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# Methodology for the Assessment of Bioplastic Feedstocks

*2020 Abridged Version*

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## Bioplastic Feedstock Alliance

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### Introduction

The Bioplastic Feedstock Alliance is a multi-stakeholder working group dedicated to a sustainable vision for biobased plastics. Through informed science, collaboration, education, and innovation, the group strives to responsibly guide the selection and harvesting of feedstocks for biobased plastics in order to encourage an economically prosperous and sustainable flow of materials, creating lasting value for present and future generations. For the sake of this tool, the BFA refers to a bioplastic as any plastic derived wholly or partially from biomass.

As we transition to a future economy no longer dependent on fossil-derived energy and raw materials for industrial production, issues related to food security, land competition, water, climate change, safe labor practices and overall environmental performance will become increasingly important. The World Wildlife Fund (WWF) supports the responsible management of these resources responding to increasing demands and works to provide a voice for conservation at the table. WWF engages on these issues using credible, science-based information and transparent multi-stakeholder initiatives.

WWF's role in the Bioplastic Feedstock Alliance (BFA) is in organizing thought leadership around these unknown and known variables in order to enable progress on decreasing our dependency on oil and increasing our conservation of the world's most precious places and species.

In recent years there has been an increase in the development of bioplastics technology and investment in infrastructure to bring solutions to scale. In a proactive approach, the BFA formed as a multi-stakeholder initiative to come to agreement on the broader impacts the industry could have and how to mitigate risks such as food security, land use change, climate change and resource scarcity for bioplastic feedstocks. **The main objective of the BFA is to develop a methodology for assessing feedstocks at the regional level (or as close to the source of production as possible) in order to secure a common understanding of sustainability considerations based on best known science.** Having a broad set of views coming together from science-based perspectives in agreeing on a methodology for assessment (both qualitative and quantitative) will help the industry drive positive change at scale.

Current membership within the BFA is supported by prominent consumer brand companies and a number of other scientific and academic institutions along with suppliers and producers participating in this sector. The credibility and transparency of the BFA as a multi-stakeholder initiative is based on the many (and varied) organizations who are currently contributing to the work. With an overall goal of global adoption of this methodology, the BFA is open to additional participation for those organizations with interest, whether economically, environmentally or socially, in the bioplastics sector.

This document showcases the methodology agreed upon to provide guidance on how to assess risks and make more transparent decisions on a bioplastic feedstock in order to have a more positive impact on the environment, society and the economy. This tool will allow brands and producers to rate potential bioplastic feedstock solutions on a defined, qualitative scale on a series of criteria that are key to the expected environmental sustainability of the bioplastic feedstock and the region in which it is being produced by allowing the user to (i) compare different bioplastic feedstocks and different production systems across key criteria in terms of environmental and social sustainability; (ii) understand what kinds of changes to production systems would result in more sustainable production; and (iii) identify opportunities for management programs that would track progress and improve sustainability over time.

As has been learned with biofuels, there is no simple or single formula that can be applied globally to bioplastic feedstocks, but there are some common indicators of performance. Using the best available data, each feedstock needs to be evaluated at the most specific regional level possible taking into consideration not only the energy required to produce; impacts from climate change on the feedstock and landscapes; agricultural chemical inputs; impacts on

biodiversity, soil, air, and water; but also social dynamics and issues regarding land use, labor, and food availability. The same feedstock grown in different regions or different feedstocks grown in the same region will provide different results due to regional agronomic and climatic variations - soil type, rainfall, input use, and cultivation techniques. Focusing on a standard set of key performance indicators will facilitate understanding the tradeoffs and risks that each of the crops may present within a given region. What is important is that the methodology is standardized, and performance can be monitored.

### **Scope**

The scope of the work for the BFA is *land use change to initial processing*, where initial processing includes activities that directly affect the landscape where the feedstock is grown (for example: sugarcane mill operations would be considered initial processing if their operations, water use and discharges etc., affect the area directly surrounding the cane growing operations). In making the decision about what plastic to use for a product, what it is made of, how it is made and how it contributes to impacts on the life cycle of a system needs to be done with a series of tools. This methodology provides an assessment tool for one piece of the system and needs to be considered as one tool in the toolbox. The BFA chose to address this piece of the system due to the lack of data and agreed upon tools, not because it was deemed more important or more valuable in the overall impact of a product. This tool does not take into consideration logistics beyond the farm level, manufacturing process, use or end of life. These were excluded due to the dilution that their inclusion would have created to the methodology in increasing its overall complexity. This methodology was designed and developed with the best-known science at the time to the knowledge and judgment of BFA and is intended to be updated as more science becomes available.

**This document is an abridged version of the full methodology; published in 2020 it includes only the updated Executive Level Screening portion of the methodology.**

### **Process**

The BFA agreed upon a set of Guiding Principles in order to set the tone for the premise of the work. These principles set the priorities under which the BFA would complete its work. It is under these principles, detailed below, that our methodology was developed.

### **BFA Guiding Principles**

#### *BFA Governance*

1. Actively engage a diverse set of stakeholders who are affected by bioplastic production
2. Maintain a methodology that is globally adaptable and can address local conditions
3. Commitment to be credible and transparent
4. Be responsive, flexible, and continuously improve in the face of climate change
5. Provide opportunity for innovation
6. Remain technology and feedstock neutral

#### *Content of Methodology*

7. Maintain conservation of natural resources and biodiversity
8. Protect or enhance the health and welfare of farmers and their communities
9. Protect and use nature-based solutions to address the impacts of climate change and other threats
10. Use a science-based systems approach to drive appropriate best practices in feedstock risk mitigation

### **Goals**

The BFA began the process of developing the assessment tool by first determining what the ultimate goal of this tool would be, what that ideal solution could be. By setting this lofty standard, it provides the bioplastic industry with something tangible to strive for. This set of goals created the foundation for the methodology, allowing the further elucidation into what would be required to meet these goals in order to drive the measurement of success.

**An optimal bioplastic feedstock is one that:**

1. Is legally sourced, conforms to Universal Declaration of Human Rights (UDHR) and is produced in a safe and healthy way for workers and surrounding communities
2. Is one that is derived from renewable biomass whose production is sustainably managed
3. Does not adversely impact food security and affordability and maintains or improves social and economic conditions along with ecosystem services in producing communities
4. Does not result in destruction of critical ecosystems or loss of High Conservation Value (HCV) habitats
5. Contributes to landscape resilience and is resilient to the impacts of climate change

**Indicators**

Each of the above goals is complex and requires a number of aspects to be addressed in a feedstock. Within each of these goals it was important to determine what indicated success or failure against each of those goals. The BFA identified thirteen indicators for the goals.

<b>Aggregated Indicator List – 13 Indicators</b>	
Biodiversity	Land Use Change Impacts
Chemical Use: Nutrients & Pest Management	Legal Production
Co-Product and Waste Management	Local and/or Indigenous Communities
Cradle to Gate GHG	Occupational Health & Safety
Ecosystem Services	Soil Management
Food Security	Water Management
Labor Rights	

The table below contains the 13 Indicators aligned with the 5 Goals. In evaluating each of the 13 indicators, research should extend to indicator-related infrastructure and logistics impacts from the production of the crop in the specified geography.

<b>1. Is legally sourced, conforms to UDHR and is produced in a safe and healthy way for workers and surrounding communities</b>
Chemical Use: Nutrients & Pest Management Co-product and Waste Management Labor Rights Land Use Change Impacts Legal Production Occupational Health & Safety Water Management
<b>2. Is one that is derived from renewable biomass whose production is sustainably managed</b>
Biodiversity Chemical Use: Nutrients & Pest Management Co-product and Waste Management Cradle to Gate GHG Land Use Change Impacts Soil Management Water Management
<b>3. Does not adversely impact food security or affordability and maintains or improves social and economic conditions along with ecosystem services in producing communities</b>
Ecosystem Services Food Security/Affordability Local and/or Indigenous Communities Soil Management Water Management
<b>4. Does not result in destruction of critical ecosystems or loss of HCV habitats or deforestation</b>

Biodiversity Chemical Use: Nutrients & Pest Management Land Use Change Impacts Local and/or Indigenous Communities Soil Management Water Management
<b>5. Contributes to landscape resilience and is resilient to the impacts of climate change</b>
Ecosystem Services Biodiversity Food Security Land Use Change Impacts Local and/or Indigenous Communities Soil Management Water Management

Each of the above indicators in itself is complex and requires different assessment methods in order to consider the potential environmental, social and economic impacts that each feedstock could have on them. The depth to which any interested party can assess a feedstock depends on the amount of data they have for each of these indicators. In terms of 1<sup>st</sup> generation feedstocks, there is typically more data available; however, in focusing out to 2<sup>nd</sup> and 3<sup>rd</sup> generation solutions, it is still important that the tool can help identify risks and opportunities for improvement.

To accommodate the variability in data availability, the assessment tool has 3 tiers: Executive Level Screening, Survey and Assessment. The first tier requires the least amount of information and would be used to just screen out those feedstocks that are not viable at a high level while the second and third tiers provide more detailed in-depth study to assess.

### The Method & Tiers

Each tier of the Method assumes a certain amount of information is available along with a level of expertise for assessment. As with all assessments, the BFA has also identified the risk at each tier if a final decision was to be based on much less information. Below is a table depicting the main differences between each tier of the methodology.

**This 2020 Abridged Version of the methodology only contains the updated Executive Level Screening.** Please see the [full BFA Methodology](#) for the Survey and Assessment tiers.

	Executive Level Screening (ELS)	Survey	Assessment
FORMAT	ELS yes/no survey	13 Indicator Datasheets	3rd Party Assessment of 5 Key Indicators
WHO	Brands & Producers	Brands & Producers	3rd Parties Determined
REQUIRED	High level understanding of qualitative impacts of feedstocks.	In depth qualitative data on all 13 indicators & metrics	BFA determines quantitative assessment methods for key indicators to put values on potential risk with higher quality data.
GATE	All Yes's =go ANY No's =more analysis needed before decision	Aggregate data into Scorecard and use percent goal achievement to determine best solution	Survey + Assessment = Best Possible Data for Decision
RISK LEVEL	If final decision is based off of just the ELS, the risk is HIGH that	If final decision is based off of Survey results, depending on identified risk and availability of information for	If final decision is based off of Survey + the Assessment results, the risk is LOW that not all

not all information is considered for decision.

datasheets, the risk is MODERATE to LOW that not all information is considered for decision.

information is considered for decision.

### Executive Level Screening

When an organization begins to investigate the many options for bioplastic feedstocks, there is a need for an initial assessment to narrowing that list down to the most viable options for more in-depth assessment and decision making. Due to the overall complexity of this type of choice and the potential for tradeoffs, there is no list of “sustainable” or “not sustainable” feedstocks. Any such list would be accurate only under a certain set of conditions and would not account for regional variation. To allow for a high-level assessment of many feedstocks, the BFA developed the Executive Level Screening, at this tier; the user follows the screening at a highly qualitative level in order to identify major risks. This GO (move onto Survey Tier)/NO GO (feedstock less viable) type screening should provide a clear picture of the major risks and benefits of the feedstocks assessed and progresses them forwarded to the next tier of the Method.

**The Executive Level Screening portion of the methodology has been updated in 2020 to reflect the latest science, incorporate more information and questions on resilience, and, for the first time, provide research guidance and sources to help users answer each question.**

### Executive Level Screening Instructions

The Executive Level Screening (ELS) was designed to act as a GO/NO GO tool to help users decide which feedstocks should be screened further and pursued. In this tool, use the feedstocks currently under consideration and run each one through the ELS. For best results, the use of background information and scientifically based responses will guide the user more accurately. At this step, if all questions are answered with “yes”, then the user can move onto the second tier, Survey. Some questions have a follow-up question if the first response is a “No,” if the follow up question result is a “Yes,” then the tool considers that overall question as a “Yes.” Using the ELS will help pare down the number of feedstocks in consideration for the Survey level by identifying what the BFA considers very extreme issues. The user may choose to override the ELS and move forward with feedstocks into the Survey level, this tool is meant to highlight issues early on and reduce the workload.

**As this is an abridged version of the BFA Methodology, focused exclusively on the updated ELS, detailed information on the Survey Level Screening and Assessment sections of the methodology have been omitted. Please see the full methodology [here](#) for the Survey Level Screening and Assessment pieces of the methodology**

### Production Management and Risk Mitigation

The BFA recommends this methodology be used in conjunction with other credible systems in sustainable agriculture.

This tool is a decision-making methodology for assessing risk and understanding the tradeoffs across various feedstock opportunities. It is not a method for production management, measurement and improvement over time. There are however many of these management programs in the forms of certifications, roundtables, standards and Best Management Practices (BMPs) for a number of commonly used feedstocks. For more information on this topic, see the 2019 WWF and ISEAL discussion paper [Credible Assurances at a Landscape Scale](#) intended to stimulate conversation about what credible assurance and claims around sustainable production processes look like at a landscape scale.

[Field to Market: The Alliance for Sustainable Agriculture](#) can provide guidance on harnessing collective action of agricultural supply chains to support resilient ecosystems and enhance farmer livelihoods for corn, cotton, potato, rice, soybean, and wheat being sourced in the United States. The [Field to Market Fieldprint Calculator](#) can be used to evaluate a feedstock’s fieldprint at the grower level as well as inform the development of subsequent mitigation and sustainable action plans.

[Bonsucro](#) is a multi-stakeholder standard setting organization for global sugarcane production. It is a metric-based standard that does not prescribe practices to producers; however, it sets the bar for outcomes at the farm and milling level. Bonsucro's production standard is recognized by the European Union's Renewable Energy Directive. Additionally, Bonsucro is a full member of ISEAL. The production standard addresses social, economic and environmental aspects of sugarcane farming and milling. The BFA recommends that the Bonsucro production standard and associated carbon metric tools be used when sourcing sugarcane derivatives for bioplastic feedstocks.

For additional feedstocks sourced globally, the BFA recommends the use of [Roundtable on Sustainable Palm Oil \(RSPO\)](#) for palm oil sourcing, [Round Table for Responsible Soy \(RTRS\)](#) for soy sourcing, and the [Forest Stewardship Council \(FSC\)](#) for tree-based products. For palm oil, [RSPO NEXT](#) goes above and beyond RSPO's requirements and through voluntary effort exceeds the RSPO Principles and Criteria. Third party verification can ensure RSPO NEXT companies achieve additional goals categorized into the following categories: reduction of GHGs, no deforestation, no fire, no planting on peat, respect for human rights, and transparency. RSPO NEXT requires achievement in each of these categories across the entire organization including the company's supply base, joint ventures, and investments.

For other feedstocks, the [Roundtable on Sustainable Biomaterials \(RSB\)](#) is recommended. RSB is also a modular system, which recognizes other credible certification schemes, like Bonsucro. Using this modular function, it is possible to certify biomaterials through many stages of the supply chain with RSB. In 2018, RSB also announced the [Advanced Products Standard](#) for recycled carbon and non-biogenic waste feedstocks. Finally, RSB's [GHG Calculator](#) allows users to calculate the supply chain GHG emissions of a material and understand whether a biomaterial achieves a GHG reduction compared with the fossil based alternative.

Climate change is already directly impacting agriculture, and its impact is only expected to be more dramatic in the future. It is increasingly important to manage for change, not just persistence. Building resiliency into the system and adapting strategy to account for changing climate and increasing numbers of climate events will be key to maintaining a stable supply and mitigating the effects of shocks caused by extreme weather events. Diversification of feedstocks and growing locations are adaptation strategies that may effectively build resiliency into the production system. More information about climate change resilience can be found at <https://whatisresilience.org/en/start-en/>

Scenario planning is a tool that is increasingly important to plan for climate change impacts when the future is both unknown and likely to be very different than the present. Scenarios are plausible characterizations of the future. They differ from forecasts and predictions because they are not associated with probabilities, but they are based on scientific evidence and must be plausible. Scenarios should be used in three stages: 1) to identify the range of future conditions to be considered by vulnerability assessments for feedstock production systems, natural resources, landscapes, and/or relevant indicators; 2) to identify potential adaptation actions to address vulnerabilities; and 3) to evaluate the vulnerability and value of potential adaptation actions themselves. Scenario planning is often conducted for 30 year time periods, but time frames and methods for scenario development should be compatible with the feedstock and natural environment. The main inputs from scenarios will likely be climate variables, although other factors included in the scenarios (e.g., fire, floods) can certainly contribute to evaluating vulnerability.

Excellent water management is important for all crops and regions and can be seen in each of the 5 Goals of this Methodology. The BFA recommends the following options for assessing water risk:

First, the [Water Risk Filter](#) can be used to understand the level/type of risk in the basin where the crop production is being considered. Then, this area should be explored under future conditions (scenarios). If current/future projections show medium to high water risk, extra investigation and information is needed. The Water Risk Filter will allow companies to build water risk assessments and explore various scenarios over a 10 and 30 year time frame. The BFA recommends this as a first step followed by full water stewardship activities to mitigate more substantial water risk later in the process. The Water Risk Filter also has an "operational risk" survey section that looks specifically at what risks are incurred and perpetuated by on-site actions. After the survey is completed, mitigation responses are generated by the Water Risk Filter.

BFA recommends implementation of the [Alliance for Water Stewardship Standard](#) for medium-high/high risk locations. The AWS is a step-wise approach to mitigating water risk and is designed to work in any industry or geography. The AWS overlaps with governmental regulations, crop production standards, and ISO standards etc. It is designed to address current and future risk for water management. In the AWS Appendix B (guidance for the AWS Standard) there is more guidance on how to comply with each step of the Standard along with references (tools and methodologies) and examples.

Water risk assessment and climate risk assessment should be assessed in tandem.

Indirect Land Use Change (ILUC) as a part of overall Land Use Change (LUC) is reviewed at a very high level in this methodology. WWF, Ecofys and EPFL have developed a methodology to reduce ILUC called the [Low Indirect Impact Biofuel \(LIIB\) Methodology](#). LIIB was designed to distinguish biofuels with a low risk of causing indirect impacts but can be used for biomass production as well. It develops concepts proposed for mitigation of indirect land use change and other indirect impacts into a practical and cost-effective methodology that can be used by policy makers and voluntary certification schemes that wish to stimulate production with low risk of unwanted indirect impacts.



## **Exercise Information**

<b>Feedstock Evaluated</b>	
<b>Geographical Boundary*</b>	
<b>Level of Data / Information** (Circle One)</b>	Local/ Production Site(s)      Regional      National
<b>State of Project (Circle One)</b>	Feedstock in Production      OR      Feedstock Being Considered
<b>Method Version</b>	
<b>Name of Reviewer</b>	
<b>Date</b>	

\*The geographical boundary is defined as the area where the crop is grown. Ideally, local data and information from an actual production site is used for this exercise, but that is not always available. For this exercise, indicate in this field where, to the best of your knowledge, the feedstock is or will be grown – be as specific as possible. Example 1: It is known that ethanol is being obtained from a specific mill – the geographical boundary is the mill’s sourcing area. Example 2: It is unknown which mills are being sourced from, but they are all in Sao Paulo State. The geographical boundary is Sao Paulo State. A national geographic boundary may also be used but will make some questions more difficult to answer and decrease the confidence of the results.

\*\*Local data is more representative than regional data, which is more representative than national data. Therefore, the most specific data available should be used when answering the screening questions and worksheets. In this field, indicate which level of data was used when making this evaluation. Generalize to the level of data used MOST OFTEN if necessary.

<b><u>Comments:</u></b>

## BFA Executive Level Screening

### Step 1: Identify crop and sourcing regions for particular crop

<p><b>Step 2:</b> Review each feedstock/region combination for the following questions. Resources provided can serve as a starting point to help answer each question.</p>	<p><b>Response -Yes or No</b></p> <p><b>Please also add relevant notes from your research in this column</b></p> <p>A “Yes” for each of questions indicates a higher likelihood of the particular feedstock as a viable solution</p>
<p><b>1.</b> Is this already a cultivated feedstock in these regions?  <b>If no</b> – Is the new feedstock known to be non-invasive?  <b>Resources:</b></p> <ul style="list-style-type: none"> <li>• <i>Crop production meta-data available through <a href="#">FAOSTAT</a></i></li> <li>• <i>For the US: The USDA National Agricultural Statistics Service’s tool <a href="#">CropScape</a> is a geospatial data set that shows which crops are grown where through a mapping interface with many data layers</i></li> <li>• <i>Country-level ministries or departments of agriculture may publish crop production briefs (ex: the Brazilian Institute of Geography and Statistics, a government agency that publishes the national <a href="#">Census of Agriculture</a>)</i></li> <li>• <i>Group on Earth Observations Global Agricultural Monitoring Initiative’s (GEOGLAM) <a href="#">Crop Monitor</a> provides information related to crop cultivation area and up-to-date crop conditions</i></li> <li>• <i><a href="#">IUCN Global Invasive Species Database</a>: global database with information on invasive alien species that threaten native biodiversity and natural areas</i></li> <li>• <i><a href="#">Global Forest Resources Assessment, Food and Agriculture Organization of the United Nations</a>: Country level data on planted trees and plantations, native vs. non-native species under production in country. Follow up research on invasiveness of species required.</i></li> <li>• <i><a href="#">Nature Map Explorer</a>: Global map indicating natural forest, planted forest, woody plantations (Human Impact on Forests indicator)</i></li> <li>• <i>Check local government information/media coverage to ensure the feedstock is not considered an invasive species in the region</i></li> </ul>	<p>Yes OR No  Yes OR No</p>
<p><b>2.</b> Can this feedstock be legally sourced in this region?  <i>Check for legal issues to sourcing this feedstock in this region. Ex: Legal challenges may include existing quotas for production of crop in region under consideration, issues of land rights, risk that minimum wage cannot be guaranteed, etc.</i>  <b>Resources:</b></p> <ul style="list-style-type: none"> <li>• <i>Check local and national policy/regulations</i></li> <li>• <i>Explore negative media attention for the crop/region combination</i></li> <li>• <i>U.S. Department of Labor Reports (<a href="#">The Department of Labor’s Findings on the Worst Forms of Child Labor</a>; the <a href="#">List of Goods Produced by Child Labor or Forced Labor</a>; and the <a href="#">List of Products Produced by Forced or Indentured Child Labor</a>)</i></li> <li>• <i><a href="#">Nature Economy and People Connected, Sourcing Hub</a>: NEPCon timber legality risk maps (country level), and accompanying risk assessments/reports per country</i></li> </ul>	<p>Yes OR No</p>
<p><b>3.</b> In the sourcing region can you obtain this feedstock from sources that adhere to labor and Operational Health &amp; Safety (OHS) regulations?  <b>Resources:</b></p>	<p>Yes OR No</p>

<ul style="list-style-type: none"> <li>• National and local OHS laws</li> <li>• Country-level Labor Department reports</li> </ul>	
<p><b>4.</b> Identify key environmental problems with the feedstock. Key problems are those that have clear evidence of occurrence and cause a severe or major and lasting impact on the environment. List them here or on an attached sheet. List mitigation systems / plans for each issue.</p> <p><b>Potential Environmental Issues (list for reference)</b></p> <ul style="list-style-type: none"> <li>• Threatens/impacts local species and protected areas (endangered species and local biodiversity) either directly or indirectly (e.g. land use change)</li> <li>• Impacts threatened/endangered species (species may be listed at the federal, regional, or local level)</li> <li>• Requires direct land use change to grow feedstock (natural habitat conversion)</li> <li>• Soil erosion, compaction, and degradation</li> <li>• Pollutes the local water resources</li> <li>• Utilizes water from already or projected water stressed area</li> <li>• Threatens/impacts intactness and connectedness of ecosystems</li> <li>• Specifically threatens refugia</li> <li>• Cultivated on land that would otherwise be more beneficial for nature-based solutions for adaptation</li> </ul> <p><i>As there are many resources available to help answer this question, these are listed in Appendix A</i></p> <p>Are the identified environmental risks addressable? Do actionable mitigation systems exist in the region? Is there a plan for continuous improvement? If NO to any of these 3 questions, answer NO</p>	<p>Yes OR No</p>
<p><b>5.</b> List known social issues associated with this feedstock.</p> <p><b>Potential Social Issues (list for reference)</b></p> <ul style="list-style-type: none"> <li>○ low wages and unfair prices for farmers and laborers</li> <li>○ abuses to worker’s rights including unhealthy working conditions and informal child labor</li> <li>○ policy targets that lead to human rights abuses</li> <li>○ impacts on land ownership and control</li> <li>○ impacts on indigenous communities</li> <li>○ impacts on water access and withdrawal rights, stable and equitable access to water, and water quality including drinking water impairment</li> <li>○ processes used to acquire land</li> <li>○ livelihood activities displaced</li> <li>○ commodity pricing, price volatility</li> <li>○ impacts on health and well-being</li> <li>○ impacts on availability of natural resources</li> <li>○ impacts on natural capital or ecosystem services</li> </ul> <p><i>As there are many resources available to help answer this question, these are listed in Appendix A</i></p> <p>Are there mitigation systems in place that can address these social issues? Is a continuous improvement plan in place? <b>If even one risk is missing a mitigation plan or system NO must be marked.</b></p>	<p>Yes OR No</p>
<p><b>6.</b> Are vulnerability assessments available or have you done a vulnerability assessment for climate change for this feedstock in this landscape? Is there a mitigation plan in place to address risks identified by the vulnerability assessment for climate change?</p>	<p>Yes OR No</p> <p>Yes OR No</p>

<p>Vulnerability assessment should be based on climate projections and identify key climate change impacts on 1) the feedstock itself, 2) required resources for production, and impacts of climate change on 3) the surrounding landscape including communities and ecosystems. If there are identified impacts in all 3 climate categories, the feedstock and area might not be suitable for production and NO should be marked.</p> <p>Vulnerability assessments should include:</p> <ul style="list-style-type: none"> <li>• Key <a href="#">climate risks</a> may include but are not limited to: temperature changes, flood or drought risk, higher likelihood and severity of storms, and sea-level change</li> <li>• Evaluation of exposure, sensitivity, and adaptive capacity of the species, ecosystem, or ecological process. Sensitivity and adaptive capacity are sometimes evaluated together.</li> <li>• Analyses of observed (historical) and projected (future) climate, land use, demography, and other important climate and non-climate factors.</li> <li>• Evaluation of changes that have already occurred in the species, ecosystem, or ecological process of interest. Where possible, changes are determined to be caused by either climate or non-climate drivers.</li> <li>• An objective scoring method to evaluate the relative vulnerabilities of species, areas, or processes of interest.</li> <li>• Estimation of uncertainties of projected changes in both climate and non-climate drivers of change as well as the species or ecosystem response. Uncertainty can be estimated using expert knowledge or statistical variation.</li> <li>• An analysis of spatial information available for the potentially vulnerable areas, including an evaluation of potential climate refugia (i.e., areas of low exposure to climate change).</li> <li>• Narratives that describe key information sources, relevant ecological and geographical contexts, and justifications for rankings</li> </ul> <p>For more information on climate projections and scenario-planning, see <a href="https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Technical-Supplement-062917.pdf">https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Technical-Supplement-062917.pdf</a></p> <p><i>Additional information on resilience can be found in Appendix A.</i></p>	
<p><b>7.</b> Are there credible crop management systems in these regions?  If yes – Will you pursue the adoption of the relevant management system?  If no- Is there a plan to ensure crop production meets or exceeds the standard in place?</p> <p><u>WWF approved certifications</u></p> <ul style="list-style-type: none"> <li>○ <a href="#">Roundtable on Sustainable Biomaterials</a></li> <li>○ <a href="#">Bonsucro</a></li> <li>○ <a href="#">Forest Stewardship Council</a></li> <li>○ <a href="#">Roundtable on Sustainable Palm Oil</a></li> <li>○ <a href="#">Roundtable on Responsible Soy</a></li> <li>○ <a href="#">Alliance for Water Stewardship</a></li> <li>○ <a href="#">Rainforest Alliance/Sustainable Agriculture Certification</a> (WWF endorsed when a WWF endorsed alternative specific commodity standard does not exist)</li> </ul>	<p>Yes OR No  Yes OR No</p>
<p><b>8.</b> Can you verify that this region is not identified on the FAO Low Income Countries with a Food Deficit list?</p> <p><a href="#">Low-Income Food-Deficit Countries (LIFDCs) - List</a></p>	<p>Yes OR No  Yes OR No</p>

<p><u>If no</u> –Will you take specific efforts to ensure the crop would not create food supply disruption or affect other ecosystem services?</p>	
<p><b>9.</b> Can you confirm that the introduction or increased production of this crop has not been shown to increase food prices in the region?</p> <p><i>Resources:</i>  <i>Although there is no single source to answer this question it is helpful to explore media attention and research focused on the specific geographic area and specifically on issues raised by local agricultural production in this geography. Search for past instances of food price increases due to new or increased agricultural activity.</i></p>	<p>Yes OR No</p>
<p><b>10.</b> Does or will the cultivation of this feedstock contribute to the ability of ecosystems and communities to respond to, recover from, and adapt to climate shocks and stresses?</p> <p>A production system meets this qualification if it is produced in an agroforestry system or if it promotes nature-based solutions to help vulnerable people adapt to climate change and reduce disaster risk in the surrounding landscape (i.e. ecosystem-based adaptation and ecosystem-based disaster risk reduction). Nature-based solutions and the design of agroforestry systems must explicitly include the role of biodiversity and address the need to help nature adapt to climate change through climate-informed and flexible management. Refer to vulnerability assessments collected or conducted in screening question 6 to better understand the impacts of climate change on nature-based solutions and agroforestry systems.</p> <p><i>For more information and resources on nature-based solutions, see <b>Nature-based solutions resources</b> in Appendix A.</i></p> <p><i>For more information on specific qualities of resilience for an ecosystem, see <b>Factors of Resilience</b> in Appendix A.</i></p>	<p>Yes OR No</p>
<p><b>11.</b> Is it clear that no critical ecosystems, high conservation value (HCV) habitats, or intact forest landscapes exist in the regions of crop cultivation?</p> <p><u>If no</u> – Is or will this crop be produced in a way which does not put any priority places at risk (direct and indirect)?</p> <p><i>Resources:</i></p> <ul style="list-style-type: none"> <li>• <a href="#">World Database of Protected Areas</a>: This is the most comprehensive global database of marine and terrestrial protected areas, it is updated on a monthly basis</li> <li>• <a href="#">Alliance for Zero Extinction</a>: Geospatially defined last remaining habitat of threatened species</li> <li>• <i>Important Bird Areas</i>: <a href="#">Global map of IBAs from BirdLife</a>, <a href="#">Audubon map of IBAs in the US</a></li> <li>• <a href="#">UN Biosphere Reserves</a>: Areas of learning for sustainable development. Reserves aim to reconcile biodiversity conservation and the sustainable use of natural resources.</li> <li>• <a href="#">IUCN Protected Area Categories</a>: Protected areas categorized into specific types (strict nature reserve, wilderness area, etc.), recognized by the UN and used as a global standard for defining protected areas</li> <li>• <a href="#">RAMSAR Sites</a>: wetland sites designated to be of international importance under the Ramsar Convention on Wetlands</li> <li>• <a href="#">Global Forest Watch</a>: Online tool to monitor global forest data in near-real-time, includes an intact forest landscapes layer</li> </ul>	<p>Yes OR No Yes OR No</p>

<p><b>12.</b> Will this crop be grown on degraded land or is this crop already grown on land under agricultural production?</p> <p>Can you confirm this crop is not a known driver of habitat conversion in the region specified?</p> <p><i>Resources:</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Accountability Framework resources</a></li> <li>• <i>WWF publications by country/priority commodities</i></li> <li>• <i>Explore other commodity-specific reports covering the region to better understand the specific land types this crop is being cultivated on</i></li> </ul>	<p>Yes OR No</p> <p>Yes OR No</p>
<p><b>SCORE</b></p>	<p>The ELS is designed to allow a user to identify high level risks at a very qualitative level. It is intended to help users understand the major issues across different feedstock and region options, to aid in decision-making, and to provide guidance on where additional due diligence and focus is needed for projects that move forward.</p> <p>A “Yes” for each of the twelve questions indicates a higher likelihood of the particular feedstock as a viable solution and should be then considered for review at the BFA Survey level. A single “No” in itself may not mean the combination of feedstock/region should not forward, however “Yes” answers provide higher confidence in the solution moving forward.</p>

For Survey Level Screening and Assessment Level Screening please see the full BFA Methodology for the Assessment of Bioplastic feedstocks publicly available [here](#).

## APPENDIX A

High-level resources to guide responses to Executive Level Screening questions on environmental risks, social risks and resilience

### Environmental resources:

- [IUCN Red List of Threatened Species](#), for the most comprehensive list of conservation statuses for plant and animal species
- [Integrated Biodiversity Assessment Tool](#), by UN Environment World Conservation Monitoring Centre, for geographic information about global biodiversity.
- [Global Forest Watch Interactive Map](#) provides geospatial forest information (tree cover gain/loss)
- The [State of the World's Land and Water Resources for Food and Agriculture](#) from FAO provides information on the status of land and water resources around the world as well as existing and predicted opportunities and challenges related to these resources
- Land cover maps from NASA and the European Space Agency can be used to explore deforestation trends
- [Global Assessment of Human-induced Soil Degradation \(GLASOD\)](#), for a world map of human-induced soil degradation
- [Trends.Earth](#) from Conservation International for monitoring land change including productivity, land cover, and soil organic carbon
- [World Database of Protected Areas](#): This is the most comprehensive global database of marine and terrestrial protected areas, it is updated on a monthly basis
- [Alliance for Zero Extinction](#): Geospatially defined last remaining habitat of threatened species
- Important Bird Areas: [Global map of IBAs from BirdLife](#), [Audubon map of IBAs in the US](#)
- [UN Biosphere Reserves](#): Areas of learning for sustainable development. Reserves aim to reconcile biodiversity conservation and the sustainable use of natural resources.
- [IUCN Protected Area Categories](#): Protected areas categorized into specific types (strict nature reserve, wilderness area, etc.), recognized by the UN and used as a global standard for defining protected areas
- [RAMSAR Sites](#): Wetland sites designated to be of international importance under the Ramsar Convention on Wetlands
- [Global Forest Watch](#): Online tool to monitor global forest data in near-real-time, includes an intact forest landscapes layer
- Country-level soil health maps
- Media attention to explore individual, local environmental challenges and reputational risks to sourcing

### Water Management Tools

- [WWF Water Risk Filter](#), an online tool to explore, assess, respond & value water risk
- [Alliance for Water Stewardship standard guidance](#): Fully online, interactive version of AWS Standard 2.0 and related guidance. AWS is a global framework to help water users understand their water use and the associated impacts. Use of the AWS framework can help identify water risks and opportunities at the catchment level. AWS offers a step-wise approach to mitigating water risk - designed to work in any industry or geography.
- [RAMSAR](#)/key biodiversity area sites: RAMSAR sites are wetland areas designated to be of international importance under the Ramsar Convention on Wetlands. Geographic information related to these as well as key biodiversity areas should be taken into account in analyzing the potential impacts of growing a biofeedstock in a specific geographic area.
- UN-Water has developed [seven reports](#) that track progress towards the various targets set out by [Sustainable Development Goal 6](#): Ensure access to water and sanitation for all. These reports highlight challenges and opportunities across 6 unique water indicators and identify best-practices moving forward. Reports are based on country-level data.
- WFN Water Scarcity Maps, <http://www.waterfootprint.org/?page=files/WaterStat-WaterScarcity>

Potential Risk	<b>Relevant resources from list above</b> <i>Media attention can be used for all risks to explore individual, local environmental challenges to a geography/feedstock combination and reputational risks to sourcing</i>
Threatens/impacts protected areas (either directly or indirectly (e.g. land use change)	<ul style="list-style-type: none"> <li>• <a href="#">World Database of Protected Areas</a></li> <li>• <a href="#">Alliance for Zero Extinction</a></li> <li>• <a href="#">Global map of IBAs from BirdLife</a></li> <li>• <a href="#">Audubon map of IBAs in the US</a></li> <li>• <a href="#">UN Biosphere Reserves</a></li> <li>• <a href="#">IUCN Protected Area Categories</a></li> <li>• <a href="#">RAMSAR Sites</a></li> <li>• <a href="#">Global Forest Watch</a></li> <li>• <a href="#">Trends.Earth</a></li> <li>• Land cover maps from NASA and the European Space Agency</li> <li>• <a href="#">Global Forest Watch Interactive Map</a></li> <li>• <a href="#">State of the World's Land and Water Resources for Food and Agriculture</a></li> </ul>
Impacts to threatened/endangered species in the area; impacts to endemic species	<ul style="list-style-type: none"> <li>• <a href="#">IUCN Red List of Threatened Species</a></li> <li>• <a href="#">Integrated Biodiversity Assessment Tool</a></li> <li>• <a href="#">Alliance for Zero Extinction</a></li> <li>• <a href="#">Global map of IBAs from BirdLife</a></li> <li>• <a href="#">Audubon map of IBAs in the US</a></li> </ul>
Requires direct land use change to grow feedstock (natural habitat conversion)	<ul style="list-style-type: none"> <li>• <a href="#">Trends.Earth</a></li> <li>• Land cover maps from NASA and the European Space Agency</li> <li>• <a href="#">Global Forest Watch Interactive Map</a></li> <li>• <a href="#">State of the World's Land and Water Resources for Food and Agriculture</a></li> </ul>
Soil erosion, compaction, and degradation	<ul style="list-style-type: none"> <li>• Country-level soil health maps</li> <li>• <a href="#">Global Assessment of Human-induced Soil Degradation (GLASOD)</a></li> </ul>
Pollutes the local water resources; utilizes water from already or projected water stressed area	<ul style="list-style-type: none"> <li>• All water management tools listed above</li> </ul>
Threatens/impacts intactness and connectedness of ecosystems; specifically threatens refugia	<ul style="list-style-type: none"> <li>• <a href="https://www.resalliance.org/files/ResilienceAssessmentV2_2.pdf">https://www.resalliance.org/files/ResilienceAssessmentV2_2.pdf</a></li> </ul>
Cultivated on land that would otherwise be more beneficial for nature-based solutions for adaptation	<ul style="list-style-type: none"> <li>• <a href="#">Nature-based Solutions Initiative</a>, University of Oxford</li> <li>• <a href="#">Nature-based Solutions</a>, International Union for Conservation of Nature</li> <li>• <a href="#">IUCN Global Standard for Nature-based Solutions</a>, International Union for Conservation of Nature</li> <li>• <a href="#">Nature-based Solutions for Climate Change</a>, World Wildlife Fund</li> </ul>

Both of the tools below can help map and quantify biological and physical changes and the economic impacts of such changes in ecosystem service provisioning to get a more detailed understanding of the impacts from land-use change and the resulting tradeoffs to society. They can also help identify potential deforestation hotspots. These tools are complex and may be better suited for detailed analysis use after the ELS has been completed and further investigation into a feedstock/region combination is needed.

- [InVEST tool](#): InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) is a suite of models used to map and value the goods and services from nature that sustain and fulfill human life. It helps explore how changes in ecosystems can lead to changes in the flows of many different benefits to people.
- [Earth Genome Project](#) helps users translate big environmental data into insight for decision making



**Social resources:**

- Global Map of Environmental and Social Risks in Agro-Commodity ([GMAP](#)): 6 of the 10 indicators specifically focus on social factors
- US Department of State [Country Reports on Human Rights Practices](#)
- Media attention, country profiles from department of state, NGO whitepapers on social issues (Amnesty International, Oxfam, etc.)
- [Global Forest Watch](#), map layers on Indigenous and Community Lands
- Roundtable for Product Social Metrics, [2020 Handbook for Product Social Impact Assessment](#): guides assessment of the positive and negative social impacts of products and services on four stakeholder groups: workers, local communities, small-scale entrepreneurs and users

In general, social indicator responses can be similar across a country. For example, issues such as freedom of association and collective bargaining, wages, and use of seasonal, casual and migrant labor may all rely on information about the agriculture sector more generally in the region if crop specific data is not found.

**Resilience resources:**

- Local community vulnerability assessments (i.e. [Climate Vulnerability and Capacity Analysis Handbook \(CVCA\)](#) by the Care Climate Change and Resilience Information Center or the [Participatory Capacity and Vulnerability Analysis \(PCVA\)](#) by Oxfam)
- Local adaptation planning documents
- National Adaptation Plans (NAP)
- National vulnerability assessments
- National hydrology and meteorology service
- Internet-based interactive IPCC scenario mapping tools
- Internal Geospatial Information Services (GIS) staff (or consultants, depending on org. capacity)
- National government forestry, soil and watershed, or agriculture services
- District or state level govt. office annual reports
- National planning agency annual reports
- Peer-reviewed studies and grey literature on economic trends
- Local-level CVCA's or other community-based assessments
- [The World Bank online data portal](#)

<b>Factors of Resilience</b>	
<b>Connectivity or Fragmentation</b>	The degree to which the landscape facilitates or impedes movement of resources or species.  <i>Example: a river with multiple dams has low connectivity because water and species migration pathways are obstructed.</i>
<b>Natural Variability</b>	The degree to which a given system is accustomed to, or adapted to, variability in the frequency of occurrence of natural hazards (e.g. floods, droughts, and fires) and resource availability.  <i>Example: a forest with naturally occurring fires will be more resilient to an increase in fires than a forest that never experiences them because it is composed of species that have evolved to be successful under fire regimes.</i>
<b>Refugia</b>	The existence and quality of places within a system that are less exposed to climate and environmental variability and thereby help in maintaining ecosystem services during broader regional environmental change. The greater the number and quality of these refugia, the less sensitive the ecosystem may be.  <i>Example: Deep depressions in a stream or river bed which provide refuge for some fish during the dry season also have the potential to protect species from rising temperatures and increasing drought-related reductions in stream flow.</i>
<b>Functional Redundancy</b>	The degree of duplication and/or overlap of key functions or services in a system where greater overlap translates to greater resilience.

	<p><i>Example: In the 1980s in the Caribbean, overfishing reduced abundances of herbivorous fish, followed by mass mortality of herbivorous sea urchins is commonly thought to have resulted in coral dominated reefs to being dominated by algae. If only one herbivorous species had been lost the function of algae control would have been left intact. Instead the redundancy in the system was lost.</i></p>
<b>Biodiversity</b>	<p>Biodiversity is defined as the variety and composition of living organisms. <i>Greater variability in species composition helps ensure that the impact of a particular hazard is not felt uniformly throughout an entire ecosystem, and thus reduces overall sensitivity, as key functions are maintained.</i></p> <p><i>Example (Ecosystem): A forest primarily made up of one tree species will inherently be more sensitive to disease than one that is made up of multiple species (some of which may be resistant to the blight).</i></p>
<b>Natural Productivity</b>	<p>The rate of generation of an ecosystem's biomass. Slower generation rates contribute to higher sensitivity, as a portion of a system would not be able to regenerate quickly after a shock, thus causing more long-term disruption, and lower resilience, in the ecosystem as a whole.</p> <p><i>Example: Coral take years to grow to maturity. If a large portion of coral is lost, then that reef system could suffer for a prolonged period of time. If enough damage is done to the reef and it bleaches in entirety, that could result in years of impact on the coastal systems and fisheries which rely on it.</i></p>

## APPENDIX B

### Regulation and Policy Definitions

*Note: This appendix is from the original BFA Methodology and, though every resource may not be relevant for an Executive Level Screening, it is retained in this document for ease of access to a number of helpful resources and definitions.*

#### **BIODIVERSITY**

IUCN Red List of Threatened Species List: [www.redlist.org](http://www.redlist.org)

#### **CHEMICAL USE**

##### **World Bank OP 4.09 - Pest Management**

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20064720~menuPK:64701637~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html>

In assisting borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment.

**WHO Recommended Classification of Pesticides by Hazard:** [http://www.who.int/ipcs/publications/pesticides\\_hazard/en/](http://www.who.int/ipcs/publications/pesticides_hazard/en/)

1A Defined as "Extremely Hazardous"

1B Defined as "Highly Hazardous"

##### **EPA Emergency Planning and Community Right-to-Know Act (EPCRA) Hazardous Chemical Storage Reporting Requirements**

[http://www.epa.gov/oem/content/epcra/epcra\\_storage.htm](http://www.epa.gov/oem/content/epcra/epcra_storage.htm)

For any hazardous chemical used or stored in the workplace, facilities must maintain a material safety data sheet (MSDS), and submit the MSDSs (or a list of the chemicals) to their State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC) and local fire department. Facilities must also report an annual inventory of these chemicals by March 1 of each year to their SERC, LEPC and local fire department. The information must be made available to the public.

#### **FOOD SECURITY**

##### **Food and Agriculture Organization of United Nations**

FAO Low Income Countries with a Food Deficit List: <http://www.fao.org/countryprofiles/lifdc/en/>

FAO Database: <http://faostat.fao.org/site/291/default.aspx>

IPC Acute Food Insecurity Reference Table for Household Groups Link: <http://www.fews.net/ml/en/info/pages/scale.aspx>

#### **CRADLE TO GATE GHG**

##### **ISO 14044:2006 Environment Management – Life Cycle Assessment – Requirements and Guidelines**

[http://www.iso.org/iso/catalogue\\_detail?csnumber=38498](http://www.iso.org/iso/catalogue_detail?csnumber=38498)

ISO 14044:2006 specifies requirements and provides guidelines for life cycle assessment (LCA) including: definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment (LCIA) phase, the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, relationship between the LCA phases, and conditions for use of value choices and optional elements.

##### **ISO/DIS 14067.2 Carbon Footprint of Products- Requirements and Guidelines for Quantification and Communication**

[http://www.iso.org/iso/catalogue\\_detail?csnumber=59521](http://www.iso.org/iso/catalogue_detail?csnumber=59521)

#### **LABOR RIGHTS**

##### **Child Labor: ILO Conventions 138 and 182, Recommendation 146**

ILO Convention 182 Worst Forms of Child Labour Convention, 1999

[http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100\\_INSTRUMENT\\_ID:312327](http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100_INSTRUMENT_ID:312327)

Basis of #182 –

A child is anyone under the age of 18

For the purposes of this Convention, the term **the worst forms of child labor** comprises:

- all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict;
- the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;
- the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;
- work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children.

ILO Convention 138 Minimum Age Convention, 1973

[http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100\\_INSTRUMENT\\_ID:312283](http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100_INSTRUMENT_ID:312283)

Basis of #138 – Convention concerning Minimum Age for Admission to Employment

ILO Recommendation 146 Minimum Age Recommendation, 1973

[http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100\\_INSTRUMENT\\_ID:312484](http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100_INSTRUMENT_ID:312484)

Basis of R#146

To ensure the success of the national policy provided for in Article 1 of the Minimum Age Convention, 1973, high priority should be given to planning for and meeting the needs of children and youth in national development policies and programmes and to the progressive extension of the inter-related measures necessary to provide the best possible conditions of physical and mental growth for children and young persons.

### **United Nations Convention on Rights of the Child**

<http://www.un.org/cyberschoolbus/humanrights/resources/child.asp> (looking for better site still)

THIS DECLARATION OF THE RIGHTS OF THE CHILD to the end that he may have a happy childhood and enjoy for his own good and for the good of society the rights and freedoms herein set forth, and calls upon parents, upon men and women as individuals, and upon voluntary organizations, local authorities and national Governments to recognize these rights and strive for their observance by legislative and other measures progressively taken in accordance with the following principles...

### **Slave and Bonded Labor: ILO Conventions 29 and 105**

ILO Convention 105 Abolition of Forced Labor Convention, 1957

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312250:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312250:NO)

Basis of #105 – Convention concerning the Abolition of Forced Labor

ILO Convention 29 Forced Labor Convention, 1930 – this makes more sense than 20

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312174:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312174:NO)

For the purposes of this Convention the term **forced or compulsory Labor** shall mean all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily.

### **Freedom of Association: ILO Conventions 87, 11 and 98**

ILO Convention 98 Right to Organise and Collective Bargaining Convention, 1949

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312243:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312243:NO)

Basis of #98 –

- Workers shall enjoy adequate protection against acts of anti-union discrimination in respect of their employment.
- Such protection shall apply more particularly in respect of acts calculated to:
  - make the employment of a worker subject to the condition that he shall not join a union or shall relinquish trade union membership;
  - cause the dismissal of or otherwise prejudice a worker by reason of union membership or because of participation in union activities outside working hours or, with the consent of the employer, within working hours.

ILO Convention 87 Freedom of Association and Protection of the Right to Organize Convention, 1948

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312232:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312232:NO)

And/or

ILO Convention 11 Right of Association (Agriculture) Convention, 1921

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312156:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312156:NO)

One or both of these make more sense than #89.

### **Equal Pay and Discrimination: ILO Conventions 100 and 111**

ILO Convention 100 Equal Remuneration Convention, 1951

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312245:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312245:NO)

Basis of #100 –

For the purpose of this Convention

- the term remuneration includes the ordinary, basic or minimum wage or salary and any additional emoluments whatsoever payable directly or indirectly, whether in cash or in kind, by the employer to the worker and arising out of the worker's employment;
- the term equal remuneration for men and women workers for work of equal value refers to rates of remuneration established without discrimination based on sex.

[ILO Convention 111 Discrimination \(Employment and Occupation\) Convention, 1958](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312256:NO)

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312256:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312256:NO)

Basis of #111 –

For the purpose of this Convention the term **discrimination** includes:

- (a) any distinction, exclusion or preference made on the basis of race, color, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation;
- (b) such other distinction, exclusion or preference which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation as may be determined by the Member concerned after consultation with representative employers' and workers' organizations, where such exist, and with other appropriate bodies.
  - Any distinction, exclusion or preference in respect of a particular job based on the inherent requirements thereof shall not be deemed to be discrimination.
  - For the purpose of this Convention the terms employment and occupation include access to vocational training, access to employment and to particular occupations, and terms and conditions of employment.

### **Universal Declaration on Human Rights**

<http://www.un.org/en/documents/udhr/index.shtml>

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

### **ILO (International Labor Organization) Site:**

[http://www.ilo.org/dyn/normlex/en/f?p=1000:12000:2948000572381400:::P12000\\_INSTRUMENT\\_SORT:4](http://www.ilo.org/dyn/normlex/en/f?p=1000:12000:2948000572381400:::P12000_INSTRUMENT_SORT:4)

### **Social Accountability International SA 8000 Standard**

<http://www.sa-intl.org/index.cfm?fuseaction=Page.ViewPage&PageID=937>

1. *Child Labor*: No use or support of child labor; policies and written procedures for remediation of children found to be working in situation; provide adequate financial and other support to enable such children to attend school; and employment of young workers conditional.
2. *Forced and Compulsory Labor*: No use or support for forced or compulsory labor; no required 'deposits' - financial or otherwise; no withholding salary, benefits, property or documents to force personnel to continue work; personnel right to leave premises after workday; personnel free to terminate their employment; and no use nor support for human trafficking.
3. *Health and Safety*: Provide a safe and healthy workplace; prevent potential occupational accidents; appoint senior manager to ensure OSH; instruction on OSH for all personnel; system to detect, avoid, respond to risks; record all accidents; provide personal protection equipment and medical attention in event of work-related injury; remove, reduce risks to new and expectant mothers; hygiene- toilet, potable water, sanitary food storage; decent dormitories- clean, safe, meet basic needs; and worker right to remove from imminent danger.
4. *Freedom of Association and Right to Collective Bargaining*: Respect the right to form and join trade unions and bargain collectively. All personnel are free to: organize trade unions of their choice; and bargain collectively with their employer. A company shall: respect right to organize unions & bargain collectively; not interfere in workers' organizations or collective bargaining; inform personnel of these rights & freedom from retaliation; where law restricts rights, allow workers freely elect representatives; ensure no discrimination against personnel engaged in worker organizations; and ensure representatives access to workers at the workplace.
5. *Discrimination*: No discrimination based on race, national or social origin, caste, birth, religion, disability, gender, sexual orientation, union membership, political opinions and age. No discrimination in hiring, remuneration, access to training, promotion, termination, and retirement. No interference with exercise of personnel tenets or practices; prohibition of threatening, abusive, exploitative, coercive behavior at workplace or company facilities; no pregnancy or virginity tests under any circumstances.
6. *Disciplinary Practices*: Treat all personnel with dignity and respect; zero tolerance of corporal punishment, mental or physical abuse of personnel; no harsh or inhumane treatment.

7. *Working Hours:* Compliance with laws & industry standards; normal workweek, not including overtime, shall not exceed 48 hours; 1 day off following every 6 consecutive work days, with some exceptions; overtime is voluntary, not regular, not more than 12 hours per week; required overtime only if negotiated in CBA.
8. *Remuneration:* Respect right of personnel to living wage; all workers paid at least legal minimum wage; wages sufficient to meet basic needs & provide discretionary income; deductions not for disciplinary purposes, with some exceptions; wages and benefits clearly communicated to workers; paid in convenient manner – cash or check form; overtime paid at premium rate; prohibited use of labor-only contracting, short-term contracts, false apprenticeship schemes to avoid legal obligations to personnel.
9. *Management Systems:* Facilities seeking to gain and maintain certification must go beyond simple compliance to integrate the standard into their management systems and practices.

## **LEGAL PRODUCTION**

### **World Bank resettlement and economic displacement policies**

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTINVRES/0,,contentMDK:20486618~menuPK:1242235~pagePK:148956~piPK:216618~theSitePK:410235,00.html>

Involuntary displacement occurs when the decision of moving is made and imposed by an external agent and when there is no possibility to stay. Involuntary displacement can be caused by environmental degradation, natural disasters, conflicts or development projects. It is associated with loss of housing, shelter, income, land, livelihoods, assets, access to resources and services, among others. Displacement affects not only those physically displaced but also the resident population (people who are not directly affected and thus do not move but feel the impact of losing their neighbors and resources) as well as the host population (those who receive displaced persons and could be positively or adversely affected by this situation).

Resettlement is a process to assist the displaced persons to replace their housing, assets, livelihoods, land, access to resources and services and to restore their socioeconomic and cultural conditions. In addition to development-induced displacement, the Bank also works on the other causes of displacement, such as natural disasters, climate change and conflict.

### **Resettlement and Displacement Considerations NOT Covered in Regulations<sup>1</sup>:**

[World Bank Resettlement and Economic Displacement Policies including World Bank Involuntary Resettlement 4.12 are useful; HOWEVER some potential impacts are not included and must be called out individually:](#)

- It does not explicitly cover displacement that occurs in the project area prior to, or in anticipation of, company involvement in a project
- It does not explicitly cover temporary displacement or lost access to assets or resources
- It does not cover the involuntary restriction of access to resources that people depend upon other than those in legally designated parks and protected areas
- It does not cover displacement that occurs because of a project's adverse impacts on the environment or natural resources that people depend upon
- It does not cover indirect social and economic impacts, or indeed impacts on all human rights, despite the fact that addressing these can be critical to mitigating the risk of impoverishment, and failing to address them will place the burden of these impacts on those displaced
- It does not cover resettlement that is voluntary in nature but nonetheless, requires measures to safeguard against impoverishment and other adverse impacts and to maximize development benefits

### **Minority Rights: International Standards and Guidance for Implementation**

[http://www.ohchr.org/Documents/Publications/MinorityRights\\_en.pdf](http://www.ohchr.org/Documents/Publications/MinorityRights_en.pdf)

This United Nations' policy pays attention to issues such as the recognition of minorities' existence, their rights to non-discrimination and equality, the promotion of multicultural and intercultural education, the promotion of their participation in all aspects of public life, etc.

### **Involuntary Resettlement 4.12**

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20064610~menuPK:64701637~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html>

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<sup>1</sup> Interview: Davidson, Sarah. Interview conducted by Zdilla, Katherine. World Wildlife Fund. April 15<sup>th</sup>, 2014.  
Methodology for the Assessment of Bioplastic Feedstocks – 2020 Abridged Methodology

To address involuntary resettlement caused by Bank-financed development projects. The main objective of the policy is to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. (see website above)

#### **Operational Policy on Indigenous People 4.10**

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20553653~menuPK:4564185~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html>

This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. For all projects that are proposed for Bank financing and affect Indigenous Peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation.

#### **LOCAL & INDIGENOUS COMMUNITIES**

##### **ILO Convention 169 Indigenous and Tribal Peoples Convention, 1989**

[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_INSTRUMENT\\_ID:312314:NO](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312314:NO)

Convention concerning Indigenous and Tribal Peoples in Independent Countries

##### **Guidelines on Free, Prior and informed Consent (FPIC)**

[http://www.unredd.net/index.php?option=com\\_docman&task=cat\\_view&gid=1333&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=cat_view&gid=1333&Itemid=53)

Indigenous people's right to free, prior and informed consent (FPIC) has been recognized by United Nations. This guidelines and corresponding UN-REDD program is obliged to promote respect for the local and indigenous communities. Based on this guidelines, indigenous peoples should be guaranteed the collective right to give or withhold their free, prior and informed consent to relevant activities that take place in or otherwise impact their lands, territories and resources.

##### **The 2050 Criteria**

[awsassets.panda.org/downloads/the\\_2050\\_criteria\\_report.pdf](awsassets.panda.org/downloads/the_2050_criteria_report.pdf)

World Wildlife Fund (WWF) developed this criteria to address the widespread insufficiency of food, fiber, and bioenergy to meet the needs of human society. A rapidly growing global population, accelerating consumption, dietary shifts, climate change and other factors are driving unprecedented price volatility, resource shortages, and other risks in soft commodity supply chains. The 2050 Criteria seeks to untangle this complexity. Providing distilled guidance based on leading industry practice, The 2050 Criteria is designed to serve as a field guide for investors to access mainstream agricultural, forest, and seafood commodities in a responsible manner.

#### **OCCUPATIONAL HEALTH & SAFETY**

##### **ILO Convention 184 - Safety and Health in Agriculture Convention**

<http://www.ilo.org/public/english/standards/relm/ilc/ilc89/pdf/c184.pdf>

This series of manuals has been developed by International Labor Organization to help union affiliated representing agricultural workers to tackle health, safety, and environmental problems (HS&E).