10.1088/1748-9326/ac358d
- 23 Rajão, R., Soares-Filho, B., Nunes, F., Börner, J., Machado, L., Assis, D., ... & Figueira, D. (2020). The rotten apples of Brazil's agribusiness. *Science*, 369(6501), 246-248. DOI: <u>10.1126/science.aba6646</u>
- 26 Lahsen, M., Bustamante, M. M. C., & Dalla-Nora, E. L. (2016). Undervaluing and Overexploiting the Brazilian Cerrado at Our Peril. Environment: Science and Policy for Sustainable Development, 58(6), 4–15. https://doi.org/10.1080/00139157.2016.1229537
- Mongabay. (2018). Cerrado: Traditional communities accuse agribusiness of 'green land grabbing'. Available at: https://news.mongabay.com/2018/03/cerrado-traditional-communities-accuse-agribusiness-of-green-land-grabbing/
- 28 Comissão Pastoral da Terra (2025). Conflitos no campo brasil 2024. Available at: https://cptnacional.org.br/documento/conflitos-no-campo-brasil-2024/
- 29 Sauer, S., & Oliveira, K. R. (2021). Agrarian extractivism in the Brazilian Cerrado. In Agrarian Extractivism in Latin America (pp. 64-84). Routledge. Available at: https://www.taylorfrancis.com/chapters/edit/10.4324/9780367822958-4/ agrarian-extractivism-brazilian-cerrado-s%C3%A9rgio-sauer-karla-oliveira

- Russo Lopes, G., Bastos Lima, M. G., & Dos Reis, T. N. (2021). Maldevelopment revisited: Inclusiveness and social impacts of soy expansion over Brazil's Cerrado in Matopiba. *World Development*, 139, 105316. https://doi.org/10.1016/j.worlddev.2020.105316
- 31 Spadotto, B. R., Martenauer Saweljew, Y., Frederico, S., & Teixeira Pitta, F. (2020). Unpacking the finance-farmland nexus: circles of cooperation and intermediaries in Brazil. *Globalizations*, 18(3), 461–481. https://doi.org/10.1080/14747731.2020.1766918
- Greenpeace (2018). Segure a linha: A expansão do agronegócio e a disputa pelo Cerrado. Available at: https://www.greenpeace.org/static/planet4-brasil-stateless/2018/11/904dd412-relatorio greenpeace matopiba.pdf
- Pires, M. O. (2020). 'Cerrado', old and new agricultural frontiers. *Brazilian Political Science Review*, 14(3). https://doi.org/10.1590/1981-3821202000030006
- Mapbiomas. (2024). Plataforma de Uso e Cobertura. Available at: https://plataforma.brasil.mapbiomas.org/
- 35 Trase (2025). Brazil soy supply chain dataset. Available at: https://trase.earth/
- WWF-NL. (2021). Stepping up? The continuing impact of eu consumption on nature worldwide. Available at: https://www.wwf.nl/globalassets/pdf/stepping-up-the-continuing-impact-of-eu-consumption-on-nature-worldwide.pdf
- WWF-Brasil, Imaflora, TNC, WRI (2025). Guide of Minimum Monitoring Criteria for Deforestation and Conversion-Free (DCF) Products. Available at:

 Minimum Monitoring Criteria for Deforestation and Conversion-Free (DCF) Products for Commodities Originating in Brazil | WWF Brasil



Organization:





Support:

