Soy risk analysis: Prioritisation for positive engagement

Soy Toolkit
Briefing Note 02.B

Version 1.2

The Soy Toolkit has been developed by Proforest as part of the Good Growth Partnership's Responsible Demand Project, thanks to financial support from the Global Environment Facility (GEF) through World Wildlife Fund (WWF)

Figure 1: The 5-element approach for sourcing soy responsibly

Key Points

- The purpose of a risk analysis is not to simply avoid risk. On the contrary, high risk areas may have the biggest potential for a positive change
- Through the identification of the risks of non-compliance with commitments or negative impacts of commodity production, companies can prioritise suppliers and/or sourcing areas for engagement
- Supplier risk profiles can be developed in-house and/or by using existing company performance scorecards
- Geographical risk information is widely available for land use change and deforestation and can be gathered from a variety of providers. Geographical information on social issues is much scarcer
- Although prioritising high-risk suppliers for engagement may bring greater positive impact, low-risk suppliers should not be overlooked

Purpose of this briefing note

This briefing note is part of the Responsible Sourcing: A Soy Toolkit[1]. It relates to element 2 (Understand Supply Chain Risks) of the 5-element approach for sourcing soy responsibly (see Figure 1). After having identified where the soy they buy or use comes from, companies need to assess the risk of negative environmental and social impacts happening within their supply chains, and where these risks are located. This briefing note lays out methods for assessing the risk of supplier non-compliance with soy buyers' procurement policies and to identify risky geographies and explains how this information can be used to inform engagement activities and/or more detailed analyses.

Key steps, tools and approaches for soy risk analysis

Many soy buying companies – wherever they are positioned in the supply chain – are sourcing from a very large number of suppliers. Soybeans or their transformed products are sourced directly from the producers and/or from intermediaries such as aggregators, traders, or manufacturers (see Figure 2). Some of these suppliers may not follow the buying companies' sustainability commitments.

Given that resources are limited, it is in many cases not possible to engage with all the suppliers at the same time, and prioritisation is thus often needed. This may particularly be the case for downstream companies with large and complex supply bases.

It is possible to perform a risk analysis at different stages of the policy implementation, which means that its results can inform different types of decisions. For example, the results of a risk analysis can inform the development of procurement policies, inform the actions specified in implementation plans, or help to identify areas for which more detailed analysis is needed. Downstream companies can use high-level risk assessments to prioritise supply chain mapping efforts (focusing on the geographies at highest risk of non-compliance), while upstream companies can use the results to inform their monitoring and purchase control systems.

The purpose of a risk analysis is not necessarily to achieve commitments by simply avoiding risky areas. On the contrary, high risk areas may have the biggest potential for a positive change.

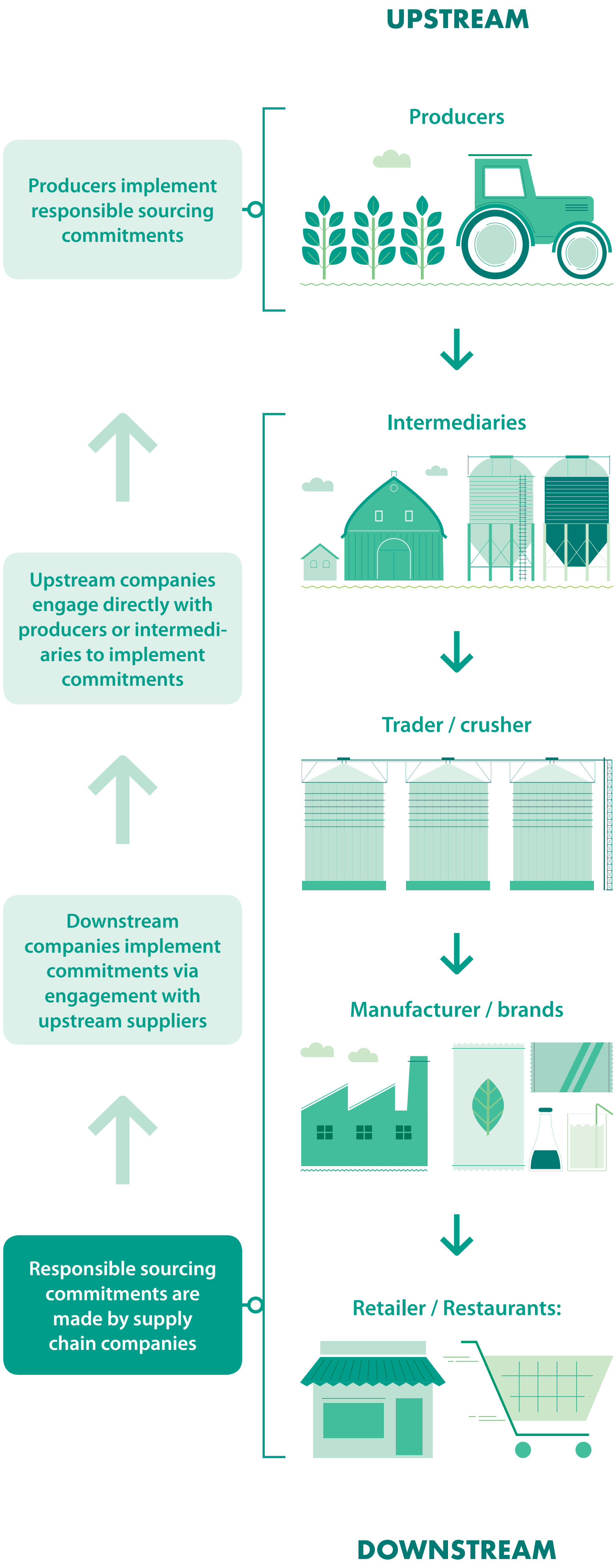


Figure 2: Responsible sourcing commitments and engagement along the soy supply chain

01 Translate policy requirements into risk factors

Many upstream and downstream soy buying companies have formulated policies which address negative social and environmental impacts happening in their supply chains. Along with deforestation and the conversion of other natural ecosystems, soy production can be related to many other environmental and social issues. An overview of the most well-known possible negative impacts of soy production and some of the risk factors affecting the likelihood of these impacts happening is given in Table 1.

Potential negative impacts	Risk factors[2] (examples given between brackets)
Forest and natural ecosystem loss	• Geophysical conditions (infrastructure, presence of natural ecosystems, soy suitability) • Market factors[3] (land prices) • Institution and politics (low law enforcement) • Supplier's policies and programmes
Land conflict, displacement, and infringement of communities' land use rights	• Socio-economic context (presence of smallholders and/or indigenous or local communities) • Institutions and politics (tenure insecurity, customary land rights not recognized, poor law enforcement) • Supplier's policies and programme
Gender inequality	• Socio-economic context (presence of smallholders as producers, cultural values and practices) • Institutions and politics (economic policies, national legislation on community and women rights, poor law enforcement) • Supplier's policies and programmes
Water scarcity and pollution	• Agronomic production practices (irrigation, use of agro-chemicals and soil tillage) • Presence/absence of riparian buffer zones • Supplier's policies and programmes
Health and safety of workers and local communities negatively affected	• Production practices (pesticides use, waste volumes and management) • Supplier's policies and programmes • Institutions and politics (poor law enforcement)
Soil erosion	• Production practices (soil tillage) • Geophysical conditions (soil structure, climate, topography) • Supplier's policies and programmes
Worker livelihoods negatively affected and/or employment reduction	• Production practices (high mechanization, worker contracts and wages) • Socio-economic context (incidence of poverty, alternative livelihoods, previous activity in the region) • Supplier's policies and programmes
Forced and child labour	• Socio-economic context (incidence of poverty, low access to education) • Institutions and politics (national labour legislation, poor law enforcement) • Supplier's policies and programmes

Table 1: Some of the main environmental and social issues related to soy production and some of the risk factors affecting the likelihood of these impacts happening[4]

The negative social and environmental impacts of agricultural production as well as the risk of those impacts happening are affected by four dimensions (see **Figure 3**):

- **What** is being produced. This refers to the commodity itself: for example, the negative impacts and the risks of those impacts happening are different for soy and palm oil;
- **How** it is being produced. For example, mechanisation of soy production will lead to different possible negative impacts than production systems heavily relying on manual labour;
- **Where** it is being produced. Because of differences in the presence of natural vegetation and governance, for example, some geographies are at higher risk of deforestation than others.
- **Who** is producing. These are the organisational (internal) risks associated with the producing company. For example, a supplier having a no-discrimination policy in place might be at lower risk of gender inequality related to payment conditions.

A risk assessment can focus on one or more of the above dimensions of risk. In the following sections different approaches to risk assessments are being discussed. While section 2 focusses on organisational risks (the 'who'), section 3 elaborates on approaches to characterise geographical risk (the 'where').

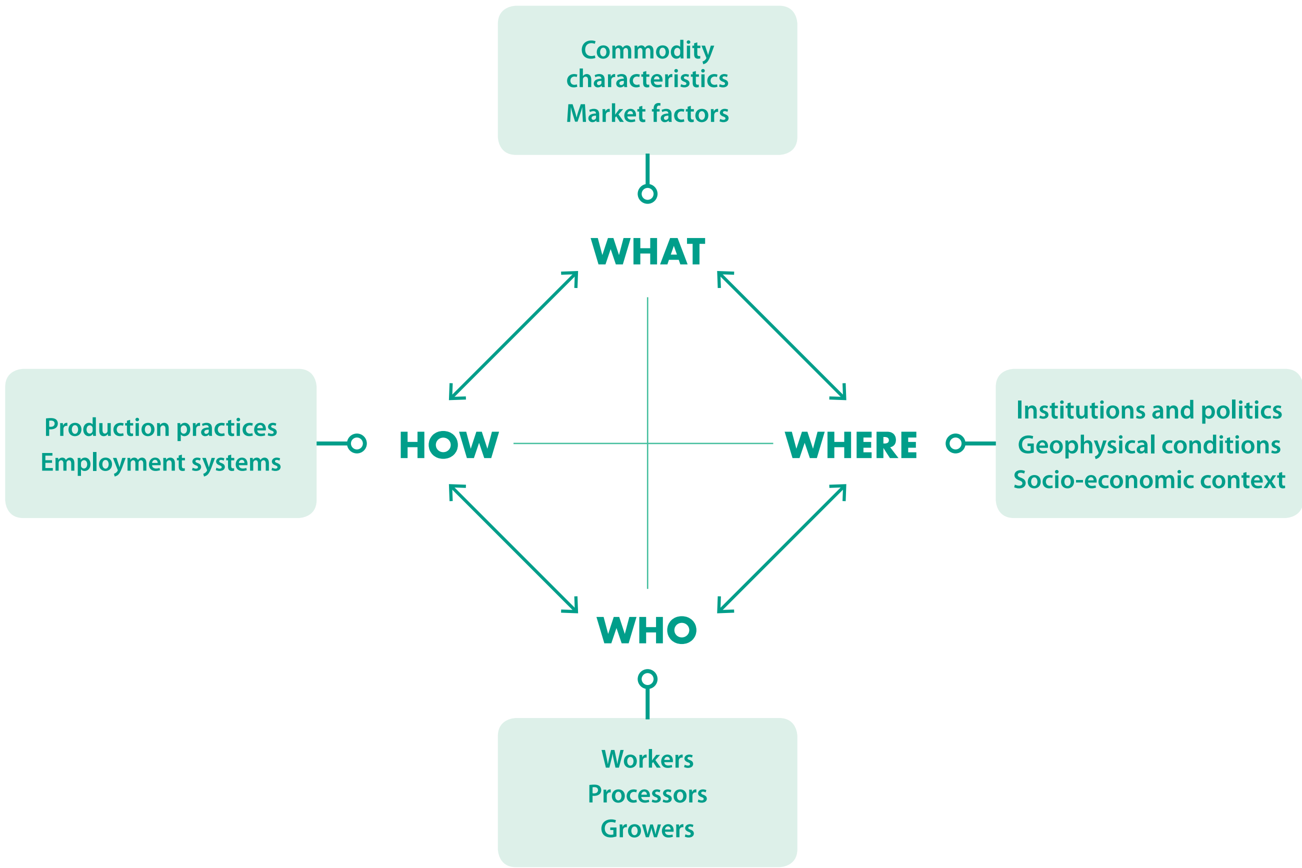


Figure 3: The four dimensions of risk associated with agricultural production

02 Assess suppliers' performance

For downstream companies, assessing suppliers' general performance is critical for prioritisation. In many cases this is the only way of assessing the risk of non-compliance within the supply chain as downstream companies typically do not have accurate information on the location where the sourced product has been produced, thereby the use of geographical risk assessments (see the next section). While buying companies can build a risk profile of suppliers in-house, this is also frequently done by external consultants.

The following criteria are examples of risk factors that can be verified to assess a supplier's likelihood of being non-compliant:

- **If the supplier has stringent commitments and policies in place that are aligned with the buying company;**
- **Whether there is any evidence of policy implementation and if the supplier reports on progress in a transparent way;**
- **Whether the supplier is a member of a certification, such as the Round Table on Responsible Soy (RTRS) or ProTerra, and if they are certified;**
- **If the supplier has a robust traceability and/or purchase control system in place;**
- **Whether there is any evidence that the supplier has broken national or international law (e.g. on labour practices, land acquisition, or deforestation);**
- **Whether there are any direct grievances against the supplier or an associated company (e.g. parent company or group member);**
- **Whether there are any grievances against indirect suppliers within the suppliers' supply base.**

Large and well-known companies are often captured in scorecard platforms and databases that compile information in a systematic way. Some examples are given in **Box 1**. These platforms often provide some ranking or scoring system against sustainability criteria such as the ones listed above. While scorecards are very useful to get a quick overview of e.g. the presence or absence of commitments and certification status, they only provide high-level information.

Suppliers that are not listed in scorecard platforms can be contacted directly and this should also happen if more detailed information is needed5. It is important to highlight that, when it is not possible to verify certain information, criteria should be marked as 'unknown' and a higher risk score should be applied.

Box 1. Examples of scorecard and performance platforms of soy companies 1

Supply Change	Supply Change, led by Forest Trends, provides companies' profiles and an overview of the extent and value of commitment-driven soy production and demand, as well as other commodities (timber and pulp, palm oil and cattle).
Forest Heroes' Green Cats Ranking	Forest Heroes' Green Cats Ranking scores soy and palm oil companies on forest policies, implementation and transparency against a set of criteria.
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).
Soy Scorecard	Soy Scorecard by WWF are policy scorecards for sustainable soy that cover the feed, processing, manufacturers and retail, and food service sectors.

03 Assess geographical risk

For assessing geographical risk, the buying company needs to know where, or at least in which region, the sourced product has been produced. This type of risk assessment is useful for upstream companies, buying directly from producers or from aggregators, and can also be used by downstream companies once they gather information from suppliers on the soy origin. Downstream companies that do not have traceability information can also encourage their suppliers to conduct these types of assessments for their own supply base.

In geographical risk assessments two types of information are combined:

i. information on the location where the product has been produced; and

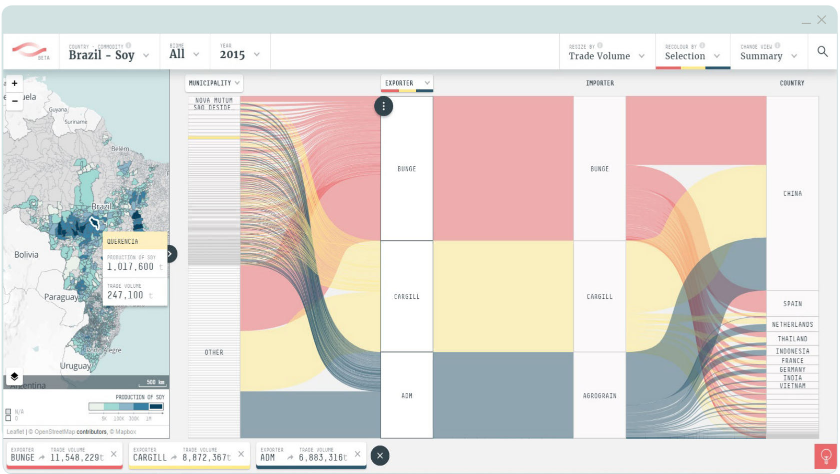
ii. environmental and/or social risk information that has a geographical component (i.e. risk profiles differing between countries, regions, or locations).

Sourcing location

Mapping out your supply chain is crucial to be able to identify the location where soy has been produced[6]. While traceability information on jurisdictional or landscape level can be used for conducting high-level risk assessments, more granular geospatial analyses will need precise information on production areas, preferably at farm level. The higher the granularity of the traceability information, the higher the accuracy of the geographical risk profiles that can be developed.

Upstream companies buying directly from farmers can use the geographic coordinates of a point on the farm as location information or, where available, a polygon of the farm boundaries. In Brazil, the CAR (Rural Environmental Registry) of a rural property provides farm boundaries[7].

The granularity of the information on product origin informs what type of environmental and/or social risk information should be used. In many cases traceability information is a limiting factor, and aggregated province or state risk indices can be as informative as more granular GIS data layers. However, companies should always strive to acquire as much geographical detail as possible on their supply chain, as this will greatly improve the accuracy of the risk assessment.



Trase platform maps the links between soy consumer countries via trading companies to the municipalities of production and shows information related to supplier risk, such as the Forest 500 score and the presence of zero-deforestation commitments. It is particularly useful for downstream companies.

Geographical risk information

While there is a lot of information available on how deforestation risk varies among geographies, this is not the case for many other negative environmental impacts. For social risks information is also scarce, and data sources typically provide only aggregated information at province or state level.

Many service providers and online platforms have put together off-the-shelf country risk profiles based on underlying data sources. Examples are **Verisk Maplecroft**, and the freely accessible **NepCON Sourcing Hub** and the **Global Map of Environmental and Social Risks in Agro-Commodity Production** (GMAP) (see **Box 2**). These platforms are thus useful for high-level risk assessments if no detailed information on production location is known.

There are some widely-used social indices, but these are typically only available at country- or province-level and thus only useful for high-level assessments. Examples are the **Corruption Perception Index** (CPI) and the indices developed by the **United Nations Development Program** (UNDP) (e.g. the **Gender Development Index and Human Development Index**).

To complement country-level data on social risks, it might therefore be useful to gather information on specific relevant social issues in the suppliers' geographies. For mapping out the geographical risk of gender equality issues, for example, it might be useful looking at whether women and men are well represented in unions, industry bodies and civil society organisations as well as gender dynamics and legislation in the different sourcing areas and how these may affect equality.

Besides the above qualitative and quantitative information at country-level, geographical risk information can be acquired from more granular GIS products. Deforestation and habitat conversion information is nowadays being mapped out on a very detailed scale using remote sensing products, and there is a proliferation of data sources and tools available. Some examples of publicly available and free of charge GIS data sources that are frequently used in geographical risk assessments for Brazil are given in **Table 2**. This list is not exhaustive, and there are many more data sources that should be considered.

It is important to mention that information on deforestation and land use change differs widely between data sources as the underlying remote sensing products and algorithms are typically not the same. It is therefore important to think carefully about the products that are being used in the assessment and to document the data source and how it has been used in a transparent way.

Box 2: NEPcon Sourcing Hub **2**

The **NEPcon Sourcing Hub** provides country risk profiles for a few important soy - producing countries as well as detailed advice on actions that can be undertaken to mitigate the risk.

GMAP

The Global Map of Environmental and Social Risks in Agro-Commodity Production (GMAP) provides brief environmental and social risk analysis reports and management guidance associated with over 250 country-commodity combinations across the globe.

GIS layer	Information captured	Geography	Level of detail	Frequency of updating	Provider
PRODES Amazon	Forest conversion	Legal Amazon	30 m resolution	Annually since 1988	INPE (National Institute for Spatial Research)
PRODES Cerrado	Conversion of natural ecosystems	Cerrado biome	30 m resolution	Biannually from 2000 to 2014 and annually since 2014	INPE (National Institute for Spatial Research)
Mapbiomas	Land use change	All biomes in Brazil and the Chaco biome in Argentina, Bolívia and Paraguai	30 m resolution	Annually since 1985 (Brazil) Annually since 2010 (Chaco)	Large consortium of institutions
Mapbiomas alert	Validation & refinement of deforestation and conversion alerts	Brazil	3m resolution	Daily	Large consortium of institutions
Global Forest Change	Tree cover change (includes forest cover gain)	Global	30 m resolution	Annually since 2000	University of Maryland (Hansen et al.)
Embargoed areas	Embargoed properties due to environmental crimes/ illegal deforestation	Brazil	Property level	Monthly	Brazilian Institute for the Environment and Natural Resources (IBAMA)
SiCAR data-base	Property database including land boundaries	Brazil	Property level	Unknown	National Forest Service - SFB
Atlas Agropecuário	Property boundaries, Permanent Preservation Areas (PPA) and Legal Reserve (LR) deficit	Brazil	Property level	Unknown	Imaflora (NGO) and Geolab (University of São Paulo)
Soy maps	Soy planted area	Cerrado biome	30 m resolution	2013-14 crop	Agrosatélite
Municipal Agricultural Production	Statistics on soy yields, productivity, area planted and harvested, revenue	Brazil	Municipality level	Annually since 1974	IBGE
World database on protected areas (WDPA)	Protected areas	Global	Protected area level	Annually	International Union of Conservation of Nature (IUCN)
Environmental GIS Layers	Protected areas (at national and subnational level), priority areas for conservation, soil maps, and many other layers	Brazil	Varied (shapefiles)	Unknown	Ministry of Environment (MMA)
FUNAI	Indigenous territories	Brazil	Territory level	Unknown	National Indigenous Foundation
INCRA	Rural properties database	Brazil	Territory level	Unknown	National Institute for Colonization and Agrarian Regularization
LandMark	Indigenous and local communities' lands	Global	Territory level	Unknown	Multi institutional
Forest Code Thermometer	Forest Code compliance of municipalities	Brazil	Municipality level	Unknown	Forest Code Observatory (OCF)
CPT Rural Conflict data	Statistics on human rights abuses (land, water, labour) at municipality level	Brazil	Municipality level	Annually	Pastoral Land Commission (Catholic Church)

Table 2: Some examples of publicly available and free of charge GIS data sources that can be used in geographical risk assessments

04 Perform spatial risk analysis

GIS layers, such as the ones listed in **Table 2**, can be further analysed using open source[8] or commercial[9] GIS software such as ArcGIS. An example of a landscape risk map for natural habitat conversion produced using GIS is presented in **Figure 4**.

In most cases risk layers containing different 'types' of information are combined into one map, e.g. deforestation data is overlaid with maps of existing high-biodiversity areas, or areas suitable for soy production. The choice of the layers to be combined, and the way how the layers are being aggregated and/or prioritised depends on the purpose of the risk assessment and should thus be tailored towards the needs.

Geographical risk between suppliers or sourcing areas can be compared by overlaying their location with the risk maps and, if necessary, extracting a risk score for each supplier. There are online platforms available that can facilitate this task, e.g. **Global Forest Watch**, **GRAS**, and **Agroideal**. An example on how this works for Agroideal is provided on the following page, but the principle is similar for other platforms.

There are also service providers that can assist companies in developing a full risk assessment tailored to their needs, such as Agrosatelite, Agrotools, WRI (World Resources Institute), Proforest, among others.

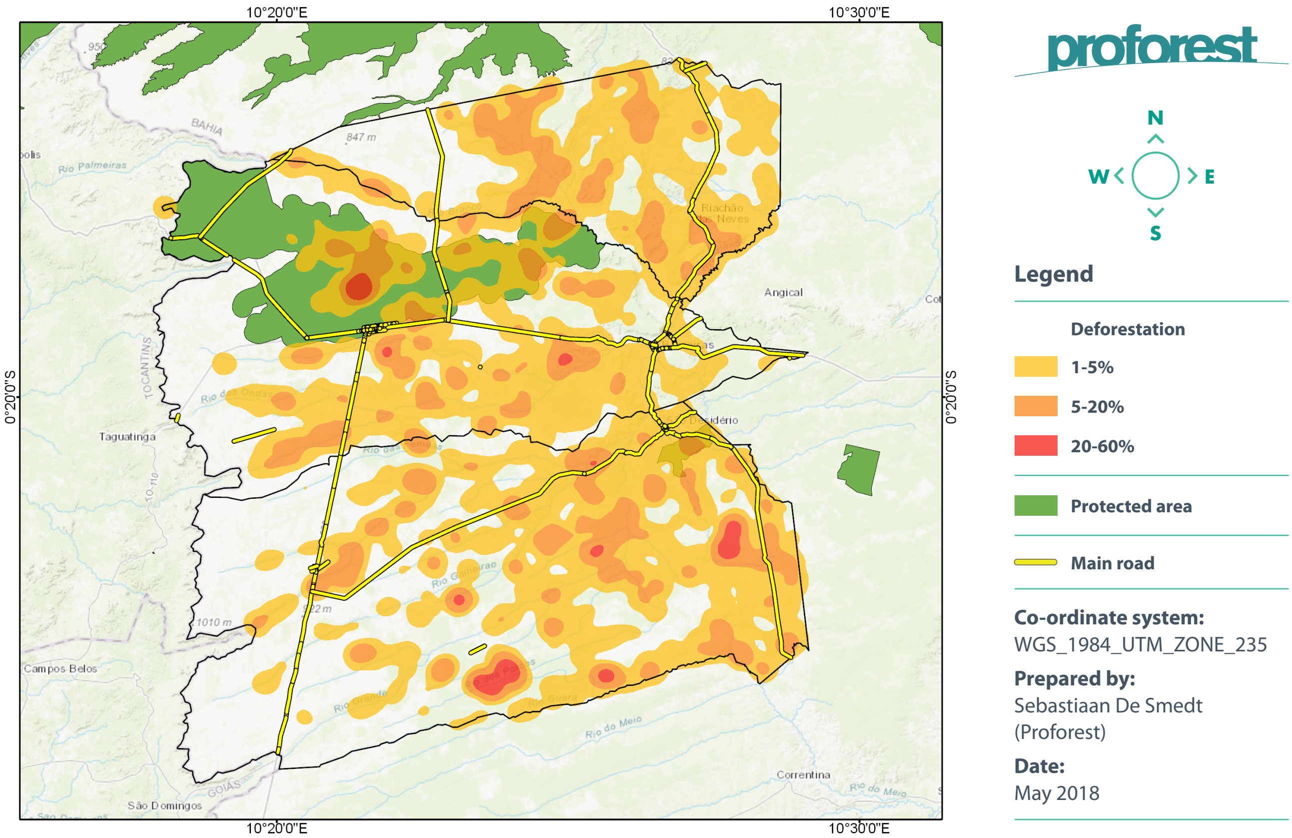
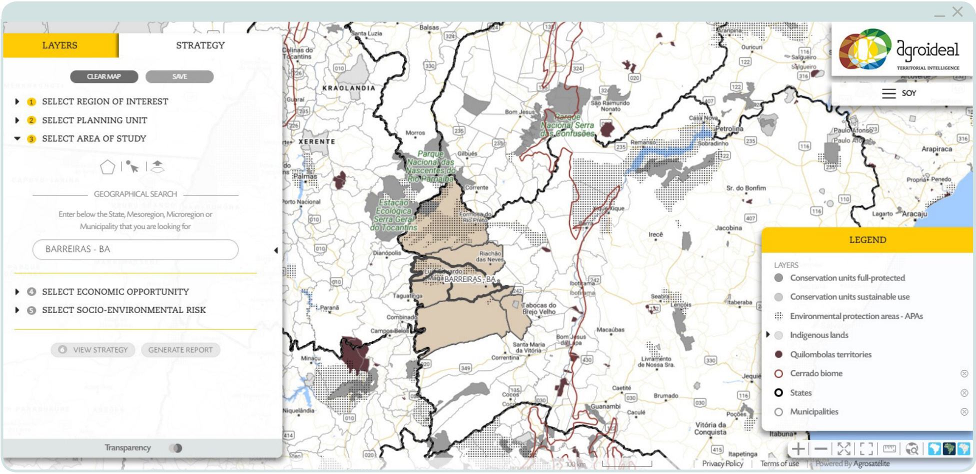


Figure 4: Example of a deforestation density map for a few municipalities in Matopiba, Brazil, which can be used as a risk map for deforestation

The Agroideal online risk assessment platform

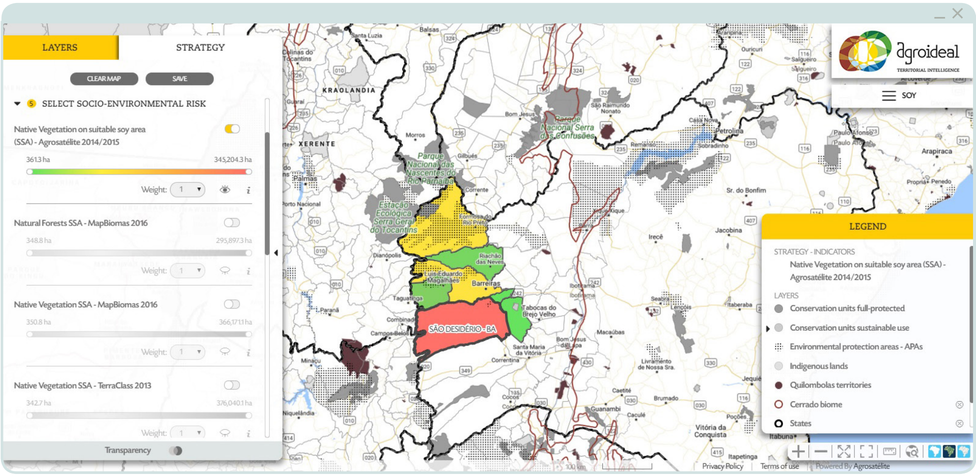
Step 1. Select your sourcing area

Area of interest can be selected, created or uploaded in the system



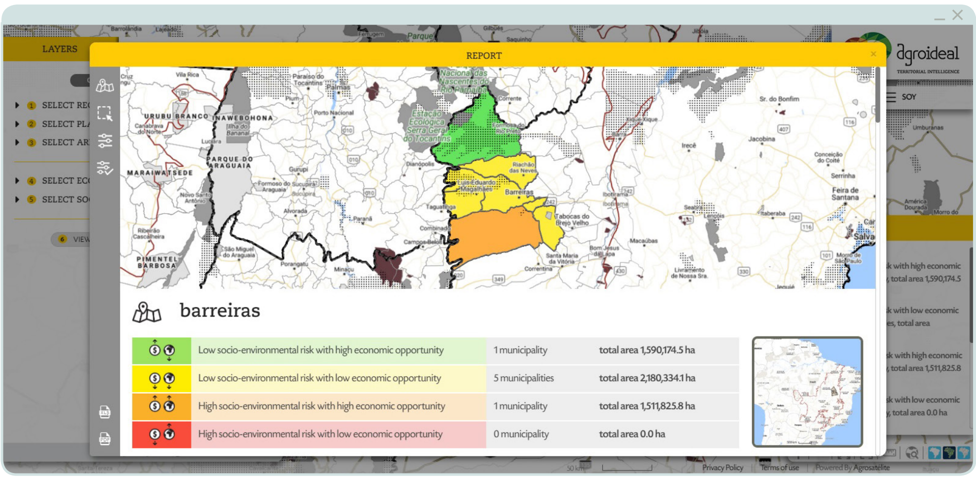
Step 2. Select your criteria for analysis

Risk factors or criteria can be selected by activation



Step 3. View your report

Report is produced with classification of areas



05 Prioritisation and next steps

After ranking the suppliers against each specific criterion, individual scores can be aggregated into easily interpretable sustainability risk scores (Figure 5). Although one overall supplier risk score might facilitate communication, thematic scores aligning with specific elements in the commitments (e.g. deforestation, social rights or more specific, indigenous land use rights), might be more useful to inform further actions.

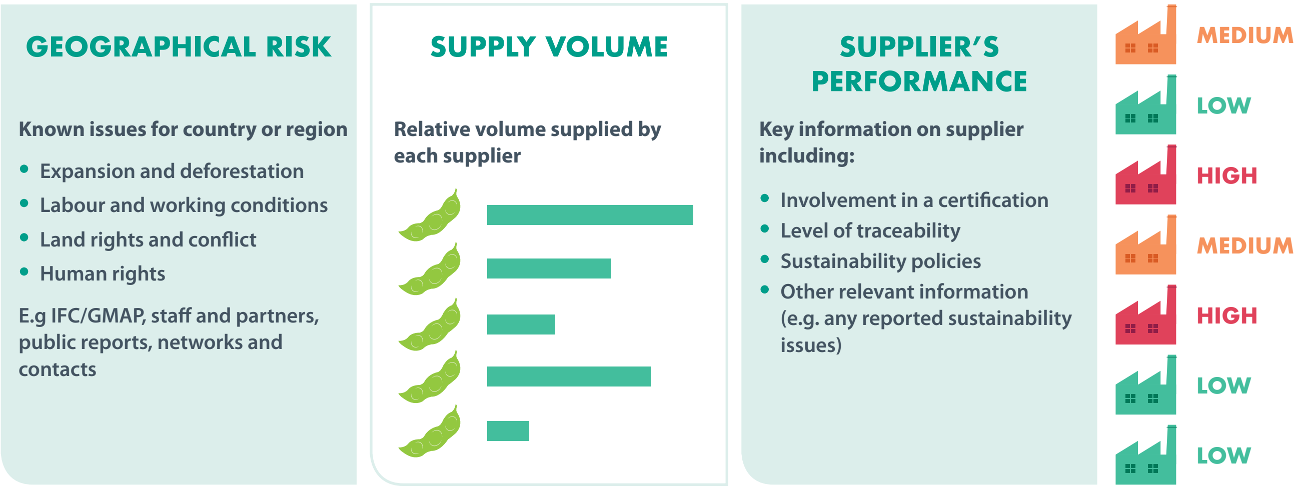


Figure 5: Allocating an initial risk rating for suppliers

In many risk assessments the resulting risk score is not just the calculated mean of the individual criteria scores, but instead more weight is allocated to criteria that are perceived to be more important. The resulting score might also be computed by taking the maximum risk score of all, or a subset of the criteria. This will prevent a high-risk score being averaged out by more favourable scores for the other criteria.

Overall, trustworthy organisational risk scores should be given higher weight than geographical risk scores. Negative 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.

Geographical risk assessments on their own do not allow to identify 'good actors' in 'bad landscapes', or 'bad actors' in 'good landscapes'!

The resulting overall scores need to show a sufficiently wide range that allows differentiation between suppliers. It is important to work out an appropriate scoring system and to document this system in a transparent way. It is also important to update the risk analysis regularly (e.g. annually) to incorporate changes in data, priorities, and supply base.

Based on risk assessment results, companies can decide on different actions and timings for engaging with suppliers. For a downstream company, for example, the results of a high-level risk assessment may help to prioritise regions for ramping up supply chain mapping efforts. The outcomes of high-level risk assessment may also inform the criteria for the purchase control system in an upstream company. For example, while suppliers in high risk landscapes might be subject to a more detailed scrutiny even before entering the supply chain, this may not be immediately required for suppliers based in low-risk areas.

Key challenges and avenues to overcome them

Despite the progress already made in risk analysis, some challenges remain across both the upstream and downstream ends of the supply chain. Key challenges and potential approaches to address them are presented below.

Traceability data poses limitations to risk analysis

In most cases traceability information is only available up to crushers and elevators, and the actual location of the producer is not known. Using analysis of the land conversion dynamics that are taking place in a buffer around these facilities might be used as a proxy to identify the supply area. However, this is a very crude approach as soy can be transported over several hundreds of kilometres between the farm and the elevator or crusher. Traceability information should therefore go further upstream in order to increase the effectiveness of geographical risk assessments.

Analysing future risk to prevent lack of compliance

Geographical risk assessments related to land use change are mostly reactive, as they make use of information on historical land use change dynamics. 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, e.g. by including information on agriculture suitability for soy, current soy area, infrastructure development or trade trends, shifting demands and markets.

Learn more and help us improve

More information is provided in the references and at **www.soytoolkit.net**

Please also share with us information that will improve this Briefing Note (via **soytoolkit@proforest.net**).

Acknowledgments

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References

1 For an overview of the Soy Toolkit and other briefing notes, visit: **http://www.soytoolkit.net**

2 In this Briefing Note, risk factors are defined as factors that might affect the likelihood of a negative impact happening. In a risk assessment the likelihood of a negative impact happening is estimated using risk factors.

3 In this context, the absence of market regulatory mechanisms can also be considered as a risk factor. For example, the Soy Moratorium, which is a market regulatory framework, significantly reduced the risk of deforestation related to soy production in the Amazon.

4 Adapted from WWF report: The Growth of Soy: Impacts and Solutions, 2014. **http://awsassets.panda.org/downloads/wwf_soy_report_final_feb_4_2014_1.pdf**

5 For more information on how to engage suppliers, see Briefing Note 3.A: Engaging suppliers: acting with soy suppliers to implement responsible sourcing commitments available on **https://www.soytoolkit.net/engaging-soy-suppliers**

6 For information on traceability and supply chain mapping, see BN 02.A Soy traceability and supply chain transparency available on **https://www.soytoolkit.net/soy-traceability-and-supply-chain-risks**

7 For information on how to access and use CAR data in responsible sourcing implementation, see Assessing compliance with the Forest Code: A practical guide available on **https://www.proforest.net/proforest/en/files/guia-codigo-florestal_english_final_web.pdf**

8 For a list of open source GIS software, please visit: **https://gisgeography.com/free-gis-software/**

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Photo credits

P.1 Proforest

P.7 Trase platform

P.11 Maps from the Agroideal online risk assessment platform