RSB Principles & Criteria

RSB-STD-01-001

RSB®
Roundtable on Sustainable Biomaterials
www.rsb.org

Version 4.0 Published 18 December 2023

RSB Principles & Criteria

RSB-STD-01-001

RSB®
Roundtable on Sustainable Biomaterials
www.rsb.org

Version 4.0

Publication date: 18 December 2023

Type of document: RSB Standard

Status: Approved

RSB – Roundtable on Sustainable Biomaterials Association
International Environment House 2
Chemin de Balexert 7-9, 1219 Châtelaine, Switzerland
+41 22 534 90 50
info@rsb.org
www.rsb.org

CONTENTS

INTRODUCTION

The Roundtable on Sustainable Biomaterials (RSB) is a global membership organisation that drives the just and sustainable transition to a **bio-based** and circular economy. Our sustainability framework, underpinned by 12 key principles and their underlying criteria, is the world's most trusted and peer-reviewed foundation for supporting innovative solutions to the climate crisis. Application of our sustainability framework demonstrates a commitment to realising the United Nations (UN) Sustainable Development Goals.

RSB's 12 Principles & Criteria describe the best social (Principles 4, 5 and 6), legal (Principles 1 and 12), environmental (Principles 3, 7, 8, 9 and 10) and management (Principles 2 and 11) practices for sustainable production in a bio-based and circular economy. The RSB Principles are general tenets of sustainable production and processing, while the RSB Criteria describe the conditions to be met to achieve these tenets, either immediately (minimum requirements) or over time (i.e. three years – progress requirements). Compliance is verified by RSB-recognised certification bodies. Together with our online tools and related guidance documents, the Principles & Criteria help **Participating operators (POs)** to identify and manage sustainability issues in specific contexts, thereby reducing risks for POs, brand owners and investors.

The *RSB Principles & Criteria* are complemented by a set of standards, procedures and guidance documents, which constitute RSB's sustainability framework[1].

RSB's governance structure, based on consensus among our multi-stakeholder membership community, is designed to ensure a balanced decision-making process in the vital work of standard-setting. This ensures the most credible approach to addressing key social, environmental and management issues in a comprehensive way. As a result, RSB's sustainability framework has been recognised by NGOs, companies, regulators and others around the world as a uniquely robust and practical approach to advancing the just and sustainable transition to a bio-based and circular economy.

As an ISEAL Code Compliant Member, RSB follows the *ISEAL Standard-Setting Code*[2], which defines good practices for an equitable, open and transparent standard-setting process. It also follows *ISO/IEC Guide 59:2019 (Code of Good Practice for Standardisation)*[3] and the *WTO Agreement on Technical Barriers to Trade (TBT) (Article 4: Code of good practice for the preparation, adoption and application of standards)*[4].

Revision of the *RSB Principles & Criteria* happens every five years to ensure that our sustainability framework remains fit-for-purpose and guided by best practice.

This document is the latest version of the *RSB Principles & Criteria* (Version 4.0).

Terms and definitions

Bio-based: Derived from biomass.

Participating operator (PO): Legal entity or natural person that has entered into a formal agreement with the RSB Association ("Participating Operator Agreement") and that is responsible for the implementation of the requirements of all applicable RSB standards and procedures in all organisations listed in the scope of certification.

1 https://rsb.org/library/?parent-lib-cat=21#block_49616230d7f1fd63642f3e952ae2594a
2 https://www.isealalliance.org/sites/default/files/resource/2017-11/ISEAL_Standard_Setting_Code_v6_Dec_2014.pdf
3 https://www.iso.org/standard/71917.html
4 https://www.wto.org/English/docs_e/legal_e/17-tbt_e.htm

UNDERSTANDING **THIS DOCUMENT**

Scope of document

The *RSB Principles & Criteria* is an international standard and is valid worldwide.

It sets out the requirements for operations producing, converting and processing biomass, biofuels or biomaterials in the **RSB certification system**. It applies to all POs taking part in the RSB certification system as individual or groups of economic operators (e.g. a group of farmers).

The Criteria in this document are classified as 'minimum requirements' – unless stated otherwise (i.e. 'progress requirements', to be met over a period of three years).

The Criteria in this document apply globally – unless stated otherwise.

The *RSB Principles & Criteria* apply to two types of POs:

- **Biomass producers –** Farmers and plantation or forest managers
- **Industrial operators** – Feedstock processors, intermediary producers, biofuel or biomaterial producers

All requirements in this document apply to both of these POs – unless stated otherwise.

Traders[5] applying for certification, whose **scope of certification** does not include any operation involved in the production, processing or transformation of biomass or any of its derivatives are not required to comply with the *RSB Principles & Criteria*. Traders are therefore only required to comply with the *RSB Procedure for Participating Operators*, the *RSB Chain of Custody Procedure*, the *RSB Standard for Risk Management* and the *RSB Procedure for Communication & Claims*.

Version of document

Version 4.0 of this document came into effect on 16th November 2023.

Modalities for the phase-in of existing POs are detailed in the *RSB Phase-in Procedure (RSB-PRO-01-001)*.

This standard may be revised any time upon need, following the *RSB Procedure on Development and Modification of Standards (RSB-PRO-15-001)*, and no later than 5 years from its date of approval.

References

Please see the *RSB List of Documents and References (RSB-DOC-10-001)* for the full list of RSB standards and references.

Terms and definitions

For the purposes of this document, the terms and definitions given in *RSB Glossary of Terms (RSB-STD-01-002)* shall apply.

Verbal forms for the expression of provisions include:

- **"Shall"** – Indicates requirements strictly to be followed in order to conform to this document.
- **"Should"** – Indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.
- **"May"** – Indicates a course of action permissible within the limits of the document.
- **"Can"** – Used for statements of possibility and capability, whether material, physical or causal.

Terms and definitions

RSB certification system: Institutions, constituents, governance mechanisms, processes and relationships which interact systematically to ensure comprehensive and consistent implementation of RSB standards.

Primary biomass producer: Organisation that applies for certification for a specific activity that includes the production of crops or woody material.

Industrial operator: Organisation that applies for certification for a specific activity that includes feedstock processing and/or the production of intermediary products, fuels or advanced products.

Certification scope: Identification of

- the product(s) for which the certification is granted;
- the sites and facilities that the certification is covering;
- the applicable certification scheme; and
- the standards and other normative document(s), including their date of publication, to which it is judged that the product(s) comply.

5 Trading companies (including companies selling to end-consumers), biofuel blenders

Using the document

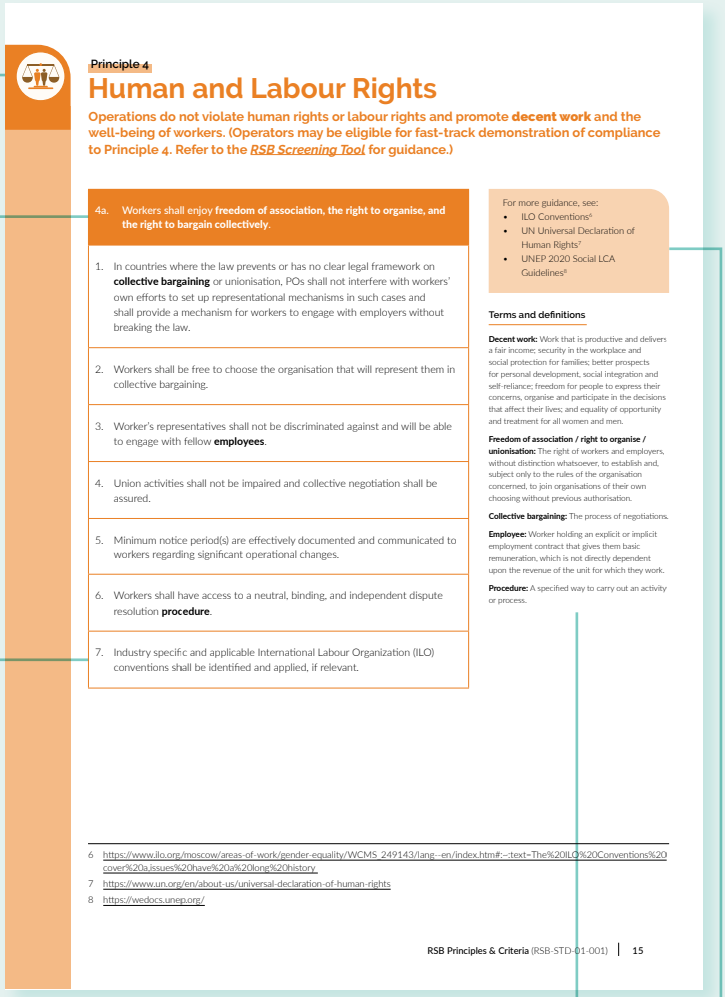
All parts of this document are considered to be normative. When applying the *RSB Principles & Criteria*, POs shall make sure that all of the requirements specified in this document, and any other measures necessary to achieve its aim, are met.

Principles are identified by an icon and associated colour as per the graphic on Page 7:

- Gold (Legal & rights-based) for **Principles 1, 12**
- Green (Management) for **Principles 2, 11**
- Orange (Social) for **Principles 4, 5, 6**
- Teal (Environmental) for **Principles 3, 7, 8, 9, 10**

Criteria are shown on a colour-coded background to match the associated Principle.

Requirements for each of the criteria are shown on white backgrounds below the criteria.



Principle 4

Human and Labour Rights

Operations do not violate human rights or labour rights and promote decent work and the well-being of workers. (Operators may be eligible for fast-track demonstration of compliance to Principle 4. Refer to the *RSB Screening Tool* for guidance.)

4a. Workers shall enjoy freedom of association, the right to organise, and the right to bargain collectively.

1. In countries where the law prevents or has no clear legal framework on **collective bargaining** or unionisation, POs shall not interfere with workers' own efforts to set up representational mechanisms in such cases and shall provide a mechanism for workers to engage with employers without breaking the law.
2. Workers shall be free to choose the organisation that will represent them in collective bargaining.
3. Worker's representatives shall not be discriminated against and will be able to engage with fellow **employees**.
4. Union activities shall not be impaired and collective negotiation shall be assured.
5. Minimum notice period(s) are effectively documented and communicated to workers regarding significant operational changes.
6. Workers shall have access to a neutral, binding, and independent dispute resolution **procedure**.
7. Industry specific and applicable International Labour Organization (ILO) conventions shall be identified and applied, if relevant.

For more guidance, see:
- ILO Conventions[6]
- UN Universal Declaration of Human Rights[7]
- UNEP 2020 Social LCA Guidelines[8]

Terms and definitions

Decent work: Work that is productive and delivers a fair income; security in the workplace and social protection for families; better prospects for personal development, social integration and self-reliance; freedom for people to express their concerns, organise and participate in the decisions that affect their lives; and equality of opportunity and treatment for all women and men.

Freedom of association / right to organise / unionisation: The right of workers and employers, without distinction whatsoever, to establish and, subject only to the rules of the organisation concerned, to join organisations of their own choosing without previous authorisation.

Collective bargaining: The process of negotiations.

Employee: Worker holding an explicit or implicit employment contract that gives them basic remuneration, which is not directly dependent upon the revenue of the unit for which they work.

Procedure: A specified way to carry out an activity or process.

6 https://www.ilo.org/moscow/areas-of-work/gender-equality/WCMS_249143/lang--en/index.htm#:~:text=The%20ILO%20Conventions%20cover%20a,issues%20have%20a%20long%20history.

7 https://www.un.org/en/about-us/universal-declaration-of-human-rights

8 https://wedocs.unep.org/

RSB Principles & Criteria (RSB-STD-01-001) | 15

Terms and definitions are included in the side column to explain terms as they are first mentioned in the document. For the full definition of a term, please visit *RSB Glossary of Terms (RSB-STD-01-002).*

Where necessary, **guidance boxes** are provided in the side column, to add context or extra information.

MAIN CHANGES FROM THE PREVIOUS VERSION OF THE *RSB PRINCIPLES & CRITERIA*

This version of the *RSB Principles & Criteria* (Version 4.0) contains several updates and changes. On a general level, the document has several minor edits, where spelling mistakes have been identified in the previous version, or to correct the numbering to the different criteria or minimum requirements (MRs). The document has also significant updates to criteria or MRs, adding content or increasing specificity or to provide more clarity. A summary of these changes includes:

Principle 1

- Clarifying comments have been introduced on the scope of legal compliance.

Principle 2

- Criterion 2b has been added to improve clarity on how specific MRs are related to monitoring and evaluation plans.
- The use and name of the *Impact Assessment Guidelines (RSB-GUI-01-002-02)* has been updated to the current version, and MR 2b.4 and 2b.7 have been modified / added to improve clarity on continuous improvement planning.
- A definition for Free, Prior and Informed Consent (FPIC) has been added.

Principle 3

- Criterion 3a has been deleted.
- Greenhouse gas (GHG) methodology has been updated, and reference given to other internationally recognised frameworks (i.e. CORSIA).

Principle 4

- New MRs have been added, including topics covering collective bargaining, labour rights, communication and inclusion of procedure to ensure labour rights compliance, harassment free working environments, maternity leave, improved housing conditions, clearer and more transparent conditions for wage payments, and monitoring of key health parameters in high-risk work situations.

Principle 5

- MR 5a.6 has been updated, with more explicit requirements regarding social benefits.

Principle 6

- MRs 6a.1 has been updated to include clarifying comments on how to include a climate change approach to food security.

Principle 7

- MR 7a.5, 7a.6 and 7a.7 have been updated to include (respectively) references to cultural or spiritual importance to indigenous communities, ancient and endangered forests of high-carbon stocks, and areas of significant conservation value not included in international reference frameworks.
- MR 7d.1 has been updated to include reference to *RSB Conservation Impact Assessment Guidelines (RSB-GUI-01-007-01)*.
- Criterion 7.e has been updated with an improved overall approach to invasive species.

Principle 8

- Criterion 8.a has been updated with an improved overall approach to soil management and monitoring: linking PO performance with soil management to the **Environment and Social Management Plan (ESMP)**; increasing reference specificity to negative soil impacts such as wind vs water erosion; increasing the scope of soil topics covered in the standard, such as soil structure, or **soil chemical conditions**, pollution and contamination; and providing mention of *RSB Soil Impact Assessment Guidelines* (*RSB-GUI-01-008-01)* and covered topics (i.e. conservation agriculture), soil carbon sequestration, organic matter and other topics as well.

Principle 9

- MR 9b.2 has been updated to include key indicators to monitor water quality.

Principle 10

- MR 10a.2 has been updated with improved wording for better interpretation and increased scope specificity.

Principle 11

- The wording of Criterion 11b has been improved to include a circular economy approach.
- MR 11d.1 has been updated to include a broader approach to biological agents.
- MR 11d.2 has been updated to improve alignment to World Health Organization (WHO) Guidelines respective to toxicology of agrochemicals in formulations.
- MR 11d.5 has been updated with topics to increase the scope of safe handling of agrochemicals.
- Criterion 11.f has been created to improve the approach to risk mitigation in cases where the introduction of new technologies applies.

Principle 12

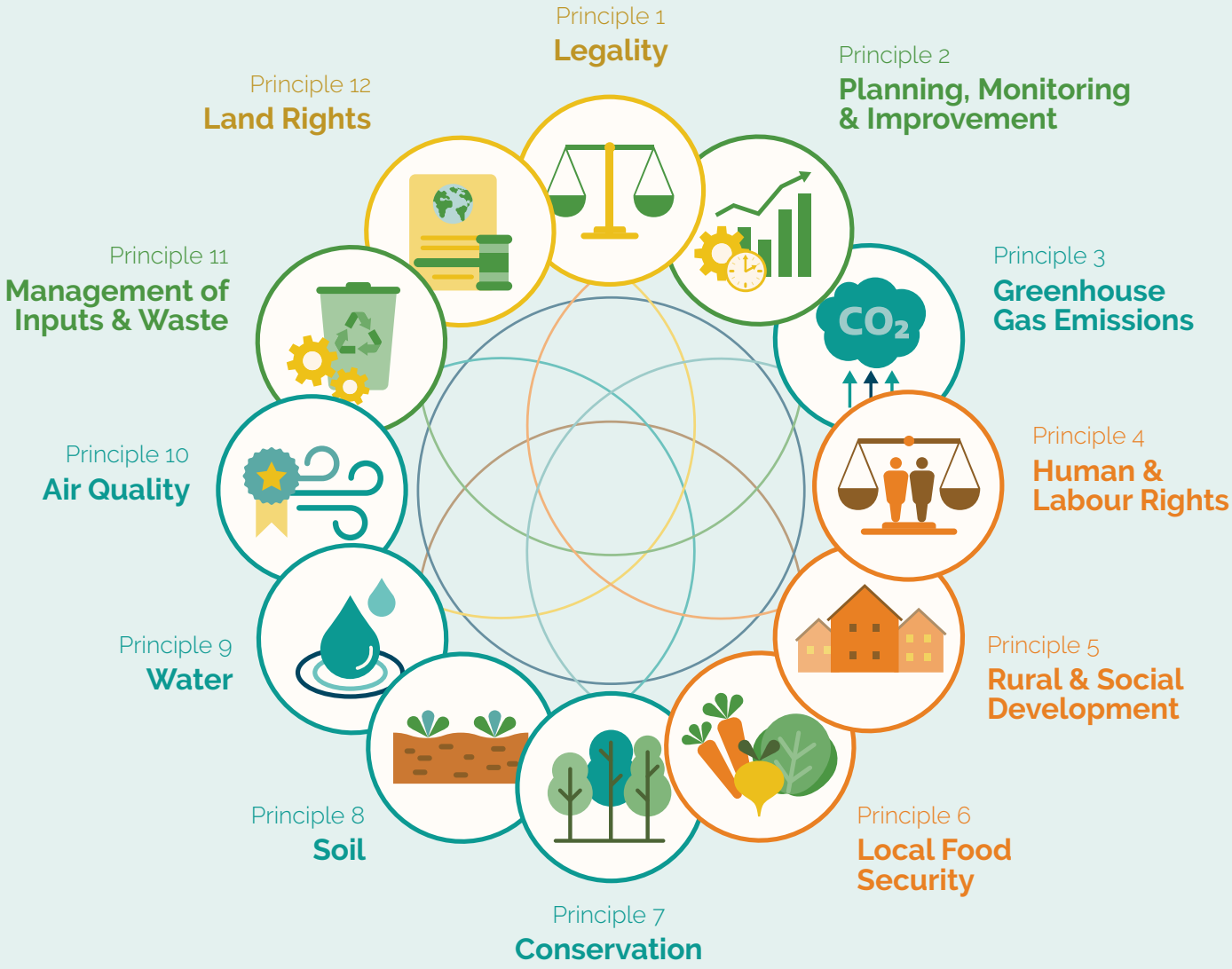
- No updates have been introduced to Principle 12.

Terms and definitions

Environmental and Social Management Plan (ESMP): A management plan for the proposed operation that indicates how the project will be managed to ensure compliance with the *RSB Principles & Criteria*.

Soil chemical conditions: The characteristics of the soil chemistry, including pH, nutrient content, salinity and cation exchange capacity.

THE 12 **RSB PRINCIPLES & CRITERIA**



RSB's 12 Principles & Criteria describe the best practices for sustainable production in a bio-based and circular economy, according to the following colour-coded categories:

Legal & rights-based best practices	Management best practices	Social best practices	Environmental best practices
Principles 1, 12	Principles 2, 11	Principles 4, 5, 6	Principles 3, 7, 8, 9, 10

It is important to note that principles are grouped into the most relevant category, but that many principles include elements that are relevant to two or more categories.

Principle 1

Legality

Operations follow all applicable laws and regulations

1a **Operations** shall comply with all applicable laws and regulations of the country in which the operation occurs and with relevant international laws and agreements, including social and environmental aspects (e.g. GHG emissions, labour laws, etc).

1. The PO shall implement and maintain a system for ensuring that all relevant laws and regulations are complied with, which includes:
   a) A legal register or equivalent system with all relevant applicable international, national and regional laws and regulations.
   b) A **training** system ensuring that personnel are aware of the laws and regulations and have access to the legal register.
   c) A register containing all evidence of legal compliance (e.g. permits, licenses, evidence of lease, concessions, etc.) and a system ensuring that auxiliary conditions are met.
   d) A system that ensures that all forms of bribery, conflicts of business interest and fraudulent practices are prohibited, including a written policy by the management and appropriate staff training.

   If there is a difference between applicable law and the RSB requirements, RSB expects POs to conform to whichever is more stringent.

Terms and definitions

Operation: A company or individual active in the production, processing or handling of biomaterial feedstock.

Training: Organised activity aimed at imparting information and/or instructions to improve the recipient's performance or to help him or her attain a required level of knowledge or skill.

Principle 2

Planning, Monitoring and Continuous Improvement

Sustainable operations are planned, implemented and continuously improved through an open, transparent and consultative impact assessment and management process, and an economic viability analysis.

2a. Operations shall undertake an **impact assessment** process to assess impacts and **risks**.
1. Where an **impact assessment** is required by national, regional, or local laws, the process may be integrated with the RSB impact assessment process to avoid duplication of efforts, but the higher and more comprehensive standard shall be applied.
2. A screening exercise shall be required for all new and existing operations and extensions to operations of all sizes to determine if **specialist social or environmental impact assessments** are required (e.g. food security assessment, conservation impact assessment, soil impact assessment, etc.). The screening exercise shall be done in accordance with the *RSB Screening Guidelines (RSB-GUI-01-002-02)*.
2b. Operators shall ensure sustainability of their operations through the development of effective and efficient implementation, mitigation, monitoring and continuous improvement and evaluation plans.
1. POs shall conduct the specialist environmental or social impact assessments, if required, in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*, as determined by the scale and intensity of the operations.
2. The specialist environmental or social impact assessments, if required as determined through the screening exercise, shall be carried out using qualified professionals.
3. Where operations will have significant social impacts, as measured during the screening exercise, a social impact assessment process shall be carried out using local experts to ensure that local customs, languages, practices and indigenous knowledge are respected and utilised.
4. The Environmental and Social Management Plan (ESMP), in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-02)*, shall be developed by all operations and shall ensure compliance with all *RSB Principles & Criteria*. All progress requirements shall be detailed and documented in a continuous improvement action plan, with targets and indicators.

Terms and definitions

Monitoring: The repeated measurement of impacts over time in order to facilitate project evaluation and inform management strategies.

Continuous improvement: A structured measurement-driven process that continually reviews and improves performance.

Risk: Effect of uncertainty on objectives.

Impact assessment: The activity of identifying and assessing the significance of the impacts of a proposed development.

Environmental and Social Impact Assessment (ESIA): The process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals, prior to major decisions being taken, which is informed by a comprehensive stakeholder engagement process.

5. Where specifically stated in a criterion, the impact assessment process shall extend beyond the scope of the immediate operational area, for instance for **food security**, water management and use, ecosystem impacts, **biodiversity** and conservation in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*.

6. Multiple POs applying for **certification**, as defined in the *Standard for Participating Operators (RSB-STD-30-001)*, shall conduct the RSB impact assessment and management processes jointly.

7. POs shall ensure the continuous improvement plan is implemented by providing evidence during the **surveillance audits**.

2c. Free, Prior and Informed Consent (FPIC) shall form the basis for the process to be followed during all stakeholder consultation, which shall be gender sensitive and result in consensus-driven negotiated agreements.

1. While FPIC provides the process conditions for stakeholder engagement and negotiated agreements, **consensus** shall be the decision-making tool applied in all cases and conducted in accordance with the RSB consensus-building toolkit in the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*. Disregarding FPIC-based consultation on the grounds of not being relevant, must be demonstrated.

2. The impact assessment facilitator shall invite all locally affected stakeholders, local leaders, representatives of **community** and indigenous people groups and all relevant stakeholders to participate in the consultative process.

3. The scope of engagement shall be determined by the scale of the operations as set out in the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*.

4. Relevant government authorities shall be included in the stakeholder process to ensure efficient streamlining of the process with legal requirements.

5. Those responsible for undertaking the impact assessment shall undertake and document a **stakeholder analysis** in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*.

6. **Participatory methodologies** described in the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)* shall be used to ensure meaningful stakeholder engagement. Special attention shall be made to ensure that women, youth, elders, indigenous and **vulnerable** people can participate meaningfully in meetings and negotiations. Where the need is identified by the impact assessment facilitator, there shall be informal workshops to build local understanding in the community of the processes that may impact them directly to aid meaningful engagement.

FPIC is a specific right that pertains to indigenous peoples and is recognised in the UN Declaration on the Rights of Indigenous Peoples. It allows them to give or withhold consent to a project that may affect them or their territories. Furthermore, FPIC enables them to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated. This is also embedded within the universal right to self-determination – a fundamental principle in international law.

Terms and definitions

Food security: Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Biodiversity: Variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part.

Certification: Process by which a body, that is known to be competent and credible, issues a certificate that a particular business or product will comply with a particular standard.

Audit: Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled.

Surveillance audit: Limited evaluation, where a PO is evaluated against a limited number of standards and procedures.

Stakeholder: Persons, groups or organisations who are directly or indirectly affected by or who can affect an activity, but also includes people and organisations who have concerns about the activity, or who might be responsible agents.

Consensus: An agreement between all stakeholders that arises out of a collaborative effort to find a solution that addresses the interests of all the stakeholders.

Community: Refers to a community in a particular place, where local people share common concern around local facilities, services and environment.

Stakeholder analysis: Analysis that involves using the recommended tools to sort and categorise the stakeholders.

Participatory methodologies: Techniques that can be used to facilitate the meaningful engagement of stakeholders and provide useful qualitative and quantitative information, which can inform the impact assessment and contribute to the baseline studies.

Vulnerable: People who are at risk of being discriminated against or who are or are at risk of being socially excluded, particularly in terms of participation in decision-making.

7. Documentation necessary to inform stakeholder positions shall be made freely available to stakeholders in a timely, open, transparent and accessible manner through distribution channels appropriate to the local conditions, in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*.

8. Management documents shall be publicly available, except where this is prevented by commercial confidentiality, of a proprietary nature, or where disclosure of information would result in negative environmental or social outcomes.

9. POs shall seek consensus, in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*, such that individuals or single-issue groups cannot block consensus. Deadlocks shall be broken in accordance with the *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)*.

2d. POs shall implement and maintain a transparent and easily accessible grievance mechanism for directly affected local communities.

1. The grievance mechanism shall be a documented system for dealing with complaints and grievances, and which has the following characteristics:
   - The mechanism is communicated and made easily accessible to directly affected local communities.
   - Any grievances shall be acknowledged and dealt with in a timely manner.
   - The **dispute-resolution** mechanism shall be based on negotiation between affected parties and decisions shall be made on consensus.
   - Records of all grievances are kept, including how they were dealt with and the outcome of the process.

2e. POs shall make adequate resources available to ensure compliance with RSB's sustainability framework.

1. POs shall allocate adequate personnel and budget to implement and continuously monitor compliance with RSB's sustainability framework.

For guidance on developing and implementing a grievance mechanism, POs should refer to the *RSB Grievance Procedure (RSB-PRO-65-001)*.

Terms and definitions

Dispute-resolution proceedings: Process for timely, comprehensive, consistent, transparent, effective and satisfactory resolution of disputes and any aspect thereof.

Principle 3

Greenhouse Gas Emissions

Alternative fuels and materials produced within the circular bioeconomy contribute to climate change mitigation by significantly reducing lifecycle GHG emissions as compared to fossil-based alternatives.

3a. Lifecycle GHG emissions of alternative fuels and materials shall be calculated by using system boundaries from well-to-wheel for fuels, and cradle-to-grave for materials, including GHG emissions from land-use change, including, but not limited to above and below-ground **carbon stock changes** and incentivising the use of co-products, **residues** and **waste** in such a way that the lifecycle GHG emissions of the alternative fuel or material are reduced.

1. POs shall report the lifecycle GHG emissions of the **feedstock**, intermediary or final product by using one of the following options:
   a) *RSB GHG Calculation Methodology (RSB-STD-01-003-01).*
   b) **EU Renewable Energy Directive (EU RED)** *Methodology*, by using the RSB GHG Calculation Tool or by conducting an individual calculation.
   c) POs applying for *RSB Global* or *RSB EU RED* certification may use disaggregated **default values** set by the *EU Renewable Energy Directive, Annex V (2009/28/EC), Section D*, if the specifications as defined by the Directive are met (e.g. feedstock, process, process energy, country of origin).
   d) POs applying for *RSB ICAO CORSIA* certification may use default values set by ICAO CORSIA published in the ICAO document entitled *CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*, which is available on the ICAO CORSIA website.
   e) For materials (non-energy products), methodologies specified in the *RSB Standard for Advanced Products (RSB-STD-02-001)* Section 2.1.4.
   f) Further methodologies following an approval by the RSB Board of Directors under the following conditions:
      - the decision is based on a sensitivity analysis carried out by an independent and competent organisation;
      - the RSB Secretariat has been consulted and comments have been considered.

   In the case that the Secretariat believes a sensitivity analysis is not necessary (e.g. if a calculator is similar to another calculator that is already approved), the Board of Directors may approve the calculator without conducting a sensitivity analysis.

Terms and definitions

Greenhouse gas (GHG): Natural or anthropogenic gaseous constituent of the atmosphere that absorbs and emits radiations at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. For the purpose of RSB certification, CO_2, N_2O and CH_4 are taken into account.

Mitigation measure: An action that can be undertaken to avoid or minimise a negative impact or maximise a beneficial impact. These measures should be specific to a particular impact or issue and be practical and cost effective.

Lifecycle GHG emissions: GHG emissions across each lifecycle step of the product.

Change in carbon stock: The change in carbon stocks between two-time periods for the baseline and the project activity per unit of land area (tC/ha).

Residue: A substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it.

Waste: Any substance, mixture of substances, material or object that the holder discards or intends or is required to discard.

Feedstock: Biomass product resulting from primary production.

EU RED: Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC ("Renewable Energy Directive").

Default value: A value derived from a typical value by the application of pre-determined factors and that may, under certain circumstances, be used in place of an actual (calculated) value.

2. POs shall use the current *RSB GHG Calculation Methodology (RSB-STD-01-003-01)* and comply with the RSB requirements in the *Standard for Woody **Biomass** (RSB-SA-01)* for supply chains using the following:
   a) Forestry harvesting residues: treetops; branches; barks; damaged, dying, or dead trees; early/non-commercial thinning.
   b) Forestry processing by-products and residues: sawmill residues (slabs and chunks of wood, sawdust, shavings, bark); tall oil, brown and black liquor.
   c) **End-of-life** forestry materials: woody material from park and garden maintenance; orchards; construction and demolition waste wood; **tree hedges**.
   d) **Alien invasive plants**: generated as a waste by an operation cleaning an invaded area.
   e) **Short rotation wood crops**: perennial cropping systems planted to produce biomass or fibres with a system overall lifetime (i.e. from planting to final harvest) of less than 20 years and harvest taking place every 1–5 years.
   f) Roundwood (only eligible for the use in non-energy markets): stemwood, branches, roots, stumps and burls.
   g) Short rotation coppices (e.g. poplar, willow).

For some specific RSB scopes of certification, other GHG calculation methodologies are allowed. For example, under RSB CORSIA, the PO shall follow the methodology set out in the *RSB-STD-12-001*.

Terms and definitions

Biomass: The biodegradable fraction of products, waste and residues of biological origin, including vegetal and animal substances from agriculture, forestry and related industries, including fisheries and aquaculture, as well as industrial and municipal waste of biological origin.

End-of-life product: Material with low economic value that has reached the end of its intended supply chain, as it has been consumed, used, spoiled etc., and that was not primarily produced or intended for the production of alternative fuels or products, and that the holder discards, or intends or is required to discard.

Tree hedges: A fence formed by trees, usually planted to protect the crops from the wind.

Alien invasive species: A species, subspecies or lower taxon, introduced outside its natural past or present distribution, that becomes established in natural or seminatural ecosystems or habitat, is an agent of change, and threatens native biological diversity, food security, human health, trade, transport and or economic development.

Short rotation woody crops (SRWC): SRWC refers to perennial cropping systems in which fast-growing tree or woody shrub species are planted to produce biomass or fibres with a system overall lifetime (i.e. from planting to final harvest) of less than 20 years, and harvest taking place every 1–5 years, while the plants are re-grown with single stems or as coppice systems.

3b. Alternative fuels and materials shall mitigate climate change by creating an emission reduction compared with the fossil alternative.

1. Lifecycle greenhouse gas emissions of alternative fuels, calculated following the methodology in Criterion 3a, shall create at minimum the following emission saving compared with the **fossil baseline**:
   a) 50%, for **biofuels**, **bioliquids** and **biogas** consumed in the transport sector, produced in installations that started operations on or before 5 October 2015.
   b) 60%, for biofuels, bioliquids and biogas consumed in the transport sector, produced in installations that operated from 6 October 2015 until 31 December 2020.
   c) 65%, for biofuels, bioliquids and biogas consumed in the transport sector, produced in installations that started operations from 1 January 2021.
   d) 70%, for **renewable liquid and gaseous transport fuels of non-biological origin** produced in installations from 1 January 2021.
   e) 70%, for electricity, heating and cooling production from **biomass fuels** used in installations from 1 January 2021 until 31 December 2025.
   f) 80%, for electricity, heating and cooling production from biomass fuels used in installations that started operations from 1 January 2026.

   For *RSB ICAO CORSIA* certification, in addition, POs shall demonstrate that sustainable aviation fuel achieves – on a lifecycle basis, including the default value for induced **land-use change** set by ICAO CORSIA – net GHG emissions reductions of at least 10% compared to the baseline lifecycle emissions values for aviation fuel.

2. Lifecycle greenhouse gas emissions of **advanced products** (non-energy use) shall create an emission reduction compared with the fossil alternative in-line with requirements of the *RSB Standard for Advanced Products (RSB-STD-02-001)*.

Deforestation and unsustainably managed **forests** are serious environmental risks. RSB addresses these risks by requiring POs to source forestry residues only from sustainably managed forests. POs are therefore required to provide evidence that forestry residues are compliant with the requirements set out in the *RSB Standard for Woody Biomass (RSB-SA-01)*.

Terms and definitions

Fossil baseline: Lifecycle GHG emissions of the fossil comparator (e.g. fossil fuel) determined for a given (baseline) date.

Biofuel: Fuel derived from biomass (adapted from ISO 13065).

Bioliquids: Liquid fuel for energy purposes other than transport, including electricity and heating and cooling, produced from biomass.

Biogas: Gaseous fuels produced from biomass.

Renewable liquid and gaseous transport fuels of non-biological origin: Liquid or gaseous fuels that are used in the transport sector other than biofuels or biogas, the energy content of which is derived from renewable sources other than biomass.

Biomass fuels: Gaseous and solid fuels produced from biomass.

Land-use change: Change from one land-use category to another land-use category.

Advanced products: Non-energy use products that:
- are sustainably produced, and;
- mitigate climate change, and;
- reduce the risk of fossil depletion.

Forest: Land spanning more than 0,5 ha not including land that is predominantly under agricultural or urban land use, with trees higher than 5 m and a canopy cover of more than 10% of trees able to reach these thresholds in situ.

Principle 4

Human and Labour Rights

Operations do not violate human rights or labour rights and promote decent work and the well-being of workers. (Operators may be eligible for fast-track demonstration of compliance to Principle 4. Refer to the *RSB Screening Tool* for guidance.)

4a.	Workers shall enjoy **freedom of association, the right to organise, and the right to bargain collectively**.
1.	In countries where the law prevents or has no clear legal framework on **collective bargaining** or unionisation, POs shall not interfere with workers' own efforts to set up representational mechanisms in such cases and shall provide a mechanism for workers to engage with employers without breaking the law.
2.	Workers shall be free to choose the organisation that will represent them in collective bargaining.
3.	Workers' representatives shall not be discriminated against and will be able to engage with fellow **employees**.
4.	Union activities shall not be impaired and collective negotiation shall be assured.
5.	Minimum notice period(s) are effectively documented and communicated to workers regarding significant operational changes.
6.	Workers shall have access to a neutral, binding, and independent dispute resolution **procedure**.
7.	Industry specific and applicable International Labour Organization (ILO) conventions shall be identified and applied, if relevant.

For more guidance, see:

- ILO Conventions[6]
- UN Universal Declaration of Human Rights[7]
- UNEP 2020 Social LCA Guidelines[8]

Terms and definitions

Decent work: Work that is productive and delivers a fair income; security in the workplace and social protection for families; better prospects for personal development, social integration and self-reliance; freedom for people to express their concerns, organise and participate in the decisions that affect their lives; and equality of opportunity and treatment for all women and men.

Freedom of association / right to organise / unionisation: The right of workers and employers, without distinction whatsoever, to establish and, subject only to the rules of the organisation concerned, to join organisations of their own choosing without previous authorisation.

Collective bargaining: The process of negotiations.

Employee: Worker holding an explicit or implicit employment contract that gives them basic remuneration, which is not directly dependent upon the revenue of the unit for which they work.

Procedure: A specified way to carry out an activity or process.

6 https://www.ilo.org/moscow/areas-of-work/gender-equality/WCMS_249143/lang--en/index.htm#:~:text=The%20ILO%20Conventions%20cover%20a,issues%20have%20a%20long%20history

7 https://www.un.org/en/about-us/universal-declaration-of-human-rights

8 https://wedocs.unep.org/

4b. No **slave labour** or **forced labour** shall occur. POs shall not be engaged in or support the use of forced, compulsory, bonded, trafficked or otherwise involuntary labour as defined in *ILO Convention 29*.
1. Workers shall not be required to lodge their identity documents with the employer or a third party.
2. Retaining parts of the workers' salary is not allowed.
3. Spouses and children of workers shall not be obliged to work in the operations.
4. Workers shall be allowed to leave their employment after due notice according to their contractual agreements.
5. Workers shall be allowed to leave company premises freely at the end of their work shifts.
6. Workers shall know their labour rights and have the **working conditions** explained, including: a) working hours and schedule b) type of job and description of activities and responsibilities c) labour rights and existing internal mechanisms (policies, procedures, registries, etc.) to assure these d) grievance, whistle blower and complaints mechanism (explained, confidential and accessible), and e) national / local legislation documentation and registration processes, labour union agreements.
4c. No **child labour** shall occur, except on **family farms** and then only when work does not interfere with the child's schooling and does not put his or her health at risk.
1. Schooling age limit is that defined in the national legislation or 14 years old, whichever is higher.
2. Hazardous child labour as defined by *ILO Convention 138* is not allowed.
3. Work by children on family smallholdings is only acceptable under adult supervision and when work does not interfere with the child's schooling nor puts at risk his or her health.
4d. Workers shall be free of **discrimination** of any kind, whether in employment or opportunity, with respect to gender, age, wages, **working conditions** and social benefits.
1. Employees, contracted labour, small outgrowers, and employees of outgrowers shall all be free of discrimination as per *ILO Convention 111*.
2. Career development shall be encouraged for all workers.

Terms and definitions

Forced labour (incl. "slave labour"): All work or service that a person has not offered to do voluntarily and is made to do under the threat of punishment or retaliation, or is demanded as a means of repayment of debt.

Working conditions: The physical, social and managerial factors affecting a worker's job environment.

Child labour: Work that deprives children of their childhood, their potential and their dignity, and that is harmful to their physical and mental development.

Family farm: Farm with no hired manager where the family provides most of labour.

Discrimination: Any distinction, exclusion or preference made on the basis of race, colour, 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.

3. Mechanisms (e.g. policies, procedures, registries, etc.) shall be put in place to ensure equitable and safe working environments are in place, free from sexual harassment and other types of discrimination and abuse. Access to jobs, skill trainings, recruitment and career development is assured for women and all independently of race, gender, sexual orientation, age, ethnicity and other vulnerable or marginalised groups. Right to maternity leave is ensured as defined by *ILO 183* (i.e., conditions include, minimum 14 weeks, prohibition to terminate work during leave, return to the same working position and pay ensured, etc.).

4. POs have clear policies and procedures against discrimination and how to manage potential issues. Management includes training, sensitisation, dissemination, and other awareness raising practices. In the case of smallholders, approaches on these aspects could include making trainings at group level or by appointing a community member as focal point / lead on the issue.

4e. Workers' wages and working conditions shall respect all applicable laws and international conventions, as well as all relevant collective agreements. Where a government-regulated minimum wage is in place in a given country and applies to the specific industry sector, this shall be observed. Where a minimum wage is absent, the wage paid for a particular activity shall be negotiated and agreed with the worker´s union and based on an economic salary analysis of the context of operation. Men and women shall receive equal remuneration for work of equal value.

1. Wages shall be provided in cash or in another form acceptable to local market customs, and payments shall be ensured through a transparent and collectively agreed process.

2. Any housing provided by the PO for permanent or **temporary workers** for long- or short-term living, shall be provided, built and maintained to ensure good sanitary, health, and safety conditions, including: sanitary facilities (e.g. separate facilities for women and men, incl. toilets, showers, lockers, etc.), adequate drinking water quality, shelter, heating, bedding, cooking facilities, etc. Facilities for storage, preparation and distribution of food provided to workers are designed, built, and regularly maintained to meet the basic needs of the personnel (and their families, if the conditions of employment require family resettlement), comply with legal requirements, and ensure safe and healthy conditions. Guidance can be followed using *RSB Social Impact Assessment Guidelines (RSB-GUI-01-005-01)*.

3. For piecework (pay based on production rather than hours), the pay rate must allow workers to earn at least the legal minimum wage or comparable regional wage, whichever is higher, based on an eight-hour workday under average conditions. If no legal minimum wage is available, an analysis is required as per Minimum Requirement 4e.5.

Terms and definitions

Wage: Payment made for work performed.

Temporary worker / employment: Labour contract of limited or unspecified duration with no guarantee of continuation.

4. The maximum number of regular hours worked per week must not exceed 48. Workers may work overtime under the conditions it is voluntary, but total working hours shall not exceed 80 per week. Additional recommendations for transparent and socially accepted overtime contracting conditions include:
   a) overtime work is for short periods of time (e.g. harvest)
   b) should be compensated adequately (including remuneration and rest periods)
   c) should be agreed on the basis of a collective bargaining process (e.g. between **suppliers** and contracting party or between employees and employer), and
   d) should be ratified by a third party (e.g. governmental institution or an organisation agreed on by both parties). *RSB Social Impact Assessment Guidelines (RSB-GUI-01-005-01)* can be checked for further guidance.

5. POs shall assure workers a decent wage payment by including an assessment within the ESMP when a minimum wage is not available as a reference. *RSB Social Impact Assessment Guidelines (RSB-GUI-01-005-01)* can be used as reference for determining the level of decent wage).

4f. Conditions of occupational safety and health for workers shall follow internationally recognised standards.

1. Workers shall not be exposed to any occupational health or safety **hazards** without good protection and training as defined in national law and international standards[9, 10, 11].

2. The PO shall have a health and safety policy in place, which applies to all workers, including **contractors**. For agricultural operations, this policy shall follow *ILO Convention 184 (Safety and Health in Agriculture)*.

3. The PO shall ensure that workers are skilled in the implementation of their prescribed activities and jobs to minimise health and safety risks and the risk of work-related accidents.

4. The PO shall ensure that workers are:
   - trained and knowledgeable about work-related health and safety risks and preventative measures for minimising the risk to health and safety
   - trained and knowledgeable about work-related risks to the environment and/or society
   - trained and knowledgeable about correct application, transport, storage and handling of hazardous substances and waste, and
   - trained and knowledgeable about all other aspects of the operation(s) of the PO that pose occupational health and safety risks or risks to the environment and/or to society.

Terms and definitions

Supplier: Individual, company or other legal entity providing products, goods or services to a PO.

Hazard: A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

Contractor: Organisations/individuals contracted by the operator to carry out specific tasks that are an integral part of the biofuel production process and are carried out on the site of the operation subject to these standards.

9 See here: https://www.osha.gov/personal-protective-equipment/standards

10 See here: https://www.bvl.bund.de/EN/Tasks/04_Plant_protection_products/04_Users/03_PersonalProtectiveEquipment/ppp_users_PPE_node.html;jsessionid=EE1307C6CB272D235F658A7006CAA0C8.2_cid298#doc11010640bodyText4

11 See here: https://single-market-economy.ec.europa.eu/sectors/mechanical-engineering/personal-protective-equipment-ppe_en

5. The PO shall implement and maintain procedures and measures addressing emergencies and accidents that are continuously monitored and improved. The PO shall ensure that all workers understand accident and emergency procedures and measures, including the interpretation of labels, markings, signs, and other safety relevant audio and/or visual signals.

6. The PO shall maintain, and review periodically records of all work-related accidents, and adjust its accident and emergency procedures to minimise the risk of work-related accidents.

7. The PO shall ensure that first aid kits, fire extinguishers, and spill-response material are available in sufficient quantity (i.e. readily available and accessible to workers) and quality (i.e. current and periodically serviced, and appropriate to address the associated hazards and risks) at all **sites** including mobile facilities and in the vicinity of agricultural sites, and that workers are knowledgeable of such equipment and its use.

8. The PO shall ensure that workers are provided with and regularly use personal protective equipment to protect them from all occupational health and safety hazards associated with their respective jobs (e.g. for the handling of plant-protection products or working with electric equipment).

9. The PO shall ensure that all workers have access to clean sanitary facilities and potable water.

10. The PO shall ensure that any living quarters and infrastructure for sleeping, sanitary facilities (e.g. toilets / latrines, showers, etc.) and facilities for storing, preparing and distributing of food provided to workers are designed, built and regularly maintained to meet the basic needs of the personnel and their families, comply with legal requirements, and ensure safe and healthy conditions.

11. Where potential risks to health are identified to occupational health, workers should have key health indicators monitored during their employment to reduce job related health issues.

4g. POs shall implement a mechanism to ensure the human rights and labour rights outlined in this principle apply equally when labour is contracted through third parties.

1. POs shall identify instances where those working within the scope of their operational function (feedstock producer, feedstock processor, or industrial producer) are contracted outside of the direct influence of the operation by external parties and shall implement a mechanism to ensure that such contracted workers are afforded the same rights as described in this principle as employed staff within the process. This is a progress requirement.

4h. POs shall implement and maintain a transparent and easily accessible grievance mechanism, open for all workers and contracted workers.

1. The grievance mechanism shall be a documented system for dealing with complaints and grievances, which has the following characteristics:
   - The mechanism is communicated and made easily accessible to workers and contracted workers.
   - Any grievances shall be acknowledged and dealt with in a timely manner.
   - Records of all grievances are kept, including how they were dealt with and the outcome of the process.

Terms and definitions

Site: A single functional unit of a PO, which is geographically and/or functionally distinct from other units of the same PO.

Principle 5

Rural and Social Development

In regions of poverty, operations contribute to the social and economic development of local, rural and indigenous people and communities. (This Principle applies only in regions of poverty. Refer to the *RSB Screening Tool* for guidance.)

5a.	In regions of poverty, the socioeconomic status of local stakeholders impacted by the operations shall be improved.
1.	Where the socioeconomic **baseline studies** undertaken during the social impact assessment process in accordance with the *RSB Social Impact Assessment Guidelines (RSB-GUI-01-005-01)* identifies an excess of unemployed or underemployed labour in the locality of the operations, operations shall optimise the job-creation potential.
2.	The PO shall assess ways in which the use of permanent and local labour can be promoted and introduced over the use of migrant, **seasonal worker.**
3.	If it is determined through the RSB impact assessment or monitoring process that mechanisation is the optimal choice from an environmental, economic and social perspective, the transition from labour intensity to mechanisation shall be done in a fair and equitable way for existing workers, where as many of the existing workers as possible are retrained and employed in the mechanised process.
4.	Measured improvements in the social and economic indicators as set against the baseline survey conducted under the social impact assessment process shall be targeted for review every three years.
5.	Skills training shall be provided by the PO if necessary to ensure the implementation of this criterion. Cultural sensitivity and respect for existing social structures shall be applied in the development of options for compliance with this criterion.

What is a region of poverty?
RSB has set national-level thresholds for Regions of Poverty based on the UN Human Development Indicators. If the country is listed at the Inequality-adjusted Human Development Index (IHDI), the threshold is 0.59. If no data is available, the Human Development Index (HDI) may be used with the threshold 0.74. Both indices can be accessed via the UN Development Programme (UNDP) Human Development Indicators World Map.

Terms and definitions

Rural people: De facto population living in areas classified as rural (that is, it is the difference between the total population of a country and its urban population).

Baseline assessment (also baseline data or studies): A baseline assessment is an assessment that is usually undertaken before an operation is initiated, to provide data on the local environmental and social context prior to the initiation of the project. This data on the baseline context would then be compared with the results of future monitoring and/or targets, to assess the impacts of the operation and inform ongoing management of impacts.

Seasonal worker: A worker who is employed for fixed but limited periods related to fluctuations in demand for labour at different times of the year.

6. At least one measure to significantly optimise the benefits to local stakeholders shall be implemented, based on a local needs assessment and defined and included in the ESMP, within a three-year period of the start of the operations, for instance:
   a) Creation of year-round and/or long-term jobs;
   b) The establishment of **governance** structures that support empowerment of **small-scale feedstock producer / farmer** and rural communities such as **cooperatives** and **micro-credit** schemes;
   c) Use of the locally produced bioenergy to provide modern energy services to local poor communities;
   d) **Shareholding options**, **local ownership**, **joint ventures** and **partnerships** with the local communities;
   e) Social benefits for the local community through the investment and implementation in socially oriented projects (e.g. education, health, entrepreneurship, micro-finance, capacity building, etc.).

   Further references can be checked using the guidance material *RSB Rural and Social Development Guidelines (RSB-GUI-01-005-02)*, to include parameters and aspects covering economic incentives beyond job creation.

5b. In regions of poverty, special measures that benefit and encourage the participation of women, youth, indigenous communities and the vulnerable in the operations shall be designed and implemented.

1. Data for rural poor women in regions of poverty shall be disaggregated in the baseline social surveys to assist with the design of special programmes for the targeted people.

2. Training and capacity building shall be required to give effect to this principle. Such training is required for both the workers and management that oversees employment protocols and supervision. This is a progress requirement.

Terms and definitions

Governance: The exercise of political, economic and administrative authority over an organisation.

Small-scale feedstock producer / farmer: A feedstock producer with a total area of production of agricultural products, whether intended for biofuel production or not, smaller than or equal to 75 hectares.

Cooperative: Jointly owned enterprise carrying out purchasing, distribution, management or other activities, on behalf of its members, not for profit but benefitting for members of combined rather than individual efforts and resources.

Micro-credit: Micro-credit is a small amount of money loaned to a low-income entrepreneur by a bank or other institution, company or individual.

Shareholding option: Option for an individual or organisation to own part of a company, through the distribution of shares based on in-kind contributions or the purchase of shares of the company.

Local ownership: Where the majority of the ownership in an enterprise is held in local hands and not by outside interests.

Joint venture: An arrangement between two or more people or entities to work together on a specific project or within an enterprise.

Partnership: A voluntary, mutually beneficial arrangement entered into for the purpose of accomplishing mutually agreed upon objectives.

Youth: Aged between 16 and 30.

Principle 6

Local Food Security

Operations ensure the human right to adequate food and improve food security in food insecure regions. (This Principle does not apply to industrial operators.)

6a. Operations shall assess risks to food security in the region and locality and shall mitigate any negative impacts that result from their operations. (This criterion applies to crop feedstocks and food-insecure regions.)

1. Where the screening exercise of the RSB impact assessment process reveals a **direct impact** on food security in food-insecure regions, POs shall conduct a food security assessment in accordance with the *RSB Food Security Assessment Guidelines (RSB GUI-01- 006-01)* and develop a Food Security Action Plan renewable over a 4-year period, that includes climate change mitigation and carbon stock increase, with an action plan adjusted to *RSB Conservation Impact Assessment Guideline (GUI-01-007-01)*. The results of the Food Security Action Plan show an effective decrease or total mitigation of **food insecurity**. The Action Plan addresses both immediate and long-term actions and effects on **livelihoods**, **restoration**, and compensation as per *RSB Food Security Guidelines (GUI-01-006-01)*. The food security action plan addresses "*5.2 Targeting and implementing mitigation and enhancement measures*" in *Food Security Guidelines (GUI-01-006-01)*, by including a climate change approach to enhancing food security.
2. The scope of the food security assessment shall include additional impacts that the operations may have on cross-cutting requirements for food security, including climate change, carbon stocks, land, water, labour and infrastructure.
3. If the food security assessment indicates a food security risk as a result of the operations, a **mitigation measure** shall be developed and implemented through the ESMP.
4. Measures developed under Principle 5 that mitigate food insecurity shall be integrated with the measures developed under Criterion 6a.

6b. In food insecure regions, operations shall enhance the local food security of the directly affected stakeholders. (Small-scale operators are exempt from this criterion.)

1. In regions where food security is an ongoing risk and concern, operations shall enhance food security of the locally affected community by, for instance, setting aside land for food growing, increasing yields, providing opportunities for workers to carry out household-level food production, sponsoring agricultural support programmes and activities, and/or making value-added **food by-products** available to the local market.
2. Measures to enhance regional food security shall be integrated with measures that contribute to rural and social development described under Principle 5.

Terms and definitions

Direct impacts: Impacts that can be directly linked to specific project activities or components.

Food insecurity: Food insecurity exists when people are undernourished as a result of the physical unavailability of food, their lack of social or economic access to adequate food, and/or inadequate food utilisation.

Livelihoods: Livelihoods are a combination of productive and reproductive activities that household members engage in to meet their basic needs for food, water, shelter and health.

Restoration measures: Restoration measures include, but are not limited to, artificial re-enrichment or re-contouring of severely eroded land, improvement of soil organic matter and nutrient levels, decontamination of polluted land (e.g. with heavy metals); reclamation of deserts, saline soils, and alkaline soils; etc. when this is not the natural state of those soils.

Mitigation measure: An action that can be undertaken to avoid or minimise a negative impact or maximise a beneficial impact.

Food by-products: Food by-products are non-essential components of whole foods or other products, edible or inedible by human beings and/or animals, which may be isolated or removed in the course of post-harvest processing or other processing steps.

Principle 7

Conservation

Operations avoid negative impacts on biodiversity, ecosystems and conservation values, and contribute to protecting and/or increasing carbon stock accumulation. Applicable to feedstock producers and their supply chains.

7a.	Conservation values of local, regional or global importance within the potential or existing area of operation shall be maintained or enhanced.
1.	POs shall identify the conservation value(s) within the area of a potential or existing operation during the screening exercise of the RSB impact assessment process (Principle 2)[12].
2.	**Conversion of land or use of new areas** for operations shall not occur prior to the screening exercise.
3.	Where conservation values of local, regional or global importance have been identified, POs shall carry out a specialised impact assessment in accordance with the *RSB Conservation Impact Assessment Guidelines (RSB-GUI-01-007-01)*.
4.	Operations shall prioritise areas with the lowest possible risk of impacts to the identified conservation values.

Terms and definitions

High conservation values (HCVs): Biological, ecological, social or cultural values or attributes associated with natural or traditionally managed ecosystems, which are considered outstandingly significant or critically important at the national, regional or global level.

Conversion of land: The removal of the majority of standing natural/semi natural vegetation from a defined parcel of land, followed by establishment of substantially different vegetation composition.

12 Follow the updated IPCC 2020 climate zone map categorisation to define the climate zone categories: https://essd.copernicus.org/articles/12/2959/2020/essd-12-2959-2020.html

5. Areas identified as "no-go areas" shall not be used for operations after the 1st of January 2008, unless feedstock production or processing operations are legally authorised as part of the conservation management for the area concerned. No-go-areas are nationally, regionally or internationally **legally protected areas,** including but not limited to those designated by any of the of the following:
   - The World Conservation Union **"IUCN" Category I-IV protected areas**[13]
   - Wetlands of International Importance designated under the **Ramsar** Convention[14]
   - World Heritage Sites designated under the **UNESCO World Heritage** Convention[15]
   - Biosphere Reserves designated under the UNESCO Man and the Biosphere Programme[16].

   Other legally protected areas:
   - Primary forest (i.e. naturally regenerated forest, where there are no clearly visible indication of human activities and the **ecological processes** are not significantly disturbed)
   - Natural or non-natural highly biodiverse grassland
   - Areas of cultural or spiritual importance for indigenous peoples, including their rights to subsistence, land management and tradition.

What is natural or non-natural highly biodiverse grassland?
Natural highly biodiverse grassland: Area that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes.
Non-natural highly biodiverse grassland: Area that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status. Please find more information and definitions for "Grassland", "Human intervention" and "species-rich" in *RSB Glossary of Terms (RSB-STD-01-002)*.

Terms and definitions

Legally protected areas: Any area that is protected by a country's law against exploitation and/or land-use change, e.g. wildlife sanctuary, biological reserve, cultural area.

IUCN protected areas: An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Ramsar sites: The Ramsar List of Wetlands of International Importance is the keystone of the Ramsar Convention, and its chief objective is to develop and maintain an international network of wetlands that are important for the conservation of global biodiversity and for sustaining human life through the maintenance of ecosystem components, processes and services.

World Heritage Sites (UNESCO): As defined in the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972), World Heritage Sites are monuments, groups of buildings, sites, natural features, geological and physiographical formations and natural sites of outstanding universal value from the historical, scientific, artistic, aesthetic, ethnological, anthological or conservation point of view.

Ecological process: Any process characteristic of biotic communities. Ecological processes include vital functions such as decomposition, production, nutrient cycling, and fluxes of nutrients and energy.

13 http://www.protectedplanet.net/
14 http://ramsar.wetlands.org/
15 http://whc.unesco.org/en/list
16 http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/

6. Areas that contain identified conservation values of global, regional or local importance or that serve to maintain or enhance such conservation values shall not be converted after the 1st of January 2008, or earlier as prescribed by other relevant international standards.

   "No conversion" areas include:

   - **Key Biodiversity Areas** as indicated in the IBAT for Business Tool[17], including **Alliance for Zero Extinction Areas (AZEs)**, **Important Bird Areas (IBAs)**, and IUCN Key Freshwater Biodiversity Areas
   - **Natura 2000** sites (as determined under the European Birds and Habitats Directives[18]
   - Land with high carbon stock, e.g. wetland, peatland
   - Areas listed on the **IUCN Red List of Ecosystems**
   - Forests, (i.e. land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ), and
   - Ancient and Endangered forests and High Carbon Stock forests as mapped in Canopy's Forest Mapper[19] to the prohibited and no conversion list.

7. Areas that contain conservation values of global, regional, or local importance or serve to maintain or enhance such conservation values shall only be used if adequate management practices maintain or enhance the identified conservation values (e.g. sustainable biomass harvesting). If areas are identified which do not fall into the categories identified in Minimum Requirement 7.a.6, yet contain conservation values of global, regional or local importance or serve to maintain or enhance such conservation values, these shall only be used if robust management practices maintain or enhance the identified conservation values (e.g. sustainable biomass harvesting, carbon stocks, biodiversity, etc.), where *RSB Conservation Impact Assessment Guidelines (RSB-GUI-01-007-01)* can be used for guidance.

8. Hunting, fishing, ensnaring, poisoning and exploitation of rare, threatened, **endangered** and legally protected **species** shall not occur on the operation site.

What are wetlands and peatlands?
Wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres[20]. Peatlands are areas with or without vegetation with a naturally accumulated peat layer at the surface of at least 30 cm in depth[21].

Terms and definitions

Key Biodiversity Areas: Sites contributing significantly to the global persistence of biodiversity. They represent the most important sites for biodiversity conservation worldwide, and are identified nationally using globally standardised criteria and thresholds.

Alliance for Zero Extinction Areas: AZE areas are key sites identified by the Alliance for Zero Extinction, each one of which is the last remaining refuge of one or more Endangered or Critically Endangered species.

Important Bird Areas (IBAs): IBAs are critical sites for the conservation of the world's birds, identified by the Important Bird Areas (IBA) programme of BirdLife International.

Natura 2000: Natura 2000 is an EU-wide network of nature protection areas established under the 1992 Habitats Directive to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive.

IUCN Red List of Ecosystems: The IUCN Red List of Ecosystems Categories and Criteria is a global standard for how to assess the conservation status of ecosystems, applicable at local, national, regional and global levels. The Red List of Ecosystems evaluates whether ecosystems have reached the final stage of degradation (a state of Collapse), whether they are threatened at Critically Endangered, Endangered or Vulnerable levels, or if they are not currently facing significant risk of collapse (Least Concern).

Endangered species: Threatened species in the IUCN Red List i.e. species that face a high (vulnerable species), very high (endangered species), or extremely high (critically endangered species) risk of extinction in the wild.

17 www.ibatforbusiness.org

18 http://natura2000.eea.europa.eu

19 https://canopyplanet.org/tools/forestmapper/app/

20 Source: RAMSAR Convention

21 Source: EN 16214-1:2012

7b. **Ecosystem functions and services** that are directly affected by the operation shall be maintained or enhanced.
1. In accordance with the results of the impact assessment process, POs shall implement practices through the ESMP that maintain and enhance ecosystem functions and services, such as biodiversity and/or carbon stocks both inside and outside the **operational site**, on land that is directly affected by the operations.
7c. Operations shall protect, restore or create buffer zones.
1. In accordance with the results of the impact assessment process, buffer zones, including **riparian** vegetation sections, shall be defined according to the region, type of terrain, wildlife and agricultural practices, protected, restored or created to avoid negative impacts from the operations on areas that are contiguous to the operation site.
2. In accordance with the results of the impact assessment process, within the operational site, buffer zones, including riparian vegetation sections, shall be protected, restored or created to avoid negative impacts from the operations on areas that contain conservation value(s) of local, regional or global importance.
3. The timetable for the restoration or creation of buffer zones, including riparian vegetation sections shall be part of the ESMP.
7d. Ecological corridors shall be protected, restored or created to minimise fragmentation of habitats.
1. Existing ecological corridors within the operational site shall be set aside and protected with appropriate surrounding buffer zones. *RSB Conservation Impact Assessment Guidelines (RSB-GUI-01-007-01)* should be checked for guidance.
2. Whenever the operational site impairs the **connectivity** between surrounding ecosystems, ecological corridors shall be created by the PO.
3. New ecological corridors shall be created within the operation site if it is surrounded by areas containing wildlife and there is evidence that such corridors would improve connectivity. This is a progress requirement and exempts small-scale operators.
4. Any ecological corridor destroyed after 1st January 2004 on or near the operation site and for which the PO is directly accountable shall be restored. This is a progress requirement and exempts small-scale operators.

Terms and definitions

Ecosystem functions: Characteristic processes of an ecosystem, such as decomposition, production, nutrient cycling and fluxes of nutrients and energy, which result from interactions between organisms and the physical environment, and which ensure that the integrity of the ecosystem is maintained.

Ecosystem services: The benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.

Operational sites: Locations where operational facilities are located and where operational activities are undertaken. They comprise the boundary of operations within the scope of certification, including land that is used for the development of infrastructure directly related to the operations (e.g. roads).

Buffer zones: Buffers zones are small areas or strips of land in permanent vegetation, designed to intercept pollutants and manage other environmental concerns.

Riparian: Riparian habitat includes the physical structure and associated vegetation of the areas associated with a watercourse that are commonly characterised by alluvial soils, and that are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Ecological corridors: A continuous strip of land or water that differs from the adjacent landscape on both sides, and allows movement of individuals and ecological processes between two or more habitat areas. Biological corridors help establish connectivity within biodiversity conservation corridors.

Fragmentation (of habitats): Fragmentation is a process of ecosystem degradation, caused by the disturbance or destruction of formerly continuous habitat, or the creation of barriers to movement. It is a major source of threats to species and species extinctions.

Connectivity (of habitats): Landscape connectivity is an ecological description of the degree to which the landscape facilitates or impedes movement between resource patches. Increased connectivity between habitats may be provided by continuous biological corridors, habitat 'stepping stones', or a mosaic of suitable patches.

7e. Operations shall prevent invasive species from invading or spreading into areas inside and/or outside the operation site. (This applies only to biomass producers).

1. Operators shall not use any species officially prohibited in the country of operation, including species recognised as invasive under national, subnational or local authorities, and shall put in place a system to monitor, control and minimise the spread of introduced invasive species and new pests. Operators shall follow official requirements and recommendations in place to identify and monitor introduced invasive species and new pests, or monitor severe outbreaks of existing pests, contributing to minimise their spread.

2. If the species of interest is not prohibited in the country by the national, subnational or local government agency of operation, or no official system for the species identification and monitoring is in place, operators shall seek adequate information about the invasiveness of the species to be used for feedstock production or for any other operational purposes (e.g. in the Global Invasive Species Database – GISD – or Environmental Impact Classification for Alien Taxa – EICAT, or similar). Should no reference to the species be found in either, the operator will inquire with national, subnational and local authorities as to the existence of biological or socioeconomic impact or risk assessments completed by their agency on the species of interest. In cases where the operator has identified a new pest or invasive species, or has detected severe outbreaks of existing pests, the operator shall report these findings to the relevant authorities and organisations and follow up with any recommended procedures as necessary.

3. If the species is recorded as highly invasive (e.g. EICAT assessed as Massive, Major or Moderate) under similar conditions (similar climate, and similar local ecosystems, and similar soil types), this species shall not be used.

4. In cases where the PO intends to introduce a new species for feedstock production purposes, and the species has not yet been recorded as representing a high risk of invasiveness under similar conditions (climate, local ecosystems, soil type), POs shall follow the specific steps:
   a) During the feedstock selection and development, POs shall conduct a Weed Risk Assessment (WRA) to identify the potential threat of invasion. If the species is deemed highly invasive after the WRA, this species shall not be used.
   b) During feedstock production, POs shall set up a management plan, which includes **cultivation** practices that minimise the risks of invasion, immediate mitigation actions (eradication, containment or management) in case of escape of a plant species outside the operation site (possibly through the provision of a specific fund), as well as a monitoring system that checks for escapes and the presence of pests and pathogens outside the operation site.
   c) During harvesting, processing, transport and trade, POs shall contain **propagules** in an appropriate manner on site and during transport.

Terms and definitions

Cultivation: Agricultural or farming activities involving intensive practices such as land-use change, intensive tillage, heavy machinery and/or the use of chemical inputs. This definition does not include extensive or shifting cultivation.

Propagule: Part of a plant that can detach and then form a new rooted plant.

Principle 8

Soil

Operations shall implement practices to maintain or enhance soil's physical, chemical and biological conditions. (Principle 8 does not apply to industrial operators.)

8a. POs shall implement practices to maintain or enhance soil's physical, chemical and biological conditions.
1. Soil wind and water erosion shall be minimised through the design of the feedstock production site and use of sustainable practices in order to enhance soil physical health on a **watershed** scale or to the scope determined in the ESMP. This minimum requirement applies to crop feedstocks.
2. POs shall implement practices (in accordance with *RSB Soil Impact Assessment Guidelines (RSB-GUI-01-008-01)*) to protect soil structure, including the prevention and mitigation of compaction, erosion and degradation, and that maintain or enhance **soil organic matter**, **carbon sequestration** and overall soil fertility and biological activity on the feedstock production site. This minimum requirement applies to crop feedstocks.
3. The use of agrarian and forestry residual products for feedstock production, including **ligno-cellulosic material**, shall not be at the expense of long-term soil fertility (including, but not limited to, structural stability and organic matter, nutrient cycling, water retention capacity content, soil temperature etc.). Follow *RSB Standard Amendment for Woody Biomass (RSB-SA-01)* and *RSB Soil Impact Assessment Guidelines (RSB-GUI-01-008-01)* for further guidance. This minimum requirement applies to agrarian and forestry residue feedstock.
4. POs shall implement practices to maintain and improve the soil nutrient use efficiency and reduce nitrate, phosphate and other chemical pollution, such as trace metals, agrochemicals and microplastics. This minimum requirement applies to crop feedstocks.

Terms and definitions

Soil biological conditions: The characteristics of the soil biological community, including biodiversity and microbial biomass.

Soil chemical conditions: The characteristics of the soil chemistry, including pH, nutrient content, salinity and cation exchange capacity.

Soil physical conditions: The characteristics of the soil structure, texture, porosity and profile.

Watershed: The land area that drains water to a particular stream, river or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge.

Organic matter content (soil): The content of residual plant and animal material, synthesised by microbes and decomposed under the influence of temperature, moisture and ambient soil conditions.

Carbon sequestration: The process of removing carbon from the atmosphere and depositing it in a reservoir.

Ligno-cellulosic material: Material that is composed of cellulose, hemicellulose and lignin, such as biomass sourced from forests, woody energy crops and forest-based industries' residues and wastes.

5. POs shall implement measures to improve soil health, following an agronomical analysis to be included as part of the ESMP and which includes soil types, climates, topographies and **crops**. Follow *RSB Soil Impact Assessment Guidelines (RSB-GUI-01-008-01)* for guidance on topics such as:
   - **Direct seeding or planting**: Involves growing crops without mechanical seedbed preparation and with minimal soil disturbance
   - Maintenance of a permanent soil cover, by mulch or growing cover crops to protect the soil surface
   - Diversifying and fitting **crop rotations** and associations in the case of **annual crops** and plant associations in the case of **perennial crops**, and
   - Implementation of crop-livestock and/or silvopastoral integrated systems.

   This minimum requirement applies to crop feedstocks.

6. Where the screening exercise has triggered the need for a *Soil Impact Assessment Guidelines (RSB-GUI-01-008-01)*, POs shall:
   a) Develop and implement a soil management plan as part of the ESMP, which demonstrates continuous improvement of soil parameters over time.
   b) Perform periodic sampling of soil on the feedstock production site to evaluate the effect of the soil management plan on the content of organic matter and other soil quality parameters (e.g. C/N, N%, P%, etc.). If the practices included in the soil management plan do not show evidence or positive effects, to maintain soil organic matter and other key soil quality indicators (i.e. as defined in the Soil Management Plan) at the optimal level during the monitoring process, alternative practices shall be investigated and implemented to assure improved results over time.
   c) Ensure efforts that produce increased organic matter content are accompanied by appropriate nutrient management, to avoid unintended negative consequences such as increased GHG emissions.

   This minimum requirement applies to crop feedstocks.

What is conservation agriculture?
Conservation Agriculture (CA) is an approach to managing agro-ecosystems for improved and sustained productivity, increased profits and food security, while preserving and enhancing the resources base and the environment. CA principles are universally applicable to all agricultural landscapes and land uses with locally adapted practices[22].

Terms and definitions

Crop: Vegetable biological organism used for biomass production and the biomass produced based on this plant.

Direct seeding or planting: No-till planting. Crop production system in which the soil is left undisturbed from harvest to planting. At the time of planting, a narrow strip up to 1/3 as wide as the space between planted rows (strips may involve only residue disturbance or may include soil disturbance) is engaged by a specially equipped planter.

Crop rotation: The practice of alternating the annual crops grown on a specific field in a planned pattern or sequence in successive crop years, so that crops of the same species or family are not grown without interruption on the same field.

Annual crop: A crop that completes its lifecycle within a one-year period.

Perennial crop: A crop that completes its lifecycle over two or more years.

22 Read more here: http://www.fao.org/ag/ca/1a.html

Principle 9

Water

Operations maintain or enhance the quality and quantity of surface and groundwater resources, and respect prior formal or customary water rights.

9a. Operations shall respect the existing water rights of local and indigenous communities.

1. The use of water for the operations shall not be at the expense of the water needed by the communities that rely on the same water source(s) for subsistence.

2. The PO shall assess the potential impacts of the operations on water availability within the local community and ecosystems during the screening exercise of the impact assessment process and mitigate any negative impacts.

3. Water resources under legitimate dispute shall not be used for the operations until any legitimate disputes have been settled through negotiated agreements with affected stakeholders – following a FPIC (as described in 2a and its guidance) enabling process.

4. Where the screening exercise has triggered the need for a *Water Assessment (RSB-GUI-01-009-01)*, POs shall:
   - Identify downstream or groundwater users and determine the formal or customary water rights that exist.
   - Evaluate and document the potential impacts of the operations on formal or customary water rights that exist.
   - Respect and protect all formal or customary water rights that exist through the ESMP to prevent infringement of such rights. No modification of the existing rights can happen without the FPIC (as described in 2a and its guidance) of the parties affected.

9b. Operations shall include a water management plan that aims to use water efficiently and to maintain or enhance the quality of the water resources that are used for the operations.

1. POs shall develop and implement a water management plan based on circular economy principles and integrate it into the ESMP. Water management resources and guidelines for water footprint calculation are encouraged to be used and integrated to the ESMP.

Terms and definitions

Surface and ground water resources:
Surface water: All waters on the surface of the Earth found in rivers, streams, ponds, lakes, marshes, wetlands, as ice and snow, and transitional, coastal and marine waters.
Groundwater: All water that is below the surface of the ground in the saturation zone and in direct contact with the soil.

Customary water right: Water right conferred on the user through traditional or customary law or practice.

2. The water management plan shall contain good water management practices to optimise water use, including:
   a) For rain-fed crops: practices should ensure that rainwater is captured and used (e.g. use of cover crops, retaining crop stubble, etc.).
   b) For irrigated crops: practices should ensure good management of storage and delivery systems (e.g. application of water-saving irrigation techniques).
   c) The PO shall implement water-saving practices to increase the efficiency of the water use and reduce the amount of water used and/or wasted.
   d) The water management plan shall include key performance monitoring indicators that assess different water parameters and variables associated to the operation's water usage, including aspects of usage related to water quantity and quality.

3. The water management plan shall be made available to the public, unless limited by national law or international agreements on intellectual property.

4 The water management plan shall be consistent with local rainfall conditions, not contradict any local or regional water management plans, and include the neighbouring areas, that receive direct **runoff** from the operational site. Any negative impact on these neighbouring areas shall be mitigated.

5. The PO shall undertake annual monitoring of the effectiveness of the water management plan.

6. The water management plan shall include steps for reusing or recycling wastewater, appropriate to the scale and intensity of operation. This is a progress requirement.

9c. Operations shall not contribute to the depletion of surface or groundwater resources beyond replenishment capacities.

1. Water used for the operations shall not be withdrawn beyond replenishment capacity of the **water table**, watercourse or reservoir from which the water comes.

2. Irrigated crops and freshwater intensive operations systems shall not be established in long-term freshwater stressed areas, unless the implementation of:
   a) good practices is assured, or;
   b) an adequate mitigation process that does not contradict other requirements in this standard ensures that the water level remains stable.

3. POs shall not withdraw water from natural watercourses to the extent that it modifies its natural course or the physical, chemical and biological equilibrium it had before the beginning of operations.

Terms and definitions

Water runoff: The part of the precipitation, snow melt or irrigation water that appears in uncontrolled surface streams, rivers, drains or sewers.

Replenishment capacity: Capacity for natural replenishment of water tables from precipitation and surface water, following withdrawal.

Water table: The upper surface of the groundwater where the pressure of water in the soil is equal to the atmospheric pressure; the level below which the soil is saturated with water. It is seldom static, rising and falling with the seasons, the rate of withdrawal, the rate of recharge, and other conditions.

4. Where the screening exercise has triggered the need for a *Water Assessment (RSB-GUI-01-009-01)*, POs shall:
   a) Identify **critical aquifer recharge areas**, replenishment capacities of local water tables, watercourses and ecosystem needs. The potential impacts of operations on any of these aspects shall be evaluated, and any negative impacts mitigated.
   b) Define the use and share of water resources for operations in agreement with local experts and the community; any water-user committees shall be consulted.

9d. Operations shall contribute to the enhancement or maintaining of the quality of the surface and groundwater resources.

1. Operations shall not occur on a critical aquifer recharge area without a specific authorisation from legal authorities.

2. POs shall implement the best available practices, which aim to maintain or enhance the quality of surface and groundwater resources that are used for the operations to the level deemed optimal for the local system for sustained water supply, ecosystem functioning and ecological services.

3. Adequate precautions shall be taken to contain **effluents** and avoid runoffs and leaching and contamination of surface and groundwater resources, in particular from chemicals and biological agents.

4. Buffer zones shall be set between the operation site and surface or groundwater resources.

5. Where the screening exercise has triggered the need for a *Water Assessment (RSB-GUI-01-009-01)*, POs shall determine the optimal water quality level required to sustain the system, taking into account local economic, climatic, hydrologic and ecological conditions.

6. For existing operations, degradation of water resources that occurred prior to certification and for which the PO is directly accountable shall be reversed. Wherever applicable, POs (except small-scale POs) shall participate in projects that aim to improve water quality at a watershed scale. This is a progress requirement.

7. Wastewater or runoff that contains potential **organic** and mineral **contaminants** shall be treated or recycled to prevent any negative impact on humans, wildlife and natural compartments (water, soil). This is a progress requirement.

Terms and definitions

Critical aquifer recharge area: Areas deemed necessary to provide adequate recharge and protection to aquifers. An aquifer recharge area is considered critical whenever there is a high risk that any operation occurring over this area systematically and irreversibly contaminates the aquifer.

Effluent: Liquid waste product (whether treated or untreated) from an industrial process or human activity that is discharged into the environment.

Organic contamination: Contamination by plant and animal residues due to discharges to the environment that exceeds the capacity of their decomposition.

Principle 10

Air Quality

Air pollution from the operations is minimised along the supply chain.

10a. Air pollution emission sources from the operations shall be identified, and air pollutant emissions minimised through an air management plan. (10a applies only to industrial operators).

1. An emission-control plan appropriate to the scale and intensity of operations shall be included as part of the Environmental and Social Management Plan (EMP) that identifies major air pollutants including carbon monoxide, **nitrogen oxides**, **volatile organic compounds**, **particulate matter**, **sulphur compounds**, **dioxins** and other substances recognised as potentially harmful for the environment or human health. The plan shall identify all potential air pollution sources and describe their nature. The plan shall describe any air pollution mitigation strategies that are employed, or else the rationale for not utilising such strategies.

2. The PO shall investigate and, whenever possible in the local context, implement **best available technology** to reduce air pollution, appropriate to the scale and intensity of operation if no regulatory requirements are stated by the regulator. This is a progress requirement.

10b. Operations shall avoid and, where possible, eliminate open-air burning of residues, wastes or by-products, or open air burning to clear the land. (10b applies only to biomass producers).

1. A plan shall be put in place to phase out any open-air burning of leaves, straw and other agricultural residues within three years following certification. If workers' health and safety is at stake or when no viable alternative is available or affordable in the local context, if burning may prevent natural fires, or if the cultivation of the crop periodically requires burning for viability in the long-term without any equivalent alternatives, limited open-air burning practices may occur.

2. Open air burning of **agricultural residues** and by-products shall not occur following the phase-out plan (10b.1). This is a progress requirement.

Terms and definitions

Air pollution: The presence of contaminants or pollutant substances in the air that interfere with human health or welfare, or produce other harmful environmental effects.

Nitrogen oxides (NOx): Any of several oxides of nitrogen, mainly NO_2, N_2O and NO. Nitrous oxide (N_2O) is a powerful greenhouse gas emitted through soil cultivation practices, especially the use of commercial and organic fertilisers, fossil-fuel combustion, nitric acid production and biomass burning.

Volatile organic compounds (VOCs): Any organic compound that participates in atmospheric photochemical reactions.

Particulate matter: Fine liquid or solid particles such as dust, smoke, mist, fumes or smog, found in air or emissions. It is usually separated into PM10 and PM2.5, which are respectively particles of diameter equal or inferior to 10 and 2.5 micrometers.

Sulphur compounds: Any compound of sulphur, such as sulphur dioxide (SO_2) – a pungent, colourless gas, formed primarily by the combustion of fossil fuels – which becomes a pollutant when present in large amounts.

Dioxins: A family of compounds known chemically as dibenzo-p-dioxins.

Best available technologies: The latest stage of development (state of the art) of processes, facilities or methods of operation which indicate the practical suitability of a particular measure for limiting discharges.

Open-air burning: Combustible materials on bare ground, in an open container or in a pit that are set on fire.

Agricultural, aquaculture, fisheries and forestry residues: Residues that are directly generated by agriculture, aquaculture, fisheries and forestry and that do not include residues from related industries or processing.

Principle 11

Use of Technology, Inputs, and Management of Waste

The use of technologies in operations seeks to maximise production efficiency, boosting circular economy and social and environmental performance, and minimise the risk of damages to the environment and people.

11a. Information on the use of technologies in operations shall be fully available, unless limited by national law or international agreements on intellectual property.
1. When complying with and auditing against this criterion, proprietary technology shall be protected from competitors and intellectual property rights shall be respected.
2. The PO shall disclose technologies with hazardous or potentially hazardous effects when such technology is used and make this information available to the public upon request.
11b. The technologies used in operations, including genetically modified plants, micro-organisms, algae, and other biological or non-biological tools (e.g. agrochemicals), shall minimise the risk of damages to the environment and people, promoting and implementing circular economy strategies and shall improve the operation's environmental and/or social performance over the long term.
1. The use of genetically modified organisms shall follow relevant national or international guidelines, laws and agreements, crop-specific stewardship systems, and local and community coexistence agreements or understandings.
2. The PO shall demonstrate that the use of genetically modified plants has clear environmental or social benefits compared to non-GMO alternatives, e.g. grow on non-fertile soil or reduced inputs (water, fertiliser, pesticides). The use of genetically modified plants shall not result in an increased use of **pesticides**. This minimum requirement applies only to biomass producers.
3. For new operations, POs shall provide evidence that the hazardous technologies they use do not contradict any of the *RSB Principles & Criteria* before the beginning of operations.
4. POs using GMOs shall take measures to prevent migration of genetically modified material and shall cooperate with neighbours, regulatory and conservation authorities, and local stakeholders to implement monitoring and preventative measures. Crop-specific and technology-specific mitigation strategies shall be utilised. This minimum requirement applies only to biomass producers.

Terms and definitions

Waste: Any substance, mixture of substances, material or object that the holder discards or intends or is required to discard.

Genetically modified organism (GMO): An organism in which the genetic material has been altered through the use of biotechnology and not through mating and/or natural recombination.

Aerial / ground pesticides: Aerial pesticides are applied by spray aircraft, while ground pesticides are applied by backpack sprayers, boom and air assisted sprayers using hydraulic spray nozzles.

5. The ***Biosafety Clearing-House*** established under the ***Cartagena Protocol*** *on Biosafety*, or any other such clearinghouse established by law, shall be consulted before providing information about specific GMOs, including related risk and countries' decisions regarding that technology. This minimum requirement applies only to biomass producers.

6. For new operations, feedstock producers shall use indigenous crops whenever alternative crops reduce yield and/or environmental and/or social performance compared to indigenous crops. This minimum requirement applies only to biomass producers.

11c. Micro-organisms used in operations that may represent a risk to the environment or people shall be adequately contained to prevent release into the environment.

1. In no case shall genetically modified micro-organisms or any micro-organisms that pose a risk (**pathogenic**, **mutagenic**, contaminant, etc.) to human health or the environment be released outside the processing / production unit. Any such organism used for processing shall be destroyed or adequately neutralised (i.e. loss of any potentially hazardous character) before being disposed of.

2. POs using such technologies shall include as part of their ESMP a plan that includes adequate **monitoring** and an emergency procedure in case of accidental dissemination of any such micro-organisms into the environment.

11d. Good practices shall be implemented for the storage, handling, use and disposal of biofuels, fertilisers and chemicals.

1. The PO shall implement and monitor integrated pest management techniques that are adequate for the target crop to reduce the development of pest populations and minimise risks to human health and the environment. In the case of use of biological control agents, these are documented, monitored and controlled in accordance with national laws and internationally accepted scientific protocols, and a history of all use of biological control agents is maintained. This minimum requirement applies only to biomass producers.

2. No pesticide formulations classified as **1a or 1b under the WHO pesticide hazard guidelines** shall be used. The use of chemicals recorded in *Annex III of the* ***Rotterdam Convention***, in the **Stockholm Convention on Persistent Organic Pollutants (POPs)** and the *Montreal Protocol on Substances that Deplete the Ozone Layer* shall be listed (type and annual volume used) and a plan to phase out any such chemical over the three years following certification shall be described in the ESMP. This minimum requirement applies only to biomass producers.

3. Manufacturer's safety instructions for the storage, handling, use and disposal of chemicals shall be followed.

Terms and definitions

Biosafety Clearing-house: A mechanism set up by the Cartagena Protocol on Biosafety to facilitate the exchange of information on living modified organisms.

Cartagena Protocol: A protocol on biosafety, focusing specifically on transboundary movement of any living modified organism, resulting from modern biotechnology, that may have adverse effect on the conservation and sustainable use of biological diversity.

Contained: Limited contact with the general population and the environment, for any activity in which micro-organisms are genetically modified, cultured, stored, transported, destroyed, disposed of or used in any other way.

Pathogenic: An agent capable of causing diseases.

Mutagenic: An agent capable of inducing mutations (heritable changes) in a cell or tissue.

Monitoring: The repeated measurement of impacts over time in order to facilitate project evaluation and inform management strategies.

WHO 1a and 1b lists: Lists of 'extremely hazardous' (Class Ia) and 'highly hazardous' (Class Ib) active ingredients found in pesticides, identified by the World Health Organization.

Rotterdam Agreement: A convention on hazardous chemicals, designed to protect human health and the environment from potential harm, through promoting shared responsibility and cooperative efforts among Parties, facilitating information exchange, providing national decision-making processes on their import and export and a FPIC procedure.

Stockholm Convention on POPs: A convention designed to protect human health and the environment from persistent organic pollutants, through reducing or eliminating the production, use, and/or release of the following: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins and dibenzofurans.

4. Records of the pesticides use shall be kept, including at least the justification why the application is needed, the name of the pest treated, the product specification of the pesticide, the content of active ingredients, the amount applied per ha, location, date, target crop and number of applications. This minimum requirement applies to only to biomass producers.

5. The handling, application, storage, transportation and disposal of pesticides and their containers shall comply with the FAO's *Guidelines on Good Practices for Ground and Aerial Applications of Pesticides*[23], including different aspects such as:
   a) assure use of safety equipment and protective gear (e.g. gloves, mouthpiece, protective eyewear, etc.)
   b) observe recommended safety distances for application near urban or peri-urban areas, or near critical facilities (e.g. rural schools or other sensitive infrastructure)
   c) observe recommended safety distances for application near water bodies or other **sensitive** ecological or conservation **areas**
   d) observe required environmental and weather conditions for an effective and safe application (i.e. including temperature, wind velocity, relative air humidity, etc.)
   e) check adequate working conditions of application equipment (e.g. nozzles, hoses, containers, etc.)
   f) use signage and/or different communication mechanisms to alert the community of application activities and identify applied field-plots, and
   g) safely dispose of, reuse or recycle agrochemical containers.

   This minimum requirement applies only to biomass producers.

6. Fertilisers shall be transported and stored in a safe and secure way for humans and the environment. This minimum requirement applies only to biomass producers.

7. None of the chemicals recorded in *Annex III of the Rotterdam Convention*, in the *Stockholm Convention on Persistent Organic Pollutants* or the *Montreal Protocol on Substances that Deplete the Ozone Layer* shall be used within three years after certification. This is a progress requirement.

8. The PO should use waste and co-products for a material purpose or for energy generation. POs shall use waste and/or co-products for energy generation only if:
   a) the use for material purposes is not possible (e.g. no market is accessible), and
   b) the use is in line with RSB Principle 10 (Air Quality) and the use provides a greenhouse gas benefit in comparison to the alternative.

   This is a recommendation.

Terms and definitions

Sensitive sites: Sensitive sites are defined as both ecological and social, and are as follows:

- Cultural heritage or sacred site (including graves and places used for ceremonies or meetings)
- An area of poverty and food insecurity
- Protected area
- Wetland
- Mangrove
- Estuarine
- Buffer zone of protected area
- Special area for protecting biodiversity
- Coastal bays
- High Conservation Value forested areas

23 http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/list-guide-new/en/

11e. Residues, wastes and by-products from feedstock processing and biofuel or biomaterial production units shall be managed such that soil, water and air's physical, chemical and biological conditions are not damaged.

1. A waste and by-product management plan shall be included in the ESMP to ensure that wastes and by-products are handled and/or disposed of in **appropriate containers** and to prevent any environmental contamination and damage to human health. This applies only to industrial operators.

2. These products shall not be in direct contact with soils, water sources and air outside the processing and production units, unless their innocuousness to the environment and people is officially stated by manufacturers or the country or regional (e.g. European Union / EU, Association of Southeast Asian Nations / ASEAN, "Agreement of Free Trade, North American" / ALENA) guidelines. In all other cases, handling and disposal must follow the manufacturer's recommendation and the country or regional (e.g. EU, ASEAN, ALENA) guidelines. This applies only to industrial operators.

3. For new and expanding operations, the design of operations shall integrate the necessary infrastructure for safe burning of processing waste and by-products in line with criterion 10b.

4. For existing operations, a strategy shall be set to develop the necessary infrastructures for safe burning of waste and by-products in line with criterion 10b.

5. Measures shall be taken to implement clean and efficient processes for **conversion** of residues, wastes or by-products into energy appropriate to the scale and intensity of the operation. Such processes shall always occur in an appropriate facility to minimise air pollution from substances recognised as potentially harmful for the environment or human health. Solid residues from fermentation or burning shall be disposed of such that soil and water conditions are not damaged or according to national regulations. This is a progress requirement.

6. For medium and large-scale POs, by-products or wastes shall also be reused by the processing/production unit or transferred to other sectors following circular economy criteria (e.g. recycling, reusage of products / materials). This should be implemented whenever their use may improve the overall system's energy balance, greenhouse gas emissions, and/or economic viability without impairing the other principles and criteria in this standard. This is a progress requirement.

11.f. Introduction of new technology that enables continuous improvement in social and environmental performance shall be encouraged, when and if appropriate security measures are taken prior and during their use.

1. New technologies introduced to optimise and enable continuous environmental and social performance will have a prior risk assessment and mitigation analysis, to assure security measures have been taken before and during the adoption. Prior to the implementation of the technology, stakeholder consultation will be implemented as part of the ESMP stakeholder engagement process.

2. New technology adoption will have an adequate management system, including monitoring and performance evaluation, as part of the ESMP and ESMP monitoring process.

Terms and definitions

Appropriate containers: Containers that prevent wastes from entering the environment in both the short term and long term, including considerations such as design and material used in construction of the containers.

Conversion of a product: Transformation of a product, in an internal processing step, into a new product with new product characteristics, which differ from those of the original product entering the internal processing step.

Principle 12

Land Rights

Operations respect land rights and land-use rights. (Operators may be eligible for fast-track demonstration of compliance to Principle 12. Refer to the *RSB Screening Tool* for guidance.)

12a. Existing land rights and land-use rights, both formal and informal, shall be assessed, documented and established. The right to use land for the operations shall be established only when these rights are determined. This applies only to biomass producers.
1. Where the screening exercise of the RSB impact assessment process reveals a negative impact to existing land rights and land-use rights by the operations, the PO shall conduct a *Land Rights Assessment (RSB-GUI-01-012-01)*.
2. Land under legitimate dispute shall not be used for operations until any legitimate disputes have been settled through FPIC and negotiated agreements with affected land users.
12b. FPIC shall form the basis for all negotiated agreements for any compensation, acquisition, or voluntary relinquishment of rights by land users or owners for operations.
1. No involuntary resettlement shall be allowed for biofuel, biomaterial or biomass operations.
2. The *RSB Impact Assessment Guidelines (RSB-GUI-01-002-01)* shall be referred to for guidance on FPIC.
3. Where land rights and land-use rights are voluntarily relinquished and/or acquired on a willing seller / willing buyer basis, local people shall be fairly, equitably and timely compensated.
4. Compensation for voluntary relinquishment and/or acquisition shall include appropriate balancing measures needed to preserve the ability of the persons concerned to sustain their livelihoods in an autonomous and dignified manner.
5. Independent, qualified land valuation specialists shall be used for valuing all land and asset values.
6. Where land is to be sold it shall be done on a willing seller / willing buyer basis.
7. Coercion to alter existing land rights or land-use rights shall not be allowed in operations
8. Where the rule of law is not adequately applied, international and regional legal bodies shall be consulted for rulings and information on disputes.
9. If there are disputes about the tenure agreements of the land among stake-holders, operations shall not be certified.

Terms and definitions

Land rights / land-use rights: Any form of land tenure, whether formal or informal or used through customary rights or traditions. Please see RSB-GUI-01-12 for more information.

The Roundtable on Sustainable Biomaterials (RSB) is a global membership organisation that drives the just and sustainable transition to a bio-based and circular economy. Our sustainability framework has been developed by our multi-stakeholder membership, and is a uniquely robust and credible foundation for addressing the climate crisis. We use this foundation to develop projects, guidance and new knowledge and solutions that equip key decision-makers to deliver net-positive impacts for people and the planet.

RSB®
Roundtable on
Sustainable Biomaterials
www.rsb.org

RSB – Roundtable on Sustainable Biomaterials Association
International Environment House 2
Chemin de Balexert 7-9, 1219 Châtelaine
Switzerland
+41 22 534 90 50
info@rsb.org
@RSB_org