

## Trase data sources (release 1.0)

DATA	Description	Source
<b>Municipal Statistics</b>		
Soy Production	Municipal production of soy in tons from the Brazilian Bureau of Statistics (IBGE)	<a href="http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm">http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm</a>
Average soy yield	Municipal yield (Tn / ha ) from the Brazilian Bureau of Statistics (IBGE) annual municipal production survey	<a href="http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm">http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm</a>
% soy of total farming land	Percentage of the municipal farming area that is cultivated for soy vs the total farming area	<a href="http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm">http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm</a>
GDP per capita	GDP per capita in Brazilian Reals 2013	<a href="http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm">http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm</a>
% GDP from agriculture	% of the municipal GDP that corresponds to the farming sector	<a href="http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm">http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm</a>
Population	Population per municipality in 2013	<a href="http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm">http://ibge.gov.br/home/estatistica/economia/pibmunicipios/2010_2013/default_xls.shtm</a>
Human development index (HDI)	Municipal Human Development Index 2013, Atlas do Desenvolvimento Humano, PNUD	<a href="http://www.atlasbrasil.org.br/2013/en/">http://www.atlasbrasil.org.br/2013/en/</a>
Environmental Embargos (2015)	Number of fines and embargos associated to environmental infractions per municipality in 2015	<a href="https://servicos.ibama.gov.br/ctf/publico/areasembargadas/ConsultaPublicaAreasEmbargadas.php">https://servicos.ibama.gov.br/ctf/publico/areasembargadas/ConsultaPublicaAreasEmbargadas.php</a>
Land conflicts	Number of land conflicts per municipality in 2014 according to the Comissão Pastoral da Terra ( <a href="http://www.cptnacional.org.br/">http://www.cptnacional.org.br/</a> )	Retrieved from <a href="http://maps.lapig.iesa.ufg.br/lapig.html">http://maps.lapig.iesa.ufg.br/lapig.html</a>

Forced Labour	Number of people involved in lawsuit of forced labor or made subjects to degrading working conditions in 2014. Comissão Pastoral da Terra ( <a href="http://www.cptnacional.org.br/">http://www.cptnacional.org.br/</a> )	Retrieved from <a href="http://maps.lapig.iesa.ufg.br/lapig.html">http://maps.lapig.iesa.ufg.br/lapig.html</a>
Smallholder dominance	Proportion of a given municipality that is in the hands of smallholders as defined by the Brazilian government (based on size and dependence on family labour)	Medina et al (2014) <a href="http://www.sciencedirect.com/science/article/pii/S0305750X15001412">http://www.sciencedirect.com/science/article/pii/S0305750X15001412</a>
Environmental Characteristics		
Potential soy-related deforestation	<p>Deforestation rate in a given year restricted by the amount of new planted area for a commodity. For planted area <math>A</math> of a commodity, total municipal deforestation <math>D</math>, in year <math>y</math>, commodity deforestation <math>C</math>, in hectares, is defined:</p> $C_y = \delta A_y \quad \text{if } D_y > \delta A_y$ $C_y = D_y \quad \text{if } D_y < \delta A_y$ <p>Where</p> $\delta A = \max(0, A_y - A_{y-1})$	<p>Planted area from <a href="http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm">http://www.ibge.gov.br/home/estatistica/economia/pam/2015/default.shtm</a> Deforestation calculated separately per biome as below.</p>
	INPE-PRODES deforestation estimates in the Amazon Biome and municipalities on the border between the Amazon and Cerrado Biomes	<a href="http://www.dpi.inpe.br/prodesdigital/prodesmunicipal.php">http://www.dpi.inpe.br/prodesdigital/prodesmunicipal.php</a>
	LAPIG deforestation alerts for the Cerrado Biome, including the Legal Amazon portion	<a href="http://maps.lapig.iesa.ufg.br/lapig.html">http://maps.lapig.iesa.ufg.br/lapig.html</a>
	SOS-MATA ATLANTICA for the Atlantic Forest biome between 2011-2014. For municipalities spanning both the Atlantic Forest and Cerrado biomes, LAPIG estimates were combined with SOS-MATA ATLANTICA.	<a href="http://mapas.sosma.org.br/">http://mapas.sosma.org.br/</a>
	MAPBIOMAS preliminary version for all other biomes	<a href="http://mapbiomas.org/pages/databas e/mapbiomas_collection">http://mapbiomas.org/pages/databas e/mapbiomas_collection</a>
Soy deforestation	Annual deforestation rate in hectares, per municipality in areas under soy production, with respect to previous year. Calculated based on overlay of LAPIG deforestation alerts and soy field land cover classifications from AGROSATELITE produced from MODIS images (MCD45A1).	<a href="http://agrosatelite.com.br/">http://agrosatelite.com.br/</a>
Areas affected by Fire	Municipality area affected by fire ( $\text{km}^2$ ) in 2013	LAPIG <a href="http://maps.lapig.iesa.ufg.br/lapig.html">http://maps.lapig.iesa.ufg.br/lapig.html</a>

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Water scarcity	Levels of criticality of water stress on a scale of 1-7. Aggregated to the median water stress level per municipality weighted by percentage of available water. Based on data from the Brazilian National Water Agency ANA (2013)	Flach et al (2016) <a href="http://iopscience.iop.org/article/10.1088/1748-9326/11/7/075003/meta">http://iopscience.iop.org/article/10.1088/1748-9326/11/7/075003/meta</a>
Biodiversity impact	Relative reduction of extent of suitable habitat (ESH) for 237 species of Amphibian between 2000-2010 due to land conversion of any type, relative to the proportion of each species range that overlaps with Cerrado. Unitless.	World Conservation Monitoring Centre, developed under the project CONTACTED with funding from the Luc Hoffman Institute and WWF UK. Author Paz Duran
Indigenous areas	Area of indigenous areas per municipality, in hectares, from FUNAI, National Indian Foundation (Brazil)	<a href="http://www.funai.gov.br/">http://www.funai.gov.br/</a>
Protected areas	Protected areas of all designations within Brazil	Environmental Ministry of Brazil
Actor Characteristics		
Forest 500 score	Score of the company commitments according to GCP's Forest 500 score	Global Canopy Programme's Forest 500 <a href="http://forest500.org/">http://forest500.org/</a>
Member of RTRS	Member of RTRS (yes/no)	<a href="http://www.responsiblesoy.org/about-rtrs/members/?lang=en">www.responsiblesoy.org/about-rtrs/members/?lang=en</a>
Zero deforestation commitment	Zero deforestation commitment by company (yes/no)	Compiled from company websites and New York Declaration of Forests
Member of TFA	Member of the Tropical Forest Alliance TFA (yes/no)	<a href="http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/New-York-Declaration-on-Forest-%E2%80%93Action-Statement-and-Action-Plan.pdf">http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/New-York-Declaration-on-Forest-%E2%80%93Action-Statement-and-Action-Plan.pdf</a>
Trade Data		
Customs Declarations	Tax documents recording shipments compiled by the Brazilian government	Various sources

Bills of Lading	Maritime contracts between exporters and importers guaranteeing volume, value and destination of shipments	Various sources
Crushing Facility Data	ABIOVE Soy crushing and processing facilities	<a href="http://www.abiove.org.br/">http://www.abiove.org.br/</a>
Silos	CONAB SICARM silo records	<a href="http://www.conab.gov.br/detalhe.php?a=1078&amp;t=2">http://www.conab.gov.br/detalhe.php?a=1078&amp;t=2</a>