



BONSUCRO PRODUCTION STANDARD

VERSION 5.2 JULY 2023





Bonsucro Production Standard

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This document is written in British English. Bonsucro will base all its interpretation and decisions upon the English version. Bonsucro does not assume any liability for errors or misunderstandings introduced when this document is translated into other languages.

Bonsucro (trading name of Better Sugarcane Initiative Ltd.) is responsible for this document. Bonsucro Standards are reviewed at least every five years. The next review of the Bonsucro Production Standard is scheduled for January 2027.

Please write to Standards@bonsucro.com if you would like to receive a printed copy of the Bonsucro Production Standard Version 5.2.

To submit comments/feedback on Bonsucro Standards, please contact: [**Standards@bonsucro.com**](mailto:Standards@bonsucro.com)

Further information and standards downloads are [available here](#).

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INTRODUCTION

Bonsucro is the leading global sustainability platform and standard for sugarcane, one of the world’s most important crops. We convene over 300 members from more than 55 countries to address critical challenges in the sugarcane sector and drive both performance and impact through our system of sustainability standards. We work across all sugarcane products and derivatives – sugar, ethanol, molasses, and bagasse in traditional and newer market sectors, from sugar and alcohol to biofuels and bioplastics.

BONSUCRO STRATEGIC PLAN 2021 – 2026 CHANGING FOR GOOD

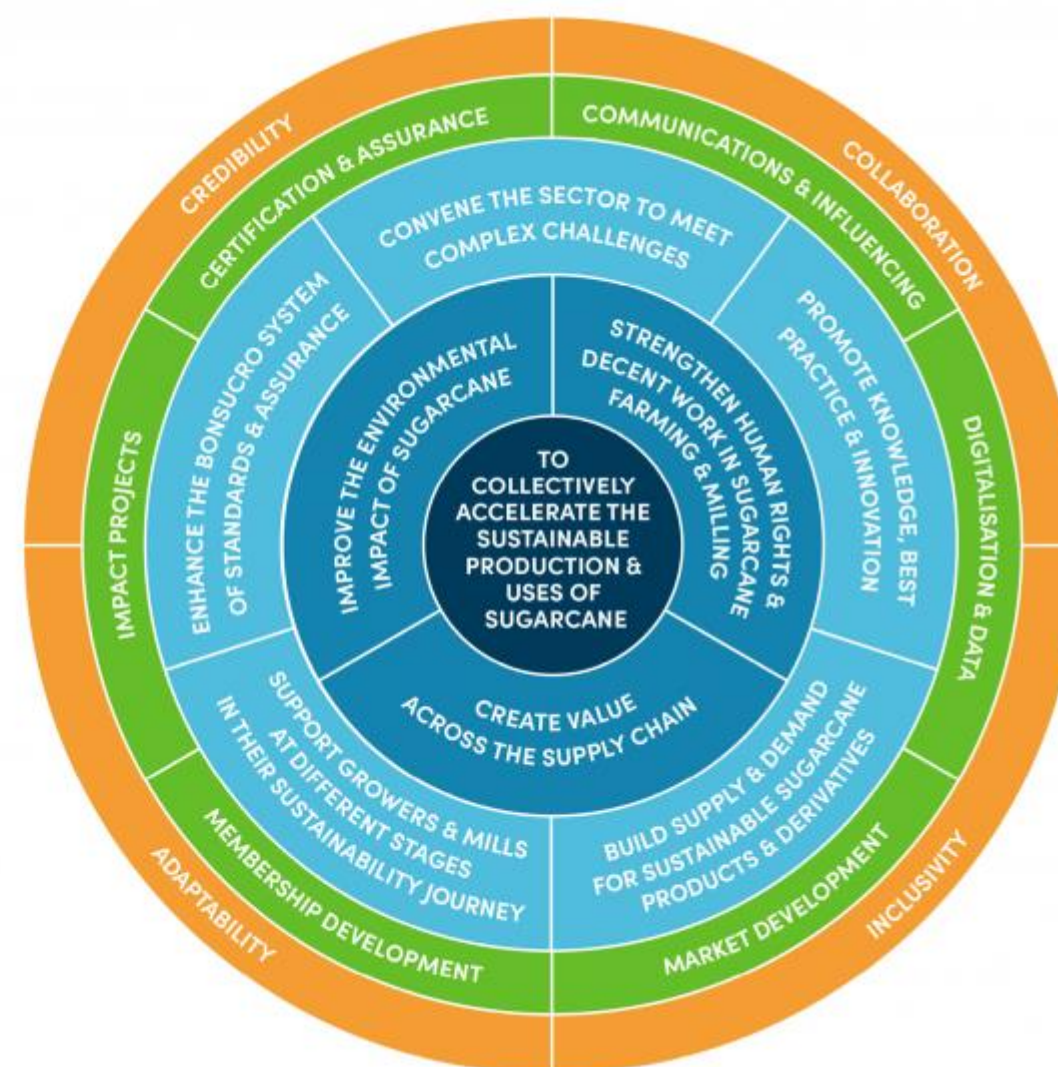
PURPOSE

Our Statement of Purpose expresses our core reason for being and the overarching goal that drives our strategic priorities and choices.

To collectively accelerate the sustainable production and uses of sugarcane

This statement captures our role as a catalyst for market transformation, driving the production and uptake of sustainable sugarcane – across sugar, ethanol, molasses and bagasse value chains. It also expresses our position as a global sustainability platform, working collaboratively with farmers, millers, traders, end users, civil society, government and other sustainability initiatives to scale sustainability across the sector and landscapes.

Unlike other sustainability initiatives, Bonsucro focuses exclusively on sugarcane and all its end products. It does so on a global basis with a strong local presence in the countries that produce, use and consume the most sugarcane and its products.



CORE PRINCIPLES

Our four core principles guide our operational choices and decision-making in implementing our strategic aims and priorities.

COLLABORATION

Collaboration is central to our identity as a multi-stakeholder initiative with a global membership drawn from all parts of the sugarcane sector with an interest in sustainability. Our success as a standard and as a platform requires us to convene, learn and share with like-minded organisations.

INCLUSIVITY











We need to be inclusive to drive sector transformation. This includes engaging with workers, mills, farmers, and producer communities; enabling sustainability improvements outside of certification; and aligning and co-operating with strategic partners, other sustainability standards systems and government agencies for collective benefit.

CREDIBILITY

Transparency and the credibility of our standards, assurance, Monitoring, Evaluation and Learning (MEL) and impact reporting are vital to our work. We adhere fully to the ISEAL Credibility Principles, embraced by other leading sustainability standards systems working to bring about positive social, environmental and economic impacts, while decreasing negative impacts.

ADAPTABILITY

Sugarcane production and its uses are highly impacted by landscapes, economies, markets, culture, and governments. Sustainability is a journey of continuous improvement. We will adapt our offering and approach to different contexts and, wherever possible, devolve responsibility to our people and partners on the ground. We will strengthen our organisational adaptability and resilience to ensure we can pivot to respond to unforeseen events and crises.

Sustainability Pillar	 Environmental	 Social	 Economic
Strategic Aim	Improve the environmental impact of sugarcane	Strengthen decent work and respect for human rights in sugarcane farming and milling	Create value across the supply chain
	  	 	 
SDG Contribution	<p>6. Ensure availability and sustainable management of water and sanitation for all</p> <p>11. Protect & restore sustainable use of terrestrial ecosystems</p> <p>13. Take urgent action to combat climate change and its impacts</p>	<p>5. Achieve gender equality and empower women & girls</p> <p>8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p> <p>12. Ensure sustainable consumption & production patterns</p>

CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

Our three strategic aims correspond to the three pillars of sustainable development and define how we will contribute to the UN's 2030 Sustainable Development Goals (SDGs).

BONSUCRO PRODUCTION STANDARD

The **Bonsucro Production Standard (BPS)** is at the heart of everything Bonsucro does.

- It sets out a definition of what sustainable cane production should look like, providing a comprehensive metric tool for sustainable farming and milling. This maximises the impact the standard has on the future of the sugarcane sector furthering the strategic aim to create value across the supply chain.
- It contains principles and criteria for achieving sustainable production of sugarcane and all sugarcane-derived products. Its primary purpose is to define a set of principles, criteria and indicators, for the assessment of the performance of operators against the three economic, social, and environmental pillars of sustainability.
- It is used by Bonsucro members who wish to achieve third party certification of meeting the standard's robust requirements. It is also used by Licensed Certification Bodies and auditors when carrying out certification audits.
- It is aimed at the broader audience of the sugarcane sector and any interested parties to promote an understanding of a common definition of sustainable sugarcane production.
- It applies worldwide to any sugarcane mill and their supplying area who wish to sell sugarcane-derived products as Bonsucro certified and make related claims.
- **The BPS is binding.**

As a multi-stakeholder organisation, Bonsucro seeks ongoing balanced and diverse stakeholder engagement for accountability. This includes when changes are proposed and made to our standards. The Bonsucro Standard Development and Revision Procedure is based on the [ISEAL Standard Setting Code](#). It requires a multi-stakeholder consultation and decision-making process to ensure clear and auditable conditions in the standard itself. Bonsucro is ISEAL Code Compliant, meeting all three of ISEAL Codes of Good Practice, which focus on the core elements of a sustainability system. Our system has been independently evaluated against ISEAL's Codes of Good Practice – a globally-recognised framework for effective, credible sustainability systems. More information is available at www.isealalliance.org.

STRUCTURE OF THE STANDARD

The BPS is structured in five (5) principles, twenty (20) criteria and sixty-nine (69) indicators.

Principles

Principles are the fundamental statements about the intended outcomes, aligned with the Bonsucro strategic aims.

- PRINCIPLE 1 – Assess and manage environmental, social & human rights risks
- PRINCIPLE 2 – Respect labour rights & occupational safety and health standards
- PRINCIPLE 3 – Manage input, production, and processing efficiencies to enhance sustainability
- PRINCIPLE 4 – Actively manage biodiversity and ecosystem services
- PRINCIPLE 5 – Continuously improve other key areas of the business

Criteria

Each principle has criteria that are the conditions that need to be met in order to comply with that principle.

Indicators

Indicators are the measurable state which allows the assessment of whether or not a particular criterion has been met. Each indicator includes:

- **Indicator:** composed of a reference number and title.
- **Scope:** indicates the area at which the indicator should be applied. These are:
 - Mill. This refers to the crushing facility.
 - Agriculture. This refers to the farm.
 - Area outside the unit of certification (only for indicators 1.2.3 and 1.2.4). This refers to the sugarcane supply base not included in the unit of certification. It may include areas which are owned or leased by the mill, external supplier production areas, smallholder farms, etc.

The **unit of certification** is the basis of the certification scope of the BPS. It is defined by the certificate holder and refers to the area where the BPS is applied, which also corresponds to the area that is audited and certified by the certification body. The unit of certification can be:

- The mill only (with no supply area included in the scope).
- The mill and its cane supplying area, an independent farm or a group of farmers.
- The farm only, this could be an independent farm or a group of farms.

For more information, please see the latest version of the Bonsucro Certification Protocol.

- **Level of criticality:** indicates the level of compliance required by Bonsucro. It can also be understood as the 'type of indicator'. There are three levels to ensure baseline sustainability and drive continuous improvement:
 - **Core indicators:** must be complied with to achieve certification. These are identified with the term 'core' in the 'Level of criticality' column throughout the standard.
 - **Non-core indicators:** must be complied with in line with the timelines defined in the Bonsucro Certification Protocol.
 - **Aspirational indicator:** compliance with this indicator is voluntary. Compliance with this indicator results an additional visibility to showcase operators that go beyond minimum compliance. When the indicator is not implemented, it does not need to be included in the audit and does not result in non-conformity.
- **Compliance measurement:** this verifier indicates the data or information to assess compliance. It is always pass/fail. As an outcome-based standard, a set threshold that must be measured and reported against will be defined. In some cases, the value will be a binary yes/no (pass/fail).
- **Full indicator wording:** provides detailed requirement information to implement the indicator. The assessment of whether the operator meets the indicator is assessed against the indicator's full description.

RELATED DOCUMENTS

- [SCH Bonsucro Calculator](#): Binding document. Tool to support verification of compliance with the Bonsucro Production Standard.
- [GUI Bonsucro Production Standard Implementation Guidance](#): Non-binding document. Contains a set of best practices, suggestions, and examples of how operators may implement the Bonsucro Standard requirements.
- [GUI Bonsucro Certification and Auditing Guidance](#): Non-binding document. Contains a set of best practices, suggestions, and examples of how auditors may audit against the requirements.
- [SCH Bonsucro Certification Protocol](#): Binding document. Outlines general procedures, including the audit process, linked to certification against the Bonsucro Standards.
- High Conservation Value (HCV) Guidance documents
- Carbon Accounting in Sugarcane: Bonsucro Calculator's User Guide

IMPLEMENTATION

This version of the BPS V5.2 was published on 31st July 2023. It supersedes all previous versions and is binding from 2nd December 2023. Changes in relation to the previous version can be found in the [Summary of Changes](#) document.

CHANGE HISTORY

VERSION 5.2

Bonsucro, in line with clause 6.4. 'Changes post publication' from the [Bonsucro Standard Development and Revision Procedure, version 1.4](#), has carried out an interim revision of BPS V5.1 (August 2022 – July 2023) to improve the wording and alignment with related documents (see Related Documents above). The objective was to improve the understanding and consistency of the indicators to facilitate the implementation and auditability of the standard. The result of the interim revision is the BPS 5.2.

Documentation related to the content and process of the Interim Revision is available via the Bonsucro website.

VERSION 5.1

In April 2019, upon the recommendation of the Bonsucro Secretariat, the Board of Directors agreed to start the revision process of the Bonsucro Production Standard. The Board instructed the Secretariat to follow the Standard Revision Procedure set up in line with the ISEAL Code of Best Practice for Standard Setting.

The Secretariat formed a standard revision working group (SRWG), made up of individuals with expertise in all areas of the Bonsucro Production Standard. The SRWG was given the task to draft the new version of the Bonsucro Production Standard. They based their work on two public consultations, two pilot audits and the involvement of several external consultants and technical experts.

Each meeting was minuted and those minutes were made public on the Bonsucro website. The SRWG first met in London in July 2019. The working group met again in November 2019 and subsequently met remotely throughout 2020. In October 2021, the working group met in Madrid to approve the final version of the Production Standard.

A total of two public consultations, in which 402 people participated were carried out during the project.

- May – July 2020: 1st public consultation
- June – July 2021: 2nd public consultation

A total of two pilot audits were carried out:

- July 2021: Brazil
- July 2021: India

The Bonsucro Production Standard v5.1 was endorsed by the Bonsucro Board of Directors on 17th December 2021 and published on 17th of January 2022.

CHANGES LOG

Revision round	Date	Description of amendment
A	June 2010	Draft version sent to Bonsucro EU Sub Committee
B	July 2010	Final version approved by Bonsucro Management Committee
C	December 2010	Revision made based on compliance with EU Renewable Energy Directive (EU RED)
D	February 2011	Revision made based on compliance with EU RED
Draft version 2.0	November 2013	First draft open for public consultation
Draft version 2.5	June 2014	Second draft open for public consultation
Draft version 2.9	July 2014	Final draft published for vote by members
Version 4	July 2014	Revised Bonsucro Production Standard and Guidance with inclusion of new indicators and clarification added to the guidance document, which became a guidance for implementation 16 core indicators over 8 criteria 12 new indicators (added or replacing other indicators) 2 indicators with modified values 2 indicators removed Removal of Principle 7 – Chain of Custody
Version 4.1	August 2015	Revised Principle 6 to include certification for cellulosic ethanol produced from by-products of sugarcane (eg sugarcane straw and bagasse) in the Bonsucro EU certification scope Additional corrections made to indicator 3.1.4 and Annex 4
Version 4.1.1	September 2015	Revised indicator 6.1.2 to include a definition for highly biodiverse grassland to comply with EU Regulation no. 1307/2014
Version 4.1.2	May 2016	Revised indicator 6.1.2 to clarify assessment requirements for the role of an expert to determine whether the land had or has a highly biodiverse grassland status
Version 4.2	December 2016	Revision in light of amendments to RED and Fuel Quality Directive (FQD), as described in Directive 2015/1513
Draft version 5.01	May 2020	First draft for public consultation
Draft version 5.07	June 2021	Second draft for public consultation
Version 5.1	January 2022	Revised Bonsucro Production Standard and Guidance with inclusion of new indicators and clarification Now includes 72 indicators over 20 criteria 12 new indicators (added or replacing other indicators) 2 indicators with modified values 2 indicators removed Removal of Principle 6 – EU RED
Version 5.2	July 2023	Revised Bonsucro Production Standard and Guidance with clarifications and corrections 4 indicators with reduced scope 2 indicators with new threshold 2 indicators with new compliance measurement 1 indicator removed (3.1.4 from BPS v5.1 removed) 2 indicators merged into an existing indicator (4.1.5 and 4.1.6 from BPS v5.1 merged with indicator 1.2.2) 1 indicator changed from non-core to core 1 indicator changed from non-core to aspirational 3 indicators renumbered (indicators 3.1.5, 3.1.6 and 3.1.7 from BPS v5.1 became 3.1.4, 3.1.5 and 3.1.6 in this version of the standard)

PRINCIPLE 1 – ASSESS AND MANAGE ENVIRONMENTAL, SOCIAL & HUMAN RIGHTS RISKS

CRITERION	1.1 Leadership demonstrated through elaboration and implementation of a Sustainability Management Plan			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
<p>1.1.1 The operator develops and implements a Sustainability Management Plan to comply with the Bonsucro Production Standard.</p>	<p>Mill Agriculture</p>	<p>Core indicator</p>	<p>Yes</p>	<p>The operator shall develop and implement a Sustainability Management Plan that includes objectives and targets, to comply with the Bonsucro Production Standard. The Sustainability Management Plan shall include items a) to l):</p> <p>a) Sustainability policies and/or procedures and/or protocols and/or internal regulations in place to respect:</p> <ul style="list-style-type: none"> • Human rights aligned with UN Guiding Principles on Business and Human Rights (UNGPR) • Indigenous peoples’ rights, community engagement and land rights • Labour rights • Occupational health and safety • Environmental protection / non-conversion of HCVs • Anti-corruption / anti-bribery / money laundering • Ethical conduct <p>Policies and/or procedures and/or protocols and/or internal regulations shall be signed off by top management. The operator’s commitment is made available to personnel, suppliers, clients and other stakeholders, with a legitimate interest duly demonstrated. The policies and other documents clearly state that respect for these values is an active duty involving ongoing due diligence of actual and potential impacts.</p> <p>For group certification, the sustainability policies, protocols and/or internal regulations may be developed at a group level.</p> <p>b) Stakeholder Mapping and Engagement Plan, as per indicator 1.2.1 c) Risk assessment on compliance against the Bonsucro Production Standard, as per indicator 1.2.2 d) Improvement and opportunity assessments for the supply base, as per indicator 1.2.3 e) Continuous Improvement Plan on areas outside the units of certification, as per indicator 1.2.4 f) Internal monitoring process, as per indicator 1.4.1 g) Health & Safety Management Plan, as per indicator 2.1.2 h) Climate Mitigation and Resilience Plan, as per indicator 3.2.1 i) Biodiversity Management Plan, as per indicator 4.1.2 j) Soil Management Plan, as per indicator 4.2.2 k) Water Stewardship Plan, as per indicator 4.3.2 l) Integrated Pest Management (IPM) Plan, as per indicator 4.4.2</p> <p>In addition, the Sustainability Management Plan may include the Waste Management Plan as per indicator 5.2.2 and the Training Plan as per indicator 5.3.1, in case of compliance with these non-core indicators.</p> <p>The operator shall review the Sustainability Management Plan annually, with the exception of Soil Management, Water Stewardship and IPM Plans that are on a three-year review cycle.</p>

CRITERION	1.2 Risks and impacts are systematically assessed			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
1.2.1 The operator maps internal, external and vulnerable stakeholders, and elaborates an Engagement Plan for these stakeholders.	Mill Agriculture	Core indicator	Yes	<p>The operator shall elaborate a Stakeholder Mapping and Engagement Plan that includes:</p> <ul style="list-style-type: none"> a) The identification, prioritisation and engagement of internal, external and vulnerable stakeholders. b) Achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources for engagement. <p>The plan shall reflect continuous improvement and organisational learning principles.</p> <p>The operator shall review the Engagement Plan annually.</p>
1.2.2 The operator conducts a risk assessment on compliance against the Bonsucro Production Standard.	Mill Agriculture	Core indicator	Yes	<p>The operator shall conduct a risk assessment on compliance against the indicators of the Bonsucro Production Standard.</p> <p>The operator shall review the assessment annually.</p> <p>Prior to establishing new sugarcane-related operations, the operator shall conduct a risk assessment on the impact the new sugarcane-related operations would have on the compliance against indicators of the Bonsucro Production Standard. This is to evaluate the social and environmental risks raised by the new operations, particularly when such changes are likely to impact on the size and composition of the workforce (for example, mechanisation or field expansion), on the way in which land is used, and/or on the water quantity and quality in the watershed.</p> <p>Prior to any greenfield expansion or new agriculture projects, the operator shall conduct the <i>Bonsucro HCV Risk Assessment for expansion</i> for the planned areas and implement the HCV Risk Assessment procedures.</p> <p><i>NB: A detailed methodology on evaluating the expansion of cultivation can be found in Bonsucro Guidance for Operators – Expansion of Cultivation and Bonsucro Guidance for Experts – Expansion of Cultivation, available on the Bonsucro website.</i></p>
1.2.3 The operator conducts and documents an improvement opportunity assessment outside the unit of certification.	Mill Area outside the unit of certification	Core indicator	20%	<p>The operator shall conduct and document an annual assessment that identifies opportunities to address adverse social and environmental conditions on the operations in the area outside the unit of certification (sugarcane supply base not included in the unit of certification). The sugarcane supply base outside the unit of certification to be annually assessed shall be, as a minimum, 20% of the total supply base outside the unit of certification (calculated based on either the number of suppliers or total supplying area). The intent is to have 100% coverage of non-certified supply base in five years.</p> <p>The improvement opportunity assessment shall cover:</p> <ul style="list-style-type: none"> a) Risk of child labour b) Risk of forced labour c) Risk to water quantity and quality in the watershed d) Conversion of natural ecosystems

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
1.2.4 The operator develops and implements a Continuous Improvement Plan to support sugarcane suppliers in addressing the most salient opportunities identified outside the unit of certification.	Mill Area outside the unit of certification	Core indicator	Yes	<p>Based on the assessment in indicator 1.2.3, the operator shall:</p> <ul style="list-style-type: none"> a) Develop and document a Continuous Improvement Plan that defines and prioritises actions to assist sugarcane suppliers outside the unit of certification in addressing opportunities for improvement. b) Work with the sugarcane suppliers not included in the unit of certification to assist them in narrowing environmental and social performance gaps between certification area and supplier area. <p>The Continuous Improvement Plan shall be progressive and appropriate to the size, sector, operational context, ownership and structure of the operator, with achievable actions and objectives, agreed responsibilities, timeframes, and allocated resources. The plan shall reflect continuous improvement and organisational learning principles. The operator shall review the plan annually.</p> <p>If conversion of natural ecosystems has been identified as a risk for the whole sugarcane supply base (in indicator 1.2.3), it shall be addressed as a matter of priority.</p>
CRITERION	1.3 The implementation of the Sustainability Management Plan is systematic and risk based			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
1.3.1 The operator has a system in place to ensure compliance with all applicable local, national and ratified international laws and regulations.	Mill Agriculture	Core indicator	Yes	<p>The operator shall have a documented system in place to identify, update, track and verify compliance with all applicable local, national and ratified international laws and regulations.</p> <p>If the Bonsucro Standard and national law conflict or overlap, the stricter requirement applies. Where the domestic context renders it impossible to meet this responsibility fully, the operator shall respect the principles of the Bonsucro Production Standard to the greatest extent possible in the circumstances, and shall demonstrate its efforts in this regard, without contravening laws, regulations or court decisions.</p>
1.3.2 The operator respects the contract terms for cane payments.	Mill Agriculture	Core indicator	Yes	<p>The operator shall make cane payments according to the contractual agreement (including value and timing of payment).</p>

CRITERION	1.4 Systems for monitoring and evaluation (M&E) and grievances are implemented			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
1.4.1 The operator ensures that internal monitoring processes are conducted, corrective actions are implemented and a management review is conducted.	Mill Agriculture	Core indicator	Yes	<p>The operator shall:</p> <ul style="list-style-type: none"> a) Perform annual evaluations on all applicable indicators in the Bonsucro Production Standard on meeting the operator’s plans, objectives and targets, and check compliance with applicable legal requirements and other requirements to promote continuous improvement. b) Implement corrections and corrective actions accordingly. c) Maintain internal monitoring records and reports.
1.4.2 The operator ensures that there is a mechanism to raise grievances.	Mill Agriculture	Core indicator	Yes	<p>The operator shall:</p> <ul style="list-style-type: none"> a) Establish an effective grievance mechanism that is accessible to all affected parties who may be adversely impacted by the operations. The grievance mechanism shall be based on the effectiveness criteria of the UN Guiding Principles on Business and Human Rights (UNGPs): legitimate, accessible, predictable, equitable, transparent, rights-compatible, a source of continuous learning, and based on engagement and dialogue. b) Have a Conflict Resolution Mechanism in place that includes the option of access to independent legal and technical advice, and the ability for complainants to choose individuals or groups to support them and/or act as observers, as well as the option of a third-party mediator. c) Resolve grievances in an effective, timely and appropriate manner, ensuring anonymity of complainants when requested, without risk of reprisal or intimidation. d) Implement procedures to ensure that the system is understood by the affected parties, including by illiterate parties. e) Keep parties to a grievance informed of its progress, including against the agreed timeframe.

PRINCIPLE 2 – RESPECT LABOUR RIGHTS & OCCUPATIONAL HEALTH AND SAFETY STANDARDS

CRITERION	2.1 To provide a healthy and safe working environment in workplace operations			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.1.1 The operator ensures that the main health and safety (H&S) hazards and risks to all workers on the premises included in the unit of certification are identified, documented, assessed and communicated to all workers.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ol style="list-style-type: none"> Conduct H&S Assessments on all types of work on the operator's premises and shall adhere to relevant standards (legislation, policy and best practice) with regard to ensuring that employment does not jeopardise the health or safety of any workers. Assess H&S hazards and risks with regard to occupational risks, environmental risks, heat stress, and pre-existing medical, mental and cognitive health issues. Ensure assessment is ongoing/repeated to incorporate changing conditions. Communicate the main H&S hazards and risks to all workers. <p><i>NB:</i> In the case of group certification, the assessment may be carried out at a group level (one assessment for the whole group, covering all farms and ensuring all activities have been assessed).</p>
2.1.2 The operator manages H&S hazards and risks to all workers on the premises included in the unit of certification through implemented and enforced plans.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ol style="list-style-type: none"> Manage the identified occupational, environmental, medical, mental and cognitive health issues, and H&S hazards and risks, in line with the H&S hazard and risk assessment. Define a H&S Management Plan with achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources. The H&S Management plan shall reflect continuous improvement and organisational learning principles. Review the H&S Management Plan annually.
2.1.3 The operator ensures that all workers on the premises included in the unit of certification have access to safe water and adequate sanitation facilities.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ol style="list-style-type: none"> Provide free and safe drinking water to all workers, in close proximity to their workstations. <i>NB:</i> Recommended water consumption will depend on heat exposure and workloads. Provides access to free and safe water, hand washing, and skin cooling, as well as access to toilet facilities. Separate toilet facilities are provided for male and female workers, unless unisex facilities are the cultural norm in the country, allowed by national legislation, or only one gender is present. <p>Drinking water shall comply with the microbiological, physical and chemical parameters, and other characteristics established in applicable country legislation or, in their absence, the critical parameters defined by the World Health Organization (Annex 3 of Bonsucro Production Standard).</p>
2.1.4. The operator ensures that all workers on the premises included in the unit of certification have access to appropriate personal protective equipment (PPE) free of charge.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ol style="list-style-type: none"> Provide required, approved and adequate PPE, which is in good condition, for free to the workers. Train workers in the use of PPE. Implement a system to monitor the effective use of PPE.

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.1.5 The operator ensures that all workers on the premises included in the unit of certification receive H&S training.	Mill Agriculture	Non-core indicator	100%	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure that all new workers receive an induction, which includes basic training on occupational H&S instructions, prior to beginning activities. The training shall include information about risks associated with activities performed by the workers. b) Provide training on the specific H&S risks associated with the new position or activity for workers starting a new job or taking on new activities. c) Ensure all workers receive an update with refresher training at least every three years or more frequently as determined by the H&S Management Plan. d) Ensure instructions on new issue-specific H&S concerns are carried out as they emerge. e) Ensure time spent on training is considered as worked time and paid as such.
2.1.6 The operator ensures that first aid and an emergency response are available to all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	Yes	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure that the emergency procedures and contact details are in an accessible language to workers. b) Ensure that first aid supplies are available and checked, and that dedicated personnel are trained to use them. c) Ensure the provision for injured or ill persons to receive professional medical treatment, so that emergency response prevents the escalation of injury or illness.
2.1.7 The operator ensures that the number of lost-time accidents is lower than the metric threshold for all workers on the premises included in the unit of certification.	Mill Agriculture	Non-core indicator	Mill <15 Agric <30 (accidents per million hours worked)	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall ensure the number of lost-time accidents is lower than the metric threshold and: a) Register incidents, non-fatal injuries and occupational fatalities. b) Analyse the register of incidents, non-fatal injuries and occupational fatalities to identify their root cause and implement corrective actions. A lost-time accident is defined as an unexpected and unplanned event that results in a personal injury, causing the worker to be unable to carry on with his/her normal duties on the next day or next shift.
CRITERION	2.2 To provide all workers (including migrant, seasonal and other contract labour) with benefits and salary sufficient to achieve an adequate standard of living			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.2.1 The operator ensures that all workers on the premises included in the unit of certification have a contract.	Mill Agriculture	Core indicator	100%	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Provide a contract. b) Explain the clauses in the contract to workers in an appropriate manner (especially if workers are illiterate or if they speak another language) to ensure they understand the clauses, rights and obligations included in their contract. c) If not specified by local legislation, ensure the contract includes at least the following elements: hours of work, overtime hours and payment, notice, rest periods, holidays, parental/maternity/paternity leave, wages, mode of payment, and, if legal, any deductions that will be made. d) Provide the worker with a copy of the contract in their own language.

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.2.2 The operator ensures that the number of working hours at the farm and mill complies with national legislation for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	Yes	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure that the number of working hours does not exceed what is permissible under national legislation. b) If workers work more than 60 hours per week, conduct and document a risk assessment to ensure that excessive working hours do not compromise H&S, and minimise the accumulation of fatigue by monitoring accident rates and act accordingly if accident rates caused by excessive hours exceed the normal average. c) Notwithstanding any occasional exceptional circumstances, ensure that workers have at least 1 day off every 7 days or 2 days off every 14 days.
2.2.3 The operator ensures that overtime is paid at a premium rate for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	>25%	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure overtime is paid at a premium rate of at least of 25%. b) Ensure overtime work is voluntary and exceptional. c) Ensure voluntary overtime hours are reflected in the employment/worker's contract and payroll documents show accurate information for all work performed, including overtime.
2.2.4 The operator ensures that all workers on the premises included in the unit of certification receive at least the legal minimum wage including benefits.	Mill Agriculture	Core indicator	≥1 \$/\$	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Pay at least minimum wage including benefits as defined by the legal requirement. b) If wages are negotiated voluntarily between employers and workers' organisations, ensure the negotiated wage amount(s) applies to all workers covered under the negotiated agreement. c) In cases where the law permits in-kind payments, ensure these do not exceed 30% of the minimum wage.
2.2.5 The operator ensures that piece-rate workers are guaranteed at least the minimum wage including benefits for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	≥1 \$/\$	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Pay at least minimum wage including benefits to all workers, including those on piece rate/quotas, for whom the calculation is based on the proportion of the daily rate for minimum wage according to the hours worked (as covered in 2.2.4 and 2.2.2). If, under these conditions, the piece rate does not meet the minimum wage, ensure the wage level is upgraded to at least the minimum wage. b) Ensure no more than 30% of the required minimum wage is paid in-kind. c) Ensure curtailed days (by management or due to workplace incidents/injuries) are compensated as a full day.
2.2.6 The operator benchmarks prevailing wages for direct workers on the premises included in the unit of certification.	Mill Agriculture	Aspirational indicator	Yes	For direct workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Fill in prevailing wages and benchmark tool, aligned to the Living Wage methodology. b) Update the benchmark every three years, or more regularly as per company policies.

CRITERION	2.3 To respect workers' right to favourable working conditions			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.3.1 The operator ensures that workers do not suffer from discrimination, for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall ensure that workers do not suffer from discrimination (as defined in Annex 1) by having a publicly available, implemented and communicated non-discrimination and equal opportunity policy (and/or procedures, protocols and internal regulations) applicable to recruitment, remuneration, and access to training, promotion and facilities.</p> <p><i>NB:</i> For group certification, the policy (and/or procedures, protocols and internal regulations) may be produced at group level (covering all farms).</p>
2.3.2 The operator ensures that workers do not suffer from abuse, harassment and/or violence, for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ul style="list-style-type: none"> a) Have a publicly available, implemented and communicated policy (and/or procedures, protocols and internal regulations) to prevent sexual and all other forms of abuse, harassment and/or violence. The policy (and/or procedures, protocols and internal regulations) shall ensure that no worker is subject to unacceptable behaviours or practices, or threats thereof, which result in verbal or non-verbal forms of physical, psychological, sexual or economic harm, including gender-based violence, extortion and harassment. b) Protect whistle-blowers and guarantee their anonymity. <p><i>NB:</i> For group certification, the policy (and/or procedures, protocols and internal regulations) may be produced at group level (covering all farms).</p>
2.3.3 The operator ensures that workers do not suffer from forced labour, for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	Yes	<p>For all workers on the premises of the mill and farms included in the unit of certification, the operator shall:</p> <ul style="list-style-type: none"> a) Have a publicly available, implemented and communicated policy (and/or procedures, protocols and internal regulations) ensuring workers do not suffer from forced or compulsory labour. The policy (and/or procedures, protocols and internal regulations) shall cover the various forms of forced labour most relevant for the local operations, including when forced labour can be an outcome of the trafficking of persons and irregular migration. b) Protect whistle-blowers and guarantee their anonymity. <p><i>NB:</i> For group certification, the policy (and/or procedures, protocols and internal regulations) may be produced at group level (covering all farms).</p>

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.3.4 The operator ensures that there is no child labour, for all persons on the premises included in the unit of certification, regardless of whether they are employed by the operator.	Mill Agriculture	Core indicator	18 years	The operator shall: a) Adhere to minimum age provisions for all workers in accordance with all applicable national laws and regulations. This applies to all persons on the premises of the mill and farms included in the unit of certification, regardless of whether they are employed by the operator. The minimum age for hazardous work (work that jeopardises health or welfare) is 18 years. b) Ensure that there are restrictions on hours of work and overtime for: young workers above the legal minimum working age but below 18 years; legal apprenticeships; working at dangerous heights, or with dangerous machinery, equipment or tools; transport of heavy loads; and exposure to hazardous substances or processes. Working in difficult conditions such as at night is prohibited. c) Ensure that work does not affect schooling for young workers under the legal school-leaving age. d) Implement a system to check the age of workers.
2.3.5 Where the operator or its subcontractors provides accommodation to workers, the operator ensures that it meets minimum safety standards, for all workers on the premises included in the unit of certification.	Mill Agriculture	Core indicator	100%	When accommodation is provided to workers, either by the operator or by its subcontractors, for all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure that the housing provided meets local sanitary and regulatory standards, or the requirements stated in Annex 4, whichever is more stringent. b) Keep and update a register of workers and family members who live in management-provided housing.
2.3.6 The operator minimises working hours lost due to absenteeism, for workers directly contracted by the operator.	Mill	Non-core indicator	< 5%	For workers directly contracted by operators (ie those workers with a written contract with the operator), the operator shall ensure that the proportion of working hours lost due to absenteeism is less than 5%, by recording working hours lost due to any failure to report for, or remain at, work as scheduled, regardless of the reason. This is usually unplanned (for example, when someone falls ill), but it can also be planned (for example, during a strike or wilful absence). Absenteeism is also referred to as “no-show,” as well as strikes, non-justified sickness, etc. It does not include holidays, legal time off such as maternity leave, or training.
CRITERION	2.4 To safeguard respect for labour rights through functioning social dialogue mechanisms			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.4.1 The operator ensures that the rights of all workers on the premises included in the unit of certification to freedom of association and collective bargaining are respected, free from interference.	Mill Agriculture	Core indicator	Yes	For workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Ensure the right to form, join or not join a labour union without fear of reprisal, intimidation or harassment, and not interfere with workers’ own efforts to set up independent representational mechanisms (unions or comparable organising platforms) in accordance with the Universal Declaration of Human Rights and ILO core Standards. b) Ensure that all workers have the right to perform collective bargaining. Collective Bargaining Agreements (CBAs) are transparent, documented and duly respected in their implementation for unionised workers throughout the workforce and can also extend to non-unionised workers.

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.4.2 The operator promotes consultation and information exchange between and amongst employers and workers' organisations through social dialogue, for all workers on the premises included in the unit of certification.	Mill Agriculture	Non-core indicator	Yes	For all workers on the premises of the mill and farms included in the unit of certification, the operator shall: a) Engage in regular dialogue with direct and indirect workers to promote continuous improvement of working conditions. b) Promote other mechanisms of social dialogue (eg mix committees, gender committees, committees to address harassment and worker consultation practices).
CRITERION	2.5 Use of land and water resources does not diminish the legal, customary or user rights of indigenous peoples and local communities			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
2.5.1 The operator identifies legal and/or customary rights in relation to land and water users, and any transfer of those rights to the operator is done so on the basis of engagement and consultation.	Mill Agriculture	Non-core indicator	Yes	The operator shall: a) Demonstrate that it has identified and documented any legal and/or customary rights in relation to land and water use. b) When rights have been relinquished by indigenous peoples or local communities to the benefit of the operator, on or after the publication of the Bonsucro Production Standard 5.1 (1 January 2022), or when the operator first became certified (whichever is the latest), demonstrate that the decision was reached through a process of Free, Prior and Informed Consent in line with United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), as a minimum.
2.5.2 The operator demonstrates that it is taking steps to address legitimate land and water claims in accordance with applicable legal processes.	Mill Agriculture	Core indicator	Yes	The operator shall: a) Engage in good faith in applicable legal processes, and take appropriate actions in accordance with national law to resolve any land- or water-related conflict. b) Comply with any court rulings. c) Where complaints arise through non-judicial processes, engage in good faith to resolve land or water conflicts.

PRINCIPLE 3 – MANAGE INPUT, PRODUCTION AND PROCESSING EFFICIENCIES TO ENHANCE SUSTAINABILITY

CRITERION	3.1 To monitor production and process efficiency; to measure the impacts of production and processing so that improvements are made over time			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
3.1.1 The operator ensures that yields of production are above the threshold set by the climatic zone map.	Agriculture	Non-core indicator	Tc/ha depending on climatic zone	<p>The operator shall ensure that the yields of production for rain-fed and irrigated cane are higher than the threshold set by the climatic zone map. For this, the operator records average yields for rain-fed and irrigated cane.</p> <p>The operator also identifies the farms' location on the Bonsucro Climatic Zone map and records the climatic zone.</p> <p>When the farms' location is in two or more different climatic zones, the operator shall consider the most representative one (based on the largest area).</p> <p>The operator may use the rolling average of the maximum over the past five years when it is not possible to comply with this indicator due to climatic issues during the reported period.</p> <p><i>NB:</i> In this context, 'irrigated' refers to systems that rely on external waters to grow. It includes all strategies of irrigation (supplementary or full), as well as any kind of water except direct rain.</p>
3.1.2 The operator maximises sugar content in cane.	Mill Agriculture	Non-core indicator	>10%	<p>The operator shall ensure that the cane has at least 10% of the theoretical recoverable sugar (TRS) content. This indicator applies only where no ethanol is produced from crystallizable sugar or if it is only produced from final molasses.</p> <p>The TRS content of cane is a measure of how much sugar that is present in the cane can be extracted. It is a measure of the quality of the cane, not of the efficiency of recovery of the sugar at the mill. The fibre content of cane and the purity of the raw juice have an effect on the recoverability of sugar and are included in this parameter.</p> <p>The operator may use the rolling average of the maximum over the past five years when it is not possible to comply with this indicator due to climatic issues during the reported period.</p>
3.1.3 The operator maximises the Total Sugars As Invert (TSAI).	Mill Agriculture	Non-core indicator	>120 kg/t cane	<p>The operator shall maximise the TSAI, ie TSAI shall be greater than 120 kg per tonne of cane. This indicator applies if ethanol is produced, either on its own or in conjunction with sugar production. To determine the fermentable total sugars we assume a standard utilisation of 90.5 % of the TSAI to be converted to ethanol.</p> <p>In cases where sugar and ethanol are produced (not from final molasses), the content of TSAI in cane, and not just recoverable sucrose, is important. This is a measure of the quality of the cane, not of the industrial efficiency of converting sugars into ethanol at the mill.</p> <p>The operator may use the rolling average of the maximum over the past five years when it is not possible to comply with this indicator due to climatic issues during the reported period.</p>

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
3.1.4 The operator crushes cane efficiently.	Mill	Non-core indicator	>75%	The operator shall spend at least 75% of the total length of crushing season in processing cane without interruptions. The length of a season is calculated from the time the first cane is processed by the mill at the start of a season to the point at which the last cane is processed. Any stoppage, including maintenance activities or power-supply failure, must be counted as stoppage, with the exception of stops due to rainfall exclusively.
3.1.5 The operator maximises sugar recovery.	Mill	Non-core indicator	>90%	<p>The operator shall have a factory performance index (the ratio of actual sugar recovered to the TRS in cane) of at least 90%.</p> <p>This indicator applies only if sugar is produced and/or ethanol is produced from final molasses only. This ratio is used to measure the actual sugar recovery against the theoretical recovery of sugar from cane.</p> <p>The operator may use the rolling average of the maximum over the past five years when it is not possible to comply with this indicator due to climatic issues during the reported period.</p>
3.1.6 The operator maximises the industrial efficiency.	Mill	Non-core indicator	>75%	<p>The operator shall have an industrial efficiency of at least 75%.</p> <p>This indicator applies if ethanol only, or sugar and ethanol produced from anything other than final molasses are produced in the same mill. It is the ratio expressed as a percentage of the sum of TSAI equivalent products (sugar, ethanol yeast, and molasses) to the TSAI of the cane.</p> <p>The operator may use the rolling average of the maximum over the past five years when it is not possible to comply with this indicator due to climatic issues during the reported period.</p>

CRITERION	3.2 To monitor global warming emissions with a view to minimising climate change impacts			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
3.2.1 The operator conducts a climate risk assessment, and ensures that a Climate Change Mitigation and Resilience Plan is in place and implemented.	Mill Agriculture	Core indicator	Yes	<p>The operator shall:</p> <ol style="list-style-type: none"> Conduct a climate risk assessment. Define a Climate Change Mitigation and Resilience Plan with achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources. As part of the Climate Change Mitigation and Resilience Plan, set baseline emissions and absolute GHG reduction targets. The plan shall reflect continuous improvement and organisational learning principles. Implement the Climate Change Mitigation and Resilience Plan, including monitoring applicable climate change impacts and evaluating how they will affect operations and workers over time. Review the plan at least every three years or sooner as per company procedures. <p><i>NB:</i> For group certification, the Climate Change Mitigation and Resilience Plan may be produced at group level (covering all farms).</p>
3.2.2 The operator ensures that GHG emissions per tonne of cane are below the metric threshold.	Agriculture	Non-core indicator	<40 kg CO ₂ eq/t cane	<p>The operator shall estimate the emissions from agricultural activities using the Bonsucro calculator and ensure GHG emissions are below the threshold.</p> <p>The result is also used in the calculation of the total emissions field-to-gate.</p>
3.2.3 The operator ensures that GHG emissions per tonne of sugar are below the metric threshold.	Mill	Non-core indicator	Total <0.4 t CO ₂ eq/t sugar	<p>The operator shall estimate emissions from industrial activities using the Bonsucro calculator and ensure GHG emissions are below the threshold.</p> <p>This indicator is applicable only when sugar is produced. Emissions are field-to-gate. The environmental burden is tonnes of carbon dioxide equivalent per tonne of sugar.</p>
3.2.4 The operator ensures that GHG emissions per MJ of ethanol are below the metric threshold.	Mill	Non-core indicator	Total <24 g CO ₂ eq/MJ fuel	<p>The operator shall estimate emissions from industrial activities using the Bonsucro calculator and ensure GHG emissions are below threshold.</p> <p>This indicator is only applicable when ethanol is produced. The environmental burden is grams of carbon dioxide equivalent per MJ fuel.</p>
3.2.5 The operator maximises the energy return on energy invested.	Mill	Non-core indicator	>7 energy output/energy input	<p>The operator shall calculate the ratio between the energy delivered by ethanol and the energy invested in the production of the ethanol. The ratio of energy output to energy input shall be greater than 7. This indicator only applies when:</p> <ul style="list-style-type: none"> ethanol is produced or ethanol and electricity are produced. <p>This indicator is not applicable to mills producing electricity but not ethanol.</p>

PRINCIPLE 4 – ACTIVELY MANAGE BIODIVERSITY AND ECOSYSTEM SERVICES

CRITERION	4.1 To protect and rehabilitate biodiversity and ecosystem services, as well as maintain and enhance HCVs			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.1.1 The operator ensures that the biodiversity and natural ecosystems are mapped.	Mill Agriculture	Non-core indicator	Yes	<p>The operator shall map the biodiversity and natural ecosystems across the unit of certification. The mapping shall be updated as per company policies or best practice.</p> <p>A detailed methodology on how to map biodiversity can be found in <i>Bonsucro Guidance for Operators – Supply Base Mapping</i>, available on the Bonsucro website.</p> <p><i>NB:</i> For group certification, the mapping may be produced at group level (covering all farms).</p>
4.1.2 The operator develops and implement a Biodiversity Management Plan (BMP).	Mill Agriculture	Core indicator	Yes	<p>The operator shall develop and implement a BMP. The BMP shall:</p> <ul style="list-style-type: none"> a) Address threats and impacts that the cane production has on biodiversity, ecosystem services and High Conservation Value (HCVs) areas, identifying mitigation and restoration measures that must be taken. b) Have achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources. c) Reflect continuous improvement and organisational learning principles. d) Be revised at least every three years or sooner as per company procedures. <p>A detailed methodology on how to develop a BMP can be found in <i>Bonsucro Guidance for Operators – Developing a Biodiversity Management Plan</i>, available on the Bonsucro website.</p>
4.1.3 The operator ensures that areas of legally protected natural ecosystems (nationally or internationally), or areas classified as HCV, have not been converted to sugarcane on or after 1 January 2008.	Mill Agriculture	Core indicator	0%	<p>The operator shall conduct a land-use change analysis of the unit of certification, to determine if land classified as a legally protected natural ecosystem (nationally or internationally), or classified as HCV, has not been converted to sugarcane on or after 1 January 2008.</p>
4.1.4 The operator ensures that areas of natural ecosystems (either legally protected or not) or areas classified as HCV have not been converted to agriculture on or after 1 January 2021.	Mill Agriculture	Core indicator	0%	<p>The operator shall conduct a land-use change analysis of the unit of certification, to determine if land classified as natural ecosystem (either legally protected or not), or classified as HCV, has not been converted to agriculture on or after 1 January 2021.</p>

CRITERION	4.2 A Soil Management Plan is in place to avoid erosion, and maintain and improve soil health			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.2.1 The operator ensures that soils and/or soil management units of the farm are mapped.	Agriculture	Non-core indicator	Yes	<p>The operator shall:</p> <ul style="list-style-type: none"> a) Map field boundaries and their soil management units, which may include soil types and other characteristics relevant to manage soil health. b) Guarantee that the mapping is done according to local industry-recognised best practices, ideally supported by scientific publication. <p><i>NB:</i> For group certification, the mapping may be produced at group level (covering all farms).</p>
4.2.2 The operator develops and implements a Soil Management Plan (SMP).	Agriculture	Core indicator	Yes	<p>The operator shall develop and implement an SMP that:</p> <ul style="list-style-type: none"> a) Articulates the good management practices required for the operator to ensure the prevention of degradation or erosion of the farm's soils. b) Permits the optimal use of resources and the continuous improvement of soil conditions. c) Has achievable actions and objectives, agreed responsibilities, timeframes, and allocated resources that identify and address threats and impacts of: <ul style="list-style-type: none"> 1. Soil compaction, erosion and disturbance. 2. Lack of continuous ground cover. 3. Low organic matter. 4. Alkalinisation or acidification of soils. d) Identifies practices aimed at preventing, mitigating, remedying and reducing soil degradation for each management unit. e) Identifies practices to continuously improve soil conditions and to be implemented.
4.2.3 The operator conducts regular soil or leaf analysis.	Agriculture	Non-core indicator	Yes	<p>The operator shall conduct regular soil or leaf analysis to inform the objectives and monitoring included in the SMP, as well as for recommendations on fertiliser.</p> <p>Sampling and analysis for the determination of recommendations shall be performed according to local industry recognised best practices, ideally supported by scientific publication.</p>
4.2.4 The operator applies as much fertiliser as recommended by soil or leaf analysis.	Agriculture	Core indicator	<1.05 ratio of fertiliser applied to recommendation for each nutrient	<p>The operator shall apply total NPK (organic and inorganic) as recommended by the soil or leaf analysis, and the ratio of fertiliser applied to recommendation for each nutrient shall not exceed 1.05.</p> <p>The recommendation shall be actioned according to local industry-recognised best practices, ideally supported by scientific publication.</p>
4.2.5 The operator prevents sugarcane tops and leaves from being burned after harvest.	Agriculture	Non-core indicator	Yes	<p>The operator shall not burn mulch / trash blanket after harvest.</p> <p>The indicator may exclude criminal, accidental or prophylactic burning, providing the operator proves and justifies the reason why.</p>

CRITERION	4.3 A Water Stewardship Plan is in place			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.3.1 The operator identifies the main water resources and catchment areas.	Mill Agriculture	Non-core indicator	Yes	<p>The operator shall:</p> <ul style="list-style-type: none"> a) Identify the main water resources (including catchment areas, basin, sub-basin or micro basin). b) Define the level of availability of the main water resources (water stress). c) Map local water initiatives and list organisations involved in water management. <p><i>NB:</i> For group certification, the mapping may be produced at group level (covering all farms).</p>
4.3.2 The operator develops and implements a Water Stewardship Plan (WSP).	Mill Agriculture	Core indicator	Yes	<p>The operator shall develop and implement a WSP. The WSP shall:</p> <ul style="list-style-type: none"> a) Contain achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources. b) Reflect continuous improvement and organisational learning principles. c) Be reviewed at least every three years or sooner as per company procedures.
4.3.3 The operator promotes sustainable water use by engaging in collaborative actions.	Mill Agriculture	Non-core indicator	Yes	<p>The operator shall document their engagement in collaborative and collective action to promote sustainable water use. The operator shall engage with other water users, government and civil society in catchment or aquifer water planning and management, including how to allocate water equitably and without conflict, especially where water resources are stressed.</p>
4.3.4 The operator maximises water efficiency per mass of product.	Mill	Non-core indicator	<p><20 for sugar only, or <30 for ethanol</p> <p>kg of water/ kg of mass product</p>	<p>The operator shall maximise water efficiency per mass of product.</p> <p>The volume of water consumed at the mill equals the volume of water used less the volume of water returned to the environment.</p> <p>If effluents are exported by the mill to the fields for irrigation, the mill accounts for it as water returned to the environment.</p>
4.3.5 The operator maximises irrigation productivity.	Agriculture	Non-core indicator	WPa ≥ WPo	<p>The operator shall ensure irrigated water is used efficiently.</p> <p>Water productivity (WP) is a measure of how effectively irrigation water is used to produce sugarcane. WP equals the cane yield harvested (t/ha), divided by the net irrigation over the growing season (mm).</p> <p>Irrigation WP is strongly influenced by the amount of rain received. This relationship is expressed as the benchmark WP (WPo). The actual cane yield and net irrigation applied over the growing season (mm) will determine the actual WP (WPa).</p>

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.3.6 The operator minimises detrimental effects of waste discharge.	Mill	Non-core indicator	>2.5 PPM for DO; or ≤ 1 kg COD / t product; or ≤ 0.25 kg BOD / t product	<p>The operator shall measure the effects of waste in the case of effluent discharge into receiving streams.</p> <p>Dissolved oxygen (DO) is an indicator of the quantity of oxygen available in the receiving stream to support life. Sampling for DO shall be from the receiving stream. Sampling for chemical oxygen demand (COD) and biological oxygen demand (BOD) shall be at the discharge point.</p> <p>The frequency of analysis shall follow local legislation/regulations. In the absence of legislation/regulations, the sampling and analyses shall be carried out at least once during the harvest season.</p>
CRITERION	4.4 Pest, Disease and Weed Management Plans are in place and implemented			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.4.1 The operator identifies and monitors current, historical and potential weeds, pests and diseases.	Agriculture	Non-core indicator	Yes	<p>The operator shall identify current, historical and potential pests, including weeds affecting the fields and diseases, and, where appropriate, define for each the threshold for when control becomes necessary.</p> <p>The operator conducts field monitoring of plant health, pests and beneficial organisms.</p>
4.4.2 The operator implements an Integrated Pest Management Plan (IPM Plan).	Agriculture	Core indicator	Yes	<p>The operator shall have an IPM Plan that:</p> <ol style="list-style-type: none"> Identifies agronomic, biological and chemical strategies appropriate to the target species and farming system. Identifies thresholds when weed, pest and disease controls become necessary to minimise the economic impact. Minimises off-site impacts. Has achievable actions and objectives, monitoring activities, agreed responsibilities, timeframes, and allocated resources. Reflects continuous improvement and organisational learning principles. Is reviewed at least annually or more frequently in response to emerging pest, weed and disease pressures.
4.4.3 The operator maximises the efficiency of agrochemicals applied.	Agriculture	Core indicator	Yes	<p>The operator shall:</p> <ol style="list-style-type: none"> Apply agrochemicals in the recommended dose, to minimise air, soil and water contamination, particularly off-site impacts. Account for quantities of active ingredients in applied agrochemicals (including but not limited to insecticides, acaricides, herbicides, fungicides, nematicides, molluscicides, rodenticides, ripeners and plant-growth regulators excluding coadjuvants and other inert materials). Use only products registered for use, at registered rates and in accordance with label directions. Follow the IPM Plan under indicator 4.4.2 for agrochemicals spraying.

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.4.4 The operator only applies legal and safe agrochemicals.	Agriculture	Core indicator	Yes	<p>The operator shall not use active ingredients of agrochemicals included in:</p> <ul style="list-style-type: none"> a) Pesticide formulations that meet the criteria of classes Ia (extremely hazardous) or Ib (highly hazardous) of the WHO Recommended Classification of Pesticides by Hazard. b) Pesticide active ingredients and their formulations that meet the criteria of carcinogenicity Categories 1A and 1B of the Globally Harmonized System on Classification and Labelling of Chemicals (GHS). c) Pesticide active ingredients and their formulations that meet the criteria of mutagenicity Categories 1A and 1B of the GHS. d) Pesticide active ingredients and their formulations that meet the criteria of reproductive toxicity Categories 1A and 1B of the GHS. e) Pesticide active ingredients listed by the Stockholm Convention in its Annexes A and B, and those meeting all the criteria in paragraph 1 of Annex D of the Convention. f) Pesticide active ingredients and formulations listed by the Rotterdam Convention in its Annex III. g) Pesticides listed under the Montreal Protocol. <p>In the absence of non-banned alternatives legally registered for use, the operator shall research and document if alternative chemical or non-chemical controls can be used. If the research confirms that no non-banned chemical or non-chemical alternatives are available, the use of a banned agrochemical is tolerated. In these cases, the Risk Management Plan shall be updated to include and control the risks arising from applying a potentially dangerous chemical. The operator shall develop a plan to phase out or eliminate the use of the banned agrochemicals.</p> <p>A list of banned active ingredients can be found in this link.</p>
CRITERION	4.5 To ensure that hazardous chemicals and materials do not negatively impact biodiversity and ecosystem services			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
4.5.1 The operator safely manages storage facilities and safely disposes of chemicals, fuels, lubricants, other hazardous materials and their containers.	Mill Agriculture	Core indicator	Yes	<p>The operator shall ensure that agrochemicals, oils, lubricants, batteries, medical waste and other chemicals are:</p> <ul style="list-style-type: none"> a) Safely stored in a ventilated room that allows for spillage management (such as a retention pond, etc.). b) Access-restricted to the sole users. c) Stored securely in a manner that prevents unauthorised access and protects the environment in the event of spillage. d) Safely handled and disposed of, including their empty containers.

INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
<p>4.5.2 The operator trains workers on the handling and correct use of farm chemicals, fuel and hazardous materials.</p>	<p>Mill Agriculture</p>	<p>Non-core indicator</p>	<p>Yes</p>	<p>The operator shall ensure that all workers who handle or come into contact with farm chemicals, fuel or hazardous materials are trained in their handling.</p> <p>Training shall:</p> <ul style="list-style-type: none"> a) Be conducted by a competent professional on the safe management of farm chemicals, fuel and hazardous materials. b) Be specific and relevant to the task(s) performed. c) Include an explanation of the names, formulations, toxicity, health risks and other relevant Material Safety Data Sheet (MSDS) information related to farm chemicals, fuel, hazardous materials and all substances to be used. d) Include techniques for the correct handling of these substances. e) Include the correct use of PPE. f) Include measures for preventing/reducing possible harm to health and the environment caused by the substances. g) Include emergency procedures, first aid and medical attention procedures for cases involving poisoning or undue contact with these substances. <p>All records shall be kept. At least one worker in each field group shall be trained in first aid by a competent professional or organisation.</p>

PRINCIPLE 5 – CONTINUOUSLY IMPROVE OTHER KEY AREAS OF THE BUSINESS

CRITERION	5.1 To promote economic and social sustainability			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
5.1.1 The operator ensures that value is maximised per tonne of cane.	Mill Agriculture	Non-core indicator	Mill >14 US\$/t cane; Agric >10 US\$/t cane	The operator shall maximise economic sustainability by adding value per tonne of cane. Value added by the operation is the value of sales less the price of goods, raw materials (including energy) and services purchased. It does not include depreciation, subsidies, salaries, taxes and benefit repartition.
CRITERION	5.2 To reduce emissions and effluents, and to promote recycling of waste streams where practical			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
5.2.1 The operator complies with legislation applicable to air emissions from stationary sources (boilers only).	Mill	Non-core indicator	Yes	The operator shall measure and report stationary source emissions from boilers and demonstrate it complies with applicable legislation in terms of particulate matter (PM) and NOx.
5.2.2 The operator recycles or safely disposes of non-production waste.	Mill Agriculture	Non-core indicator	Minimum 4 categories	The operator shall have a Waste Management Plan and implement a recycling / reuse / safe and responsible disposal / storage (if other options are not available) programme for at least four of the following categories: a) fibre b) metal c) plastic d) rubber e) wood f) glass g) electronics.

CRITERION	5.3 To train workers and other workers in all areas of their work and develop their general skills			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
5.3.1 The operator provides vocational and/or occupational skills training to workers directly contracted by the operator.	Mill Agriculture	Non-core indicator	Average 16 hours per year per employee (or full-time equivalent of 16 hours per year per employee)	<p>For workers directly contracted by the operator (ie those workers with a written contract with the operator) included in the unit of certification, the operator shall:</p> <ul style="list-style-type: none"> a) Provide an average of 16 hours of training for vocational and/or occupational skills training to all workers. Training days include training delivered to basic workers, intermediate management and upper management. b) Have a Training Plan prepared ahead of each harvest or cutting cycle (in cases where the harvest or cutting cycle is continuous, the Training Plan shall be developed annually). <p>Under this indicator, H&S training is not considered as vocational and/or occupational skills training and should not be included in the 16 hours.</p> <p>For part-time and temporary workers, the hours must be calculated <i>pro rata</i>.</p>
CRITERION	5.4 Continuous improvement of worker welfare			
INDICATOR	Scope	Level of criticality	Compliance measurement	Full indicator wording
5.4.1 The operator promotes gender inclusion in management and skilled positions to workers directly contracted by the operator included in the unit of certification.	Mill Agriculture	Non-core indicator	15%	<p>For workers directly contracted by the operator (ie those workers with a written contract with the operator) included in the unit of certification, the operator shall:</p> <ul style="list-style-type: none"> a) Conduct community-based women’s empowerment training. b) Promote recruitment operations to encourage women’s presence in management and skilled positions across the operation, to meet the objectives set in the operation of not less than 15%.

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Absenteeism	Any failure to report for or remain at work as scheduled, regardless of the reason. This is usually unplanned, for example, when someone falls ill, but can also be planned, for example during a strike or wilful absence.	Cascio & Boudreau, 2015
All workers	<p>All workers working within the unit of certification including:</p> <p>Waged workers:</p> <ul style="list-style-type: none"> • Permanent workers • Temporary and seasonal workers • Migrant workers • Subcontracted workers • Land-less workers 	Bonsucro Production Standard v.4.2
	<p>Non-waged workers:</p> <ul style="list-style-type: none"> • Large and middle scale farmers • Small scale farmers • Subsistence farmers • Unpaid family workers • Collective farmers • Tenants and sharecroppers 	
Catchment	<p>The geographical zone in which water is captured, flows through and eventually discharges at one or more points. The concept includes both surface water catchment and groundwater catchment.</p> <p>A surface water catchment is defined by the area of land from which all precipitation received flows through a sequence of streams and rivers towards a single river mouth, as a tributary to a larger river, or to the sea.</p> <p>A groundwater catchment is defined by the geological structure of aquifers and groundwater flow paths. It is replenished by water that infiltrates from the surface. It has vertical thickness (from a few metres to hundreds of metres) as well as an area. Depending on local conditions, surface and groundwater catchments may be physically separate or interconnected.</p> <p>Catchment of origin refers to a catchment, distinct from the site's catchment(s), where a product or service is manufactured or sourced. It may be anywhere from an adjacent catchment to the other side of the world. Alternative terms are watershed, basin and river basin.</p>	Alliance for Water Stewardship

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Child	Any person younger than 15 years of age, unless local minimum age law stipulates a higher age for work or mandatory schooling, in which case the higher age would apply. The ILO Minimum Age Convention, No. 138 (1973) states that the minimum age of employment should not be less than the age of completion of compulsory schooling and, in any case, shall not be less than 15 years.	ILO 138
Child labour	Any work by a child younger than the age(s) specified in the above definition of a child, except as provided by ILO Recommendation No. 146.	Bonsucro Production Standard v.4.2
Collective bargaining	All negotiations which take place between an employer, a group of employers or one or more employers' organisations, on the one hand, and one or more workers' organisations, on the other, for: (i) determining working conditions and terms of employment; and/or (ii) regulating relations between employers and workers; and/or (iii) regulating relations between employers or their organisations and a workers' organisation or workers' organisations.	Accountability Framework Initiative
Company	The entirety of any organisation or business entity responsible for implementing the standard.	Bonsucro Production Standard v.4.2 (adapted from SA 800)
Consensus	General agreement characterised by the absence of sustained opposition to substantial issues by any important stakeholder group. NOTE – Consensus should be the result of a process seeking to take into account the views of interested stakeholders, particularly those directly affected, and to reconcile any conflicting arguments. It need not imply unanimity.	Bonsucro guidance v.4.2 (adapted from ISO/IEC Guide 2:2004)
Consultation	Seeking views before making a decision. Consultation includes engaging health and safety committees and workers' representatives, where they exist.	SRWG

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Contracted worker/ employee	Labourers who are not considered regular employees of a business company. They may be hired on a part-time or short-term basis, usually to complete a specific task (such as constructing company property). They may not be included in the company's regular payroll and may operate very independently of the company's normal business functions.	SRWG (2019 – 2022)
Contractor	External organisation providing services to the organisation in accordance with agreed specifications, terms and conditions.	SRWG (2019 – 2022)
Degradation	Changes within a natural ecosystem that significantly and negatively affect its species composition, structure, and/or function and reduce the ecosystem's capacity to supply products, support biodiversity, and/or deliver ecosystem services.	Accountability Framework Initiative
Discrimination	<p>1. The term discrimination includes, according to (Art 1 C111) ILO Convention C111:</p> <p>(a) 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; (b) such other distinction, exclusion or preference which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation as may be determined by the Member concerned after consultation with representative employers' and workers' organisations, where such exist, and with other appropriate bodies.</p> <p>2. Any distinction, exclusion or preference in respect of a particular job based on the inherent requirements thereof shall not be deemed to be discrimination.</p> <p>For the purpose of this convention the terms employment and occupation include access to vocational training, access to employment and to particular occupations, and terms and conditions of employment.</p> <p>Discrimination can be based on race, colour, gender identity, age, language, religion, property/ wealth, nationality, ethnic/social origin, caste, disability, pregnancy, indigeneity, union affiliation, political affiliation, marital/family status, personal relationships, health status, sexual orientation or other non-valid reasons that are irrelevant to the skills, capabilities, qualities and medical fitness for the job.</p>	Bonsucro guidance v.4.2 (adapted from ILO Convention C111)

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Due diligence	A risk management process implemented by a company to identify, prevent, mitigate, and account for how it addresses environmental and social risks and impacts in its operations, supply chains and investments.	Accountability Framework Initiative
Forced labour	All work or service that is exacted from any person under the menace of any penalty and for which the said person has not offered themselves voluntarily, including all forms of debt bondage and human trafficking for the purpose of forced labour.	Accountability Framework Initiative
Free, Prior, Informed Consent (FPIC)	<p>Collective human right of Indigenous Peoples and Local Communities (IP/LC) to give or withhold their consent prior to the commencement of any activity that may affect their rights, land, resources, territories, livelihoods and food security.</p> <ul style="list-style-type: none"> • Free: Consent is given by the affected IP/LC voluntarily without coercion, duress or intimidation. • Prior: The consent is given before the specified activity is authorised or commenced. • Informed: The consent is given after the IP/LC have received the relevant, timely and culturally appropriate information necessary to make a fully informed decision. <p>Consent: The IP/LC take a collective decision to grant or withhold approval of each activity that may impact IP/LCs.</p>	Accountability Framework Initiative
Freedom of association	Explicit right for all workers to create and/or join their own organs of representation or trade unions in whatever form they decide is most effective.	Ethical trade
Grievance mechanism	Any routinised process through which grievances concerning business-related negative impacts to human rights or the environment can be raised, and remedy can be sought.	Accountability Framework Initiative
Hazard	A physical situation with a potential for human injury, damage to property, damage to the environment or some combination of these.	ILO Fundamental Principles of Occupational Health and Safety

ANNEX 1 – DEFINITIONS

Term	Definition	Source
<p>High Conservation Value</p>	<p>High Conservation Values (HCVs) are biological, ecological, social or cultural values which are considered outstandingly significant or critically important at the national, regional or global level. All natural habitats possess some inherent conservation values, including the presence of rare or endemic species, provision of ecosystem services, sacred sites or resources harvested by local residents. However, some values are more significant or critical than others, and it is the HCV approach which offers an objective way of identifying those values to be maintained or enhanced (see www.hcvnetwork.org).</p> <p>The six High Conservation Values (HCVs):</p> <p>HCV 1 Species diversity: Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels.</p> <p>HCV 2 Landscape-level ecosystems, ecosystem mosaics and IFL: Large landscape-level ecosystems, ecosystem mosaics and Intact Forest Landscapes (IFL) that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.</p> <p>HCV 3 Ecosystems and habitats: Rare, threatened, or endangered ecosystems, habitats or refugia.</p> <p>HCV 4 Ecosystem services: Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.</p> <p>HCV 5 Community needs: Sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc.), identified through engagement with these communities or indigenous peoples.</p> <p>HCV 6 Cultural values: Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.</p>	<p>HCV Common Guidance for Identification</p>

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Incident	An unsafe occurrence arising out of or in the course of work where no personal injury is caused, or where personal injury requires only first-aid treatment.	ILO Fundamental Principles of Occupational Health and Safety
Living wage	The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, health care, transportation, clothing and other essential needs including provision for unexpected events.	Global Living Wage Coalition
Lost Time Accident	An injury involving a worker which causes him/her to miss his/her next shift due to injury.	Bonsucro guidance v.4.2
Natural ecosystems	<p>An ecosystem that substantially resembles – in terms of species composition, structure and ecological function – one that is or would be found in a given area in the absence of major human impacts. This includes human-managed ecosystems where much of the natural species composition, structure and ecological function are present.</p> <p>Natural ecosystems include:</p> <ul style="list-style-type: none"> a) Largely ‘pristine’ natural ecosystems that have not been subject to major human impacts in recent history. b) Regenerated natural ecosystems that were subject to major impacts in the past (for instance by agriculture, livestock raising, tree plantations or intensive logging) but where the main causes of impact have ceased or greatly diminished and the ecosystem has attained species composition, structure and ecological function similar to prior or other contemporary natural ecosystems. c) Managed natural ecosystems (including many ecosystems that could be referred to as ‘semi-natural’) where much of the ecosystem’s composition, structure and ecological function are present. This includes managed natural forests as well as native grasslands or rangelands that are, or have historically been, grazed by livestock. d) Natural ecosystems that have been partially degraded by anthropogenic or natural causes (eg harvesting, fire, climate change, invasive species or others) but where the land has not been converted to another use and where much of the ecosystem’s composition, structure and ecological function remain present or are expected to regenerate naturally or by management for ecological restoration. 	<p>Accountability Framework Initiative</p>

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Natural forest	<p>A forest that is a natural ecosystem. Natural forests possess many or most of the characteristics of a forest native to the given site, including species composition, structure and ecological function. Natural forests include:</p> <p>a) Primary forests that have not been subject to major human impacts in recent history.</p> <p>b) Regenerated (second-growth) forests that were subject to major impacts in the past (for instance by agriculture, livestock raising, tree plantations or intensive logging) but where the main causes of impact have ceased or greatly diminished and the ecosystem has attained much of the species composition, structure, and ecological function of prior or other contemporary natural ecosystems.</p> <p>c) Forests that have been partially degraded by anthropogenic or natural causes (eg harvesting, fire, climate change, invasive species or others) but where the land has not been converted to another use and where degradation does not result in the sustained reduction of tree cover below the thresholds that define a forest or sustained loss of other main elements of ecosystem composition, structure and ecological function.</p>	
Net irrigation	It is defined as the amount of irrigation water required to be delivered at the field to meet the evapotranspiration needs of a crop as well as the other needs such as leaching, pre-planting requirement and nursery water requirement.	
Operator	Farm or mill. Entities that are responsible for the undertaking and contracting activities related to the sugarcane growing and processing, including transportation.	Bonsucro guidance v.4.2
Overtime	All hours worked in excess of the normal hours unless they are taken into account in fixing remuneration in accordance with custom.	ILO
Participation	Involvement in decision-making. Participation includes engaging health and safety committees and workers' representatives, where they exist.	SRWG
Personal Protective Equipment (PPE)	Equipment that protects the user against the risk of accidents or of adverse effects on health. It can include items such as safety helmets, gloves, eye protection, high-visibility clothing, safety footwear, safety harnesses and respiratory protective equipment (RPE).	SRWG

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Policy	Public statement by a company that specifies the actions that it intends to take or the goals, criteria or targets that it intends to meet with regards to its management of or performance on environmental, social and/or governance topics.	Accountability Framework Initiative
Risk	The likelihood of an undesired event with specified consequences occurring within a specified period or in specified circumstances. It may be expressed either as a frequency (the number of specified events in unit time) or as a probability (the probability of a specified event following a prior event), depending on the circumstances.	ILO Fundamental Principles of Occupational Health and Safety
Risk assessment	A systematic process of evaluating potential risk in a company's current or future operations, supply chains and investments.	Accountability Framework Initiative
Skilled positions	Skilled positions are those allocated to workers that are part of the human resources, who currently hold leadership/management, professional or technician/associate professional positions. Skilled labour is generally characterised by advanced education (college and higher), possession of knowledge and skills to perform complicated tasks, ability to adapt quickly to technology changes, and creative application of knowledge and skills acquired through training in their work. In essence, skilled workers are those directly and closely involved in the generation, development, spreading and application of knowledge.	International Labour Organization
Social Dialogue	<p>The different types of negotiation, consultation or simply exchange of information between, or among, representatives of governments, employers and workers, on issues of common interest relating to economic and social policy.</p> <p>Social Dialogue (SD) is also possible between employers and workers, this is called bi-partite social dialogue. This is the common form at company level. SD including government is tripartite, and this is common at regional, national (commission on minimum wage) and international level (ILO). There is also multi-stakeholder dialogue, often practised on (international) sustainability challenges in supply chains – Bonsucro is a good example of this. This difference has to be clear in order to avoid confusion about the role of government in social dialogue, for there is no role for government on the company level and in this indicator.</p>	ILO C154 and SRWG

ANNEX 1 – DEFINITIONS

Term	Definition	Source
Stakeholder	<p>An individual or group that has an interest in any decision or activity of an organisation. Stakeholders may include:</p> <ul style="list-style-type: none"> • Suppliers • Internal staff, such as employees and workers • Seasonal or migratory workers • Members • Customers, including shareholders, investors and consumers • Regulators • Local and regional communities 	ISO 26000-Guidance on social responsibility
Subcontractor/ sub-supplier	A business entity in the supply chain which, directly or indirectly, provides the suppliers with goods and/or services integral to, and utilised in/for, the production of the suppliers' and/or company's goods and/or services.	Bonsucro Production Standard v.4.2 (Adapted from SA 800)
Supplier/ contractor	A business entity which provides the company with goods and/or services integral to, and utilised in/for, the production of the company's goods and/or services.	Bonsucro Production Standard v.4.2 (Adapted from SA 800)
Top management	<p>Person or group of people who directs and controls an organisation at the highest level.</p> <p>Top management has the power to delegate authority and provide resources within the organisation.</p> <p>If the scope of the management system covers only part of an organisation, then top management refers to those who direct and control that part of the organisation.</p>	Adapted from ISO 9000:2015 Quality management systems – Fundamentals and vocabulary
Vulnerable stakeholder	Persons and any other people belonging, or perceived to belong, to groups that are in a disadvantaged position or marginalised.	Based on Accountability Framework Initiative – Vulnerable workers

ANNEX 2 - EMISSIONS FACTOR FOR GHG EMISSIONS CALCULATION

1. ENERGY DEMAND AND EMISSIONS FACTOR

The energy demand and emission factor for GHG emissions calculation presented in the table below are incorporated in the Bonsucro calculator.

Energy			
Energy demand factor for natural gas	1.12	MJ/MJ	Factor converts direct energy to primary energy - Macedo et al. (2008)
Energy demand factor for gasoline	1.14	MJ/MJ	Factor converts direct energy to primary energy - Macedo et al. (2008)
Energy demand factor for diesel	1.16	MJ/MJ fuel	Factor converts direct energy to primary energy - Macedo et al. (2008)
LHV diesel	36	MJ / L	EU RED II
LHV gasoline	32	MJ / L	EU RED II
Jet Fuel energy density	35.12	MJ / L	DEFRA 2021
Energy demand in electricity	3.6	MJ / kWh	DEFRA 2021
Primary Energy in Process water	9.41	MJ/kg	Default value of 9.41 from Pimental. See Shapouri et al. (2004)
Lime embedded energy	0.10	MJ / kg	
Caustic soda embedded energy	75	MJ / kg	Ref: Bentsen
Biocide enzymes and flocculants embedded energy	3	MJ / kg	Mortimer et al. 2004
Boiler feed water treatment chemicals embedded energy	3	MJ / kg	
Sulfur embedded energy	11	MJ / kg	Ref. Mortimer et al. (2004)
Energy content of H ₂ SO ₄	2.4	MJ / kg	
Energy content of Anti foam	11.0	MJ / kg	
Energy content of Lubricants	46.3	MJ / kg	
Energy content of Lubricants per tonne of cane	6.4	MJ/tc	Wang et al. (2008)
Energy demand of Nitrogen fertilizers production	76.13	MJ / kg	ecoinvent 3.8
Energy demand for production of other chemicals	57.88	MJ / kg	ecoinvent 3.8
Energy demand of Phosphorus fertilizers production	31.68	MJ / kg	ecoinvent 3.8

Energy demand of Potassium fertilizers production	35.59	MJ / kg	ecoinvent 3.8
Energy demand of Lime CaCO ₃ production	0.5183	MJ / kg	ecoinvent 3.8
Energy demand of Herbicide and fungicide production	130.3	MJ / kg	ecoinvent 3.8
Energy demand of Insecticide production	202.6	MJ / kg	ecoinvent 3.8
Energy content for transportation of input	0.6	MJ / kg	If value unknown use default value of 0.64 MJ/kg for fertiliser, pest, seed. Taken from T&D sheet in GREET, given as 548,159 btu/ton.
Energy involved in transporting chemicals	0.5	MJ / kg	
Reported HV of sucrose	16534	MJ / t sucrose	Bubnik et al. (1995)
Reported HV of ethanol	21.28	MJ / L EtOH	DEFRA 2021
Sulfur dioxide factors			
W _{SO₂} emitted from Sulfitation	0.011	g/Tc	Sulfitation of juice emits 0.011 g SO ₂ / tc
W _{SO₂} emitted from Bagasse burnt in boilers	0.0004	kg/kg bagasse burnt	Sulfur content of moist bagasse is 0.02 g / 100 g bagasse (CSE p 623). Therefore SO ₂ produced = 0.0004 x mass of bagasse burnt, or 0.4 g SO ₂ / kg cane.
W _{NO₂} emitted from Bagasse burnt in boilers	0.0009	kg/kg cane	NO _x content of moist bagasse is 0.04 g/100 g bagasse (CSE p 620). Therefore NO ₂ produced = 0.0009 x mass of bagasse burnt, or 0.4 g NO ₂ /kg cane.
W _{NO₂} emitted from coal	1.40	g/MJ	Emission factor of 1.4 g/MJ of coal (IPCC, 1996)
Potency factor of SO ₂ for atmospheric acidification	1.00		
Potency factor of NO ₂ for atmospheric acidification	0.70		
GHG emissions			
CH ₄ emission from biomass burning	30	g CO ₂ eq / 1000 MJ	Ref: GREET model
N ₂ O emission from biomass burning	4	g CO ₂ eq / 1000 MJ	Ref: GREET model
Biomass Transport	0.57	kg CO ₂ eq/ t biomass	ecoinvent 3.8
Vinasse Transport	0.135	kg CO ₂ eq/t.km	ecoinvent 3.8
Gasoline emissions factor	0.106	kg CO ₂ eq / MJ	ecoinvent 3.8
GHG emissions from diesel (Mill/Processing)	91.7	g CO ₂ eq / MJ	GREET Model
Diesel emissions factor (Agriculture)	0.1142	kg CO ₂ eq / MJ	WFLDB 3.5
Natural Gas emissions factor	0.057	kg CO ₂ eq / MJ	DEFRA 2021

GHG emissions from coal	88.9	g CO ₂ eq / MJ	DEFRA 2021
GHG emissions from Lubricants production	91.7	g CO ₂ eq / MJ	Assumed to be the same as for diesel
GHG emissions from Process water	65.4	g CO ₂ eq / MJ	From GREET model
GHG emissions from production of chemicals	95	g CO ₂ eq / MJ	Source: Macedo et al. (2008)
GHG emissions from inorganic Nitrogen fertilizers production	6.17	kg CO ₂ eq / kg N	ecoinvent 3.8
GHG emissions from Nitrogen fertilizers production-Organic	0.6184	kg CO ₂ eq / kg N	ecoinvent 3.8
N ₂ O emissions from N fertilizer application	4.29	kg CO ₂ eq / kg N	IPCC 2006
GHG emissions from inorganic Phosphorus fertilizers production	2.889	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Phosphorus fertilizers production-Organic	0.286	kg CO ₂ eq / kg N	ecoinvent 3.8
GHG emissions from inorganic Potassium (K ₂ O) fertilizers production	3.464	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Organic Potassium (K ₂ O) fertilizers	0.187	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Lime production and transportation	0.0425	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Lime (CaCO ₃) application	0.4437	kg CO ₂ eq / kg	Calculated from emissions factors for use of limestone or dolomite for agricultural liming from Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories
GHG emissions from Herbicide production	8.483	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Pesticide production	9.963	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Ripener (average mix for biomass)	11.52	kg CO ₂ eq / kg	ecoinvent 3.8
GHG emissions from Other crop chemicals (average mix for biomass)	20.00	kg CO ₂ eq / kg	Reference required
GHG emissions from Transport emissions per kg transported	0.05	kg CO ₂ eq / kg	Reported in GREET 1.6 as 0.04878 g CO ₂ , 0.00005 g CH ₄ and 0 g NO ₂ per g chemical transported.
Global warming potential of CH ₄	27.2		EU RED II
Global warming potential of N ₂ O	298		EU RED II
Various factors			
CH ₄ emissions from effluents expressed in BOD	0.21	kg/kg	IPCC guideline
N ₂ O released per t DM burnt	0.07	kg / t DM	IPCC emission factor for burning biomass
CH ₄ released per t DM burnt	2.7	kg / t DM	IPCC emission factor for burning biomass

N content of residue left in fields	0.5	%	Macedo et al. (2008)
N content of filter cake	1.25	%	Filter cake N content 12.5 kg/t (Macedo 2008). Assume 75 % moisture.
N content of vinasse	0.36	g/m ³	Macedo et al. (2008)
N residue converted to N ₂ O	1.225	%	Assumes 1.225 % of N in residue is converted to N in N ₂ O (Macedo 2008)
Aerial spraying emissions factor	0.035	L/ha/operation	Maraseni et al. (2011)
Fuel emissions factor	2.55	kg/L	DEFRA 2021
Default value			
GHG emission agriculture no LUC	34	kg CO ₂ eq / t cane	The average value from Bonsucro database
GHG emission agriculture with LUC	91	kg CO ₂ eq / t cane	The average value from Bonsucro database
Primary Energy Usage Agriculture	205.87	MJ / kg cane	The average value from Bonsucro database
Total atmospheric acidification burden per unit mass product agriculture	0.0195	kg / t cane	The average value from Bonsucro database

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Afghanistan	0.057
Albania	0.012
Algeria	0.119
American Samoa (U.S.)	0.151
Andorra	0.012
Angola	0.118
Anguilla (U.K.)	0.137
Antigua and Barbuda	0.146
Argentina	0.097
Armenia	0.069
Aruba	0.125
Australia	0.114
Austria	0.037
Azerbaijan	0.114
Azores (Portugal)	0.120
Bahamas	0.128
Bahrain	0.132
Bangladesh	0.139
Barbados	0.139
Belarus	0.093

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Belgium	0.046
Belize	0.084
Benin	0.173
Bermuda (U.K.)	0.104
Bhutan	0.012
Bolivia	0.114
Bosnia and Herzegovina	0.240
Botswana	0.328
Brazil	0.056
British Virgin Islands (U.K.)	0.127
Brunei	0.105
Bulgaria	0.152
Burkina Faso	0.177
Burundi	0.088
Cambodia	0.161
Cameroon	0.076
Canada	0.064
Canary Islands (Spain)	0.132
Cape Verde	0.151
Cayman Islands	0.111

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ:

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Central African Republic	0.062
Chad	0.182
Channel Islands	0.117
Chile	0.094
China (P.R. China & Hong Kong)	0.137
Colombia	0.064
Comoros	0.180
Congo, Democratic Republic of	0.012
Congo, Republic of	0.095
Cook Islands	0.091
Costa Rica	0.040
Côte d'Ivoire	0.121
Croatia	0.066
Cuba	0.166
Curaçao (Netherlands)	0.129
Cyprus	0.123
Czech Republic	0.139
Denmark	0.065
Djibouti	0.178
Dominica	0.153

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Dominican Republic	0.128
Ecuador	0.112
Egypt	0.114
El Salvador	0.096
Equatorial Guinea	0.148
Eritrea	0.205
Estonia	0.204
Eswatini	0.012
Ethiopia	0.012
Falkland Islands (U.K.)	0.111
Faroe Islands (Denmark)	0.101
Fiji	0.119
Finland	0.045
France	0.028
French Guiana	0.093
French Polynesia	0.123
Gabon	0.122
Gambia	0.179
Georgia	0.054
Germany	0.102

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ:

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Ghana	0.100
Gibraltar (U.K.)	0.111
Greece	0.125
Greenland	0.102
Grenada	0.155
Guadeloupe (France)	0.126
Guam	0.124
Guatemala	0.112
Guinea	0.134
Guinea-Bissau	0.182
Guyana	0.169
Haiti	0.195
Honduras	0.131
Hong Kong (China)	0.110
Hungary	0.069
Iceland	0.012
India	0.187
Indonesia	0.177
Iran	0.131
Iraq	0.259

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Ireland	0.063
Isle of Man	0.084
Israel	0.084
Italy	0.070
Jamaica	0.151
Japan	0.106
Jordan	0.143
Kazakhstan	0.181
Kenya	0.088
Kiribati	0.167
Korea (North), Dem. People's Rep. of	0.113
Korea (South), Republic of	0.081
Kosovo	0.231
Kuwait	0.113
Kyrgyzstan	0.043
Laos	0.102
Latvia	0.049
Lebanon	0.153
Lesotho	0.012
Liberia	0.113

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ:

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Libya	0.149
Liechtenstein	0.027
Lithuania	0.060
Luxembourg	0.053
Macao (China)	0.066
Macedonia, North	0.192
Madagascar	0.105
Madeira (Portugal)	0.132
Malawi	0.012
Malaysia	0.131
Maldives	0.154
Mali	0.153
Malta	0.127
Marshall Islands	0.169
Martinique (France)	0.130
Mauritania	0.142
Mauritius	0.153
Mayotte (France)	0.151
Mexico	0.089
Micronesia	0.169

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Moldova	0.121
Monaco	0.012
Mongolia	0.291
Montenegro	0.151
Montserrat	0.151
Morocco	0.153
Mozambique	0.036
Myanmar	0.102
Namibia	0.037
Nauru	0.158
Nepal	0.012
Netherlands	0.061
Netherlands Antilles	0.135
New Caledonia (France)	0.116
New Zealand	0.044
Nicaragua	0.119
Niger	0.208
Nigeria	0.110
Niue	0.099
Northern Mariana Islands (U.S.)	0.135

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ:

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Norway	0.017
Oman	0.106
Pakistan	0.126
Palau	0.147
Panama	0.100
Papua New Guinea	0.130
Paraguay	0.012
Peru	0.084
Philippines	0.136
Poland	0.158
Portugal	0.073
Puerto Rico (U.S.)	0.108
Qatar	0.077
Reunion (France)	0.119
Romania	0.092
Russian Federation	0.098
Rwanda	0.128
Saint Helena (U.K.)	0.086
Saint Kitts and Nevis	0.139
Saint Lucia	0.156

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Saint Martin (France)	0.135
Saint Pierre and Miquelon (France)	0.120
Saint Vincent and Grenadines	0.145
Samoa	0.128
San Marino	0.012
Sao Tomé & Príncipe	0.147
Saudi Arabia	0.132
Senegal	0.158
Serbia	0.192
Seychelles	0.143
Sierra Leone	0.126
Singapore	0.069
Sint Martin (Netherlands)	0.130
Slovak Republic	0.056
Slovenia	0.091
Solomon Islands	0.175
Somalia	0.183
South Africa	0.231
South Sudan	0.206

2. EMISSIONS FACTOR FOR ELECTRICITY, IN g CO₂/MJ:

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Spain	0.066
Sri Lanka	0.130
Sudan	0.098
Suriname	0.135
Sweden	0.018
Switzerland	0.015
Syrian Arab Republic	0.146
Taipei (Chinese)	0.101
Tajikistan	0.018
Tanzania	0.133
Thailand	0.108
Timor-Leste	0.175
Togo	0.095
Tonga	0.162
Trinidad and Tobago	0.118
Tunisia	0.112
Turkey	0.089
Turkmenistan	0.192
Turks and Caicos Islands (U.K.)	0.130
Tuvalu	0.147

Country / Territory / Island	Emission factor for electricity generation (gCO ₂ /MJ)
Uganda	0.039
Ukraine	0.146
United Arab Emirates	0.098
United Kingdom	0.070
United States	0.079
Uruguay	0.044
Uzbekistan	0.141
Vanatu	0.103
Venezuela	0.096
Vietnam	0.099
Virgin Islands (U.S.)	0.104
West Bank and Gaza	0.174
Yemen	0.177
Zambia	0.028
Zanzibar (Tanzania)	0.180
Zimbabwe	0.245

Source: European Investment Bank, 2020

ANNEX 3 - SAFE DRINKING WATER PARAMETERS - WORLD HEALTH ORGANIZATION (WHO)

Parameter	Value
Faecal coliforms	Zero
Chlorine residue or residue from other treatment disinfectants	0.2 to 0.5 mg/L
Nitrates	10 mg/L as nitrates
pH	6.5 to 8.5
Sodium	20 mg/L
Sulphates	250 mg/L
Turbidity	Less than or equal to 5 NTU (nephelometric turbidity unit)
Total Dissolved Solids (TDS)	300mg/L, unless national law sets a different legal limit

[WHO Guidelines for drinking-water quality \(fourth edition\) \(2011\)](#)

ANNEX 4 - MINIMUM ACCOMMODATION REQUIREMENTS

Accommodation to workers provided by operators or its subcontractor need to meet the following requirements according to indicator 2.3.5. This list of requirements is aligned with ILO Recommendation R115.

- Protection against rain, wind or cold weather conditions. Workers' houses, quarters and barracks should be of durable construction.
- Constant access to an adequate and convenient supply of safe drinking water.
- The supply of clean water in the workers' dwellings in such ample quantities as to provide for all personal and household uses.
- Adequate sewage and garbage disposal systems. Specific containers for rubbish collection are provided and emptied on a regular basis.
- Absence of rats, mice, insects and vermin, or conditions that favour their populations and could cause disease or carry parasites that function as vectors of diseases.
- Dry floors.
- No conditions posing imminent threat to the health or security of the occupants.
- A separate bed, or equivalent for each worker.
- Minimum space between beds, or equivalent of 1 metre.
- Double deck bunks are not advisable for fire safety and hygiene reasons, and their use is minimised. Where they are used, there must be enough clear space between the lower and upper bunk of the bed. Standards range from to 0.7 to 1.10 metres.
- Triple deck bunks are prohibited.
- Gender-separated accommodation, except in the case of first-degree family members and with the consent of the workers.
- Doors with locking mechanisms.
- Facilities for the storage of personal belongings for workers are provided.
- Toilets at 1:15 people and wash facilities for 1:6 people (1 per family), with gender-separated facilities. Natural light during the daytime and artificial light for the night time.
- Functional and effective firewood smoke evacuation or ventilation mechanisms that are well maintained.
- Non-leaking windows, doors and roofs.
- For quarters and barracks, at least one shower per 10 persons, separated by gender, and one large laundry sink for every 30 persons.
- Fire extinguishing mechanisms are installed and well maintained.
- Marked emergency exits.