
Beef risk analysis: Prioritisation for positive engagement

Beef Toolkit
Briefing Note 02B



Version 1.0



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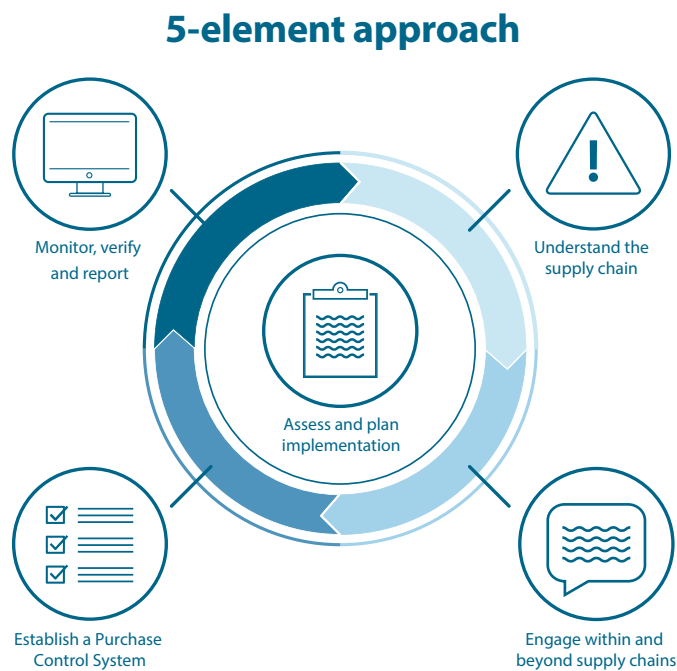


Figure 1 - A 5-element approach for sourcing environmentally and socially sustainable beef

Key points

- A risk analysis identifies all social and environmental risks associated with beef production. For buying companies, a risk analysis can identify risks of non-compliance within the supply base. Risks are associated with suppliers and/or geographies. See [What is a risk analysis?](#)
- Risk analysis should inform the development of a responsible sourcing strategy and associated timebound implementation plan. It enables buying companies to prioritise their actions and interventions and ultimately informs their responsible sourcing decisions. See [Why conduct a risk analysis?](#) and [Prioritisation](#).
- Risks can be assessed in a variety of ways, including through geospatial analysis and by evaluating supplier performance. See [How to conduct a risk analysis?](#)

Purpose of this briefing note

This briefing note is part of the Responsible Sourcing: The Beef Toolkit. It relates to element 2 (Understand supply chain risks) of the 5-element approach for sourcing beef responsibly ([Figure 1](#)).

The main purpose of this briefing note is to provide downstream and upstream beef buyers with an understanding of risk analysis and how it can be used to inform the development of a responsible sourcing strategy and an associated timebound implementation plan. It sets out methods for identifying supply chain risk, and for assessing the risks of non-compliance with beef buyers' procurement policies.

Its geographical focus is Brazil, the world's largest exporter of beef¹ where beef production is typically associated with a number of social and environmental issues.

Tracing beef or cattle by-products back to origin is a pre-requisite for effective risk analysis, although the level of traceability required – and therefore the granularity of the assessment – will depend both on the position of the company in the supply chain, as well as the commitments it has made. Supply chain mapping is an ongoing, fluid process and should be kept up to date subject to changes in sourcing. See [Briefing Note 02](#)² covering traceability and supply chain mapping.

What is a risk analysis?

A risk analysis assesses **the risk of actual and potential environmental and social impact** occurring across supply chains. For buying companies, a risk analysis can **identify risk of non-compliance** with company commitments. Risks are typically associated with suppliers and/or geographies.

A risk analysis should encompass **all social and environmental** aspects of beef production.

Why conduct a risk analysis?

Companies are increasingly expected to understand, take actions to mitigate, and report on social and environmental risks in their supply chains by civil society, consumers, investors, and governments through legislation. Once companies have a comprehensive view of their supply chain (See [Briefing Note 01](#) and [Box 1](#)), they should assess the risks of adverse environmental and social impacts occurring, where these risks are and the related risks of non-compliance. Once these risks are understood, buying companies can take steps to prevent and mitigate them.

Companies buy from a wide range of suppliers and geographies, however:

- some suppliers may not be in compliance with the buying companies' sustainability commitments,
- beef production in some geographies may present a higher risk of negative social and environmental impacts,

✓ **A risk analysis identifies higher risk sourcing geographies and the potential for non-compliance with beef buyers' procurement policies.**

Box 1 - TRASE

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The **TRASE platform** provides links between beef buying countries via trading companies to municipalities of production in Brazil. The platform is particularly useful for companies that use beef exported from Brazil and can identify the importer or country of import.

By tracing flows through a list of direct and indirect suppliers, downstream companies can link beef purchases to the production region, up to the municipality level. The platform is free and provides risk profiles of deforestation and other environmental and social impacts (e.g. land conflict) potentially related to beef expansion.

Once risks are better understood, companies can engage within and beyond their supply chain to manage the risks. Given that a wide range of risks might have been identified, a risk analysis also enables companies to **prioritize suppliers for engagement and production geographies for upstream investment**. See [Briefing Note 03](#).³

The aim of a risk analysis is not to exclude geographies or suppliers with greatest risk, but rather to engage with them to help address and mitigate any actual or potential negative impact. Furthermore, prioritisation does not mean that some risks are less important than other ones.

Risk analysis also helps downstream companies to identify areas for which a more granular analysis is needed, or to prioritize further supply chain mapping efforts (focusing on high-risk geographies or geographies with the most severe risk to Human Rights). See [Box 2](#) and [Prioritisation](#).

How to conduct a risk analysis?

Before conducting a risk analysis, companies should map their supply chain to better understand the origin of their beef purchases. See [Briefing Note 02](#) for guidance on traceability and supply chain mapping.

Companies should then identify the risk factors specific to beef production in Brazil. All environmental and social aspects should be embedded in the risk approach. See [Table 4](#) for examples of proxies and data sources.

Risk can be assessed via suppliers and/or production geographies:

- **Supplier non-compliance risk:** beef buyers can assess the degree to which their direct suppliers are in compliance with their responsible beef sourcing policy/commitments. One of the ways this can be done is through supplier evaluation or scorecarding, which enables comparison in the performance of suppliers. Scorecards provide high-level information and a basis for information sharing and discussion between buyers and suppliers. See [Supplier performance evaluation](#).
- **Social and environmental risk assessment:** risk assessment seeks to combine information on the origin of production with social and environmental risk information that has a geographic component. Risk assessment can be approached in a number of ways, either at country level, drawing upon third-party commodity risk reports and/or other data sources, or through supply chain specific analysis involving geospatial assessment and the use of GIS.⁴ See [Risk assessment](#).

See [Table 1](#) for a synthesis of the different approaches to supply chain risk analysis.

Outputs of the analysis can be used to inform the development of a responsible beef sourcing strategy and action plan, and to help prioritise suppliers and production geographies for engagement. See [Briefing Note 03](#).

Table 1: Synthesis of the different approaches to supply chain risk analysis

Risk analysis	Supplier performance evaluation	Social and environmental risk assessment
What is it?	An assessment of supplier performance against beef buying companies' sustainability commitments. Typically, relevant for a downstream beef buyer.	An assessment of social and environmental issues related to beef production and sourcing. Can be undertaken at a more general, country level, or supply chain specific, through geospatial assessment.
When to run it?	To be conducted on a regular basis (e.g. annually) to track changes in data or supply base, to update implementation plan accordingly and to assess progress. ⁵	
Who runs it?	In house or external consultant. ⁶	

Supplier performance evaluation

Beef buyers can assess the degree to which their direct suppliers are in compliance with their responsible beef sourcing policy/commitments. This can be done through a supplier evaluation or scorecarding approach which looks at the policies and procedures that a supplier has in place. This is particularly relevant for downstream beef buyers, who buy indirectly and are therefore seeking to implement their policy commitments through an indirect supply chain.

An example of scorecard criteria that can be used to evaluate the performance of a direct supplier include:

- Policies and commitments that align with those of the buying company
- Evidence of policy implementation, typically via a timebound implementation plan
- A robust traceability and/or purchase control system
- Evidence that the supplier has broken national or international law (e.g. on labour practices, land acquisition, or deforestation)
- Grievances against the supplier, an associated company, or within the supplier's own supply base

Large and well-known companies are often captured in third-party scorecard platforms and databases that compile information in a systematic way. Some examples are given in [Table 2](#). While scorecards are very useful to get a quick overview of the presence or absence of commitments and certification status, they only provide high-level information.

Table 2: Examples of scorecards and performance platforms assessing beef companies

Supply Change	Supply Change, led by Forest Trends, provides companies' profiles and an overview of the extent and value of commitment-driven beef production and demand, as well as other commodities (soy, timber and pulp, palm oil and cocoa).
Forest 500	Forest 500, led by Global Canopy Program (GCP), identifies and ranks the 500 "powerbrokers of deforestation": companies, financial institutions, and governments with the most influence over commodity supply chains, (soy, palm oil, cattle, and timber / paper).

Supplier scorecards and other indicators for evaluating supplier engagement programmes are covered in [Briefing Note 03](#).

Social and environmental risk assessment

Risk assessment combines social and environmental risk data with information on the origin of production. It can be approached in a number of ways, either at country level, drawing upon third-party commodity risk reports and/or other data sources, or through supply chain specific analysis involving geospatial assessment and the use of GIS (Geographic Information Systems).

Desk based risk assessment

Desk-based risk assessment looks at risks in countries or sub-national jurisdictions. Many global third-party organisations and service providers have put together country and/or commodity specific risk information based on underlying data sources covering both social and environmental issues. A number of Brazil-specific datasets also exist. Some examples are captured in [Tables 3 and 4](#).

Table 3: Examples of global risk assessment service providers and freely accessible platforms.

Verisk Maplecroft	Verisk Maplecroft provides a portfolio of global risk indices across more than 150 risks and 198 countries with expert analysis and specialist advisory capabilities. It helps identifying, mapping, and managing risks in supply chains.
NepCON Sourcing Hub	The freely accessible NEPcon Sourcing Hub provides country risk profiles for a few important beef producing countries, including Brazil, as well as detailed advice on actions that can be undertaken to mitigate the risk.
CSR Risk Check	The CSR Risk Check provides an overview of the risks which a company may encounter when operating or buying from a country, and suggested actions for managing them. CSR reports can be freely computed for a variety of commodities and countries, including beef and Brazil.

Geospatial risk assessment

For buying companies seeking a more granular supply chain specific risk analysis, geospatial assessment can be used. Risk data is overlaid onto the supply chain using GIS to analyse the likelihood of adverse impacts related to beef production occurring in production geographies. Risk of deforestation, for example, can be analysed by overlaying farm boundaries, or slaughterhouses and their projected sourcing areas, with deforestation data.

Information on land use change/deforestation differs widely between data sources as the underlying remote sensing products and algorithms are typically not the same (see [Table 4](#)). It is therefore important to think carefully about the products that are being used and to be transparent about their use in the assessment.

Geospatial analysis related to environmental aspects is commonly applied for land use change/deforestation. Information on these is widely available and can be gathered from a variety of providers. Geodata on other environmental issues such as water conflicts, loss of biodiversity or chemical use, is scarcer but can be accessed from a variety of sources as well, see [Table 4](#). Geographical information on social issues is much scarcer. See [Key challenges and potential solutions](#).

[Agroideal](#) is a free online risk assessment platform that produces reports with risk classification associated with investments in the beef and soy sectors. [Global Forest Watch Pro](#), developed by WRI (World Resources Institute)⁷, allows companies to manage geospatial data and to run analysis, including deforestation risk assessment, based on global datasets.

There are also service providers that can assist companies in developing a full risk assessment tailored to their needs, such as [Agrosatelite](#)⁸, [Agrotools](#)⁹, [Niceplanet](#), [Geoflorestas](#), [Visipecc](#)¹⁰, [Proforest](#), among others. If the geospatial risk assessment is conducted in house, an independent review should be considered.

Human Rights risk assessment

A human rights or social risk assessment can be undertaken alongside an environmental risk assessment. Such an assessment looks at actual and potential human rights impacts a company causes, contributes, or is directly linked to in its own sourcing activities and those it may be directly linked to via business relationships.

For downstream beef buyers, this usually starts with desk-based research drawing upon publicly available global and Brazil specific risk data resources (see [Table 4](#)) as well as consultation with stakeholders, such as rights-holders, NGOs, and trade unions, to identify existing and potential salient human rights risks.

Upstream beef buyers such as slaughterhouse should consider carrying out more granular site assessments, such as a Human Rights Impact Assessment, in contexts where risk of severe impact is thought to be high, but insufficient information is available from desk-based sources.

The company should strive to follow the UN Guiding Principles on Business and Human Rights and other international human rights standards. The scope of the assessment should cover the company's entire supply base, include all human rights issues and consultations with stakeholders who are at risk or affected, paying particular attention to impacts upon groups or individuals who are at heightened risk of vulnerability such as migrant workers, women, and children and to bear in mind the different risks they may face.

Risk factors and data sources

Risk factors are factors that might affect the likelihood of an adverse impact happening, see examples related to beef production in Brazil in [Table 4](#). As an example, in a given geography, the presence of natural ecosystems on land that is suitable for beef rearing and near farms could increase the likelihood of beef rearing expanding over native vegetation.

Most of the data sources in [Table 4](#) can cover the entire supply chain of meat processors, regardless of their complexity or location, as long as information on the origins of cattle (farms) is provided. However, it is in traceability that the greatest limitation is found.

See [Key challenges and potential solutions](#).

Table 4: Examples of risk factors and related data sources to be considered for risk assessment of beef supply chain in Brazil

Proxies	Data sources	Description
Deforestation and natural vegetation conversion	MapBiomias	Collection of Brazilian Land Cover & Use map series, including forest and natural vegetation, since 1985.
	PRODES	Program for the Estimation of Deforestation in the Brazilian Amazon by INPE. ¹¹ PRODES carries out satellite deforestation monitoring in the Amazon and the Cerrado, since 1988.
	TerraClass	Deforestation monitoring project by Embrapa ¹² and INPE.
	MapBiomias alerts	The platform gathers deforestation alerts from several providers, including DETER ¹³ and generates documentation for deforestation alerts. Alerts are crossed with areas of CAR, Protected Areas, Rural Settlements and other geographical categories, as well as the history (1985 to 2019) in the Brazilian land cover and land use maps of MapBiomias.
	Wide range of providers	Satellite images for monitoring deforestation and natural vegetation conversion in biomes not covered by the databases above.
Compliance with Laws and Regulations such as the Brazilian Forest Code	SICAR ¹⁴	Mandatory electronic registration of the boundaries of rural properties, which forms a database critical for the control, monitoring, and combatting of the clearing of forests and other forms of native vegetation.
	IBAMA List and Map of embargoed areas	Public list and map by IBAMA. List and map of farms that have breached environmental legislation in some way and that are prohibited from producing until they regularize their situation.
	Atlas Agropecuário	Property boundaries, Permanent Preservation Areas (APP) and Legal Reserve (RL) deficit by Imaflora and Geolab.
	Forest Code Thermometer	Forest Code compliance of municipalities by Forest Code Observatory (OCF)
Conservation units	ICMBio ¹⁵	ICMBio provides maps of federal, state and municipality level conservation units of Brazil.
Water risk	Aqueduct	Aqueduct is a water risk atlas from WRI. It compiles risk rankings and maps related to water risk (water stress, drought risk...). Aqueduct food looks at future water risks to agriculture and food security.
Slave labour	Dirty List of Slave Work	Public list by MTE. ¹⁶ List of farms assessed on the basis of practices characterized as slave labour or labour analogous to slavery.
Forced labour and Child labour	InPACTO Vulnerability Index ¹⁷	Provides vulnerability level of populations and risk level for the incidence of slave labour in a municipality or any other violation of human rights, such as child labour.
Land rights conflicts	CPT reports ¹⁸	CPT provides annual reports about land rights conflicts in Brazil.
Indigenous lands	FUNAI ¹⁹	FUNAI provides maps of Indigenous lands in Brazil.
	LandMark	LandMark provides maps of Indigenous and local communities' lands.
Quilombola ²⁰ territories	INCRA ²¹	INCRA provides the list of Quilombolas territories
Socio-economic aspects	IBGE ²²	IBGE provides various statistics about population (census) and socio-economic aspects.
Various environmental layers	MMA ²³	Protected areas (at national and subnational level), priority areas for conservation, soil maps, and many other layers.

For further details on criteria to be considered to monitor cattle suppliers of the Amazon for compliance of Terms of Adjustment of Conduct (TACs), see the Monitoring protocol for cattle suppliers in the Amazon²⁴.

Prioritisation

A credible risk assessment allows companies to understand the risks associated with beef production in their supply chain, and to prioritise suppliers and geographies for engagement and upstream investment. Beef buyers can prioritise in a number of ways, depending on the risk assessment approach taken:

- Supplier performance evaluation allows downstream beef buyers to prioritise slaughterhouses and other suppliers for engagement, based on assessment on their policies, systems, and processes.
- Geospatial risk assessment allows buyers to prioritise cattle farms and/or slaughterhouses based on the level of risk identified
- For more details about engagement within and beyond supply chain, see [Briefing Note 03](#).

Regarding prioritisation, it is important to note that:

- The aim of a risk analysis is not to exclude geographies or suppliers with greatest risk, but rather to engage with them to help address and mitigate any actual or potential negative impact.
- Prioritisation does not mean that some risks are less important than other ones.
- Adverse impacts (such as deforestation) happening in a landscape cannot automatically be attributed to specific suppliers and a geographical risk assessment should thus only be used to prioritise suppliers to engage with or to collect more detailed information on. Similarly, the classification of a landscape as low risk does not rule out the presence of non-compliant suppliers.
- To deliver commitments on achieving a specific percentage of compliant raw material, companies can target their highest volume suppliers where purchasing leverage is greatest. However, one important exception to this is for human rights, where prioritisation – and therefore intervention - must be based on severity of impact to individuals, and not volumes, as prescribed under the UN Guiding Principles on Human Rights.²⁵

See [Box 2](#) for a summary of actions informed by risk analysis.

Box 2: Summary table: what to do with the outputs of a risk analysis for upstream and downstream companies?

What to do with the outputs of a risk analysis for upstream and downstream companies?

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As immediate action

- ✓ Prioritize suppliers and/or sourcing areas for engagement, see [Briefing Note 03](#).
- ✓ Identify areas for which more detailed analysis is needed or prioritize further supply chain mapping efforts

As next steps

- ✓ Inform decisions such as development of procurement policies and/or implementation plans
- ✓ Inform companies' monitoring and purchase control systems, see [Briefing Note 04](#).
- ✓ Assess progress towards implementing responsible sourcing policies
- ✓ Improve supply chain management systems
- ✓ Develop and implement risk management plans (to prevent, mitigate or remediate adverse impacts).

→ **Ultimately, risk analysis is to prevent and mitigate adverse social and environmental impacts**

Key challenges and potential solutions

Challenges	Potential solutions
Traceability data poses limitations to risk analysis	For geospatial risk assessment, the more granular a buying companies upstream traceability, the more detailed and informative the outputs of the assessment will be. However, due to farm traceability challenges in Brazil, in most cases, traceability information is only available up to slaughterhouses. An analysis of risk factors in a projected buffer around these facilities might be used as a proxy to identify the supply area. However, this is a very crude approach as beef can be transported over several hundred kilometres between the farm and slaughterhouse. See Briefing Note 01 .
Analysing future risk to prevent lack of compliance	Geospatial risk assessments use historical data on land use change. Whilst past deforestation has been proven to be a good predictor of future deforestation, other options should be explored to improve models for predicting land use change, for example, by including information on land suitable for cattle ranching, current cattle ranching area, infrastructure development or trade trends, as well as shifting demands and markets.
Data and geodata is scarce for some risk factors	Data and geodata for some risk factors, such as social is limited, posing limitations to geospatial risk assessments. However, enterprises can carry out analysis by collaborating to ensure process is mutually reinforcing by cost sharing for specific due diligence tasks, by co-ordinating between industry members who share the same suppliers and by encouraging better cooperation between different segments of the supply chain such as between downstream and upstream actors. ²⁶ Additionally, collaboration between actors across the beef supply chain increases the likelihood of commitments being made by downstream actors passed on to the suppliers, therefore improving leverage which may help with collection/release of data. ²⁷ Besides, multistakeholder collaboration such as beef roundtables, could allow better data to become available. See Table 4 for examples of proxies and data sources.
Broadening environmental risk factors	Environmental risk factors assessed via geospatial assessment generally look at deforestation. However, a risk analysis should consider all environmental issues such as greenhouse gas emissions, water quality and availability, soil degradation and biodiversity loss. Data covering these issues is still not widely available (see Table 4 for a list of datasets). Collaboration between beef supply chain actors around data collection would help to address this challenge, likewise global efforts to develop new datasets and mapping initiatives should be supported by beef supply chain actors.

Learn more and help us improve

More information is provided in the references below and at www.beef toolkit.net. Please also share with us information that will improve this Briefing Note (via beef toolkit@proforest.net).

References

- 1 ABIEC, 2020. Beef report. Perfil da Pecuária no Brasil. Link: <http://abiec.com.br/publicacoes/beef-report-2020/>
- 2 Proforest, 2021. Beef Toolkit, Briefing Note 02, Understanding the beef supply chain. Link: <https://www.beef toolkit.net/element-2-understand-supply-chain-risks>
- 3 Proforest, 2021. Beef Toolkit, Briefing Note 03, Engage within and beyond supply chains to implement responsible sourcing commitments for beef. Link: <https://www.beef toolkit.net/element-3>
- 4 Geographic Information Systems (GIS)
- 5 See Accountability Framework Initiative (AFI), 2019. Operational Guidance on Supply Chain Management, page 17. Link: <https://accountability-framework.org/operational-guidance/supply-chain-management/>
- 6 See OECD, 2018. OECD Due Diligence Guidance for Responsible Business Conduct, page 27. Link: <http://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf>. See Accountability Framework Initiative (AFI), 2019. Operational Guidance on Supply Chain Management. Link: <https://accountability-framework.org/operational-guidance/supply-chain-management/>
- 7 World Resources Institute (WRI). Link: <https://www.wri.org/>
- 8 Agrottools developed geospatial analysis tools to identify socioenvironmental compliance, based on deforested areas, indigenous lands, embargoed areas, and conservation units, among other indicators. Link: <https://agrottools.com.br/>
- 9 Niceplanet developed a voluntary platform which allows socio-environmental monitoring of indirect suppliers' properties and herds. The platform is fed with information provided by the producers themselves and has a mobile application that allows companies to check the social and environmental compliance of indirect suppliers. Link: <http://www.smgeo.com.br/>
- 10 Visipec provides slaughterhouses with greater visibility of their supply chains, integrating GTA data with information from public databases (e.g., CAR, INCRA CCIR, deforestation maps, etc.) thus, identifying links between indirect and direct suppliers in order to improve existing deforestation monitoring systems and cattle purchase decisions. Visipec covers the Amazon biome only (Mato Grosso, Pará and Rondônia). Link: <https://www.visipec.com/>
- 11 Brazilian National Space Research Institute
- 12 Brazilian Agricultural Research Corporation
- 13 Real Time System for Detection of Deforestation (DETER)
- 14 Sistema Nacional de Cadastro Ambiental Rural (Rural Environmental Registry database)
- 15 Instituto Chico Mendes de Conservação da Biodiversidade
- 16 Brazilian Ministry of Labour and Employment
- 17 InPACTO Vulnerability Index is open to the general public at the state level. Members have access to the Vulnerability Index at the municipal level. Link: <https://indicadedevulnerabilidade.org.br/>
- 18 Comissão Pastoral da Terra
- 19 National Indigenous Foundation (Fundação Nacional do Índio). Link: <https://www.gov.br/funai/pt-br>
- 20 Descendants of slaves who escaped from slave plantations that existed in Brazil until abolition in 1888.
- 21 Brazilian National Institute of Colonization and Agrarian Reform
- 22 Brazilian Institute of Geography and Statistics
- 23 Brazilian Ministry of Environment
- 24 Council for the Environment and Cultural Heritage, Meat industry and retailers, y Imaflora, 2020. Monitoring protocol for cattle suppliers in the Amazon. Link: https://www.beefontrack.org/public/media/arquivos/1599054238-monitoring_protocol_cattle_suppliers_amazon.pdf
- 25 The UNGPs define severity as a combination of the scale (how serious), the scope (how widespread) and their irremediability (how hard it would be to put right the resulting harm). See United Nations, 2011. Guiding principles on business and human rights. Link: https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf
- 26 For more details, refer to OECD-FAO, 2016. Guidance for Responsible Agricultural Supply Chains. Link: <https://www.oecd.org/daf/inv/investment-policy/rbc-agriculture-supply-chains.htm>
- 27 For more details, see Proforest, 2021. Beef Toolkit, Briefing Note 03, Engage within and beyond supply chains to implement responsible sourcing commitments for beef. Link: <https://www.beef toolkit.net/element-3>

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